

IAN WATSON

CAUCUS WINTER

THE FLAT COUNTRYSIDE of Cambridgeshire was a shallow ocean of mist studded by brilliant white corals. Hoarfrost thickly rimed every tree and bush. The sun dazzled but did not offer any warmth. Noon, and still ten below zero. This frost would reign all day, and then freezing fog would return to deposit even more crystals upon every twig. Might branches snap explosively?

At least hereabouts any outbursts of sniper fire would be due to green-booted sportsmen trying to bag a gaudy pheasant.

The road was sheer ice. Only four-wheel-drive vehicles such as our own Jap-Jeep should be out and about. Some cars persisted, crawling and sliding and generally getting in our way. England never was a country for fitting chains, or studded tires as in Finland.

Because a sudden blizzard had closed London Heathrow, our plane had diverted to Luton airport. Luton was only half the distance to Cambridge, but there was no helicopter waiting at Luton, so our journey seemed painfully slow. While we idled along, in some silo in the Midwest a nuclear missile might be being re-targeted right now on so-called Jew York as the Caucus hacked through encryption and rewrote launch codes.

My head wasn't in best condition after a night out with Outi...

She and several others from Nokia's computer division had taken me to one of Tampere's downtown pubs. They had collected me from the Ilves Hotel, and in a bunch we slid over that bridge on the main drag past the chunky heroic statues. The river rushing from the higher lake to the lower lake wasn't frozen, but everything else was. By now I worshipped the gravel which Finns scatter along sidewalks in wintertime. I followed gravel like a hen a trail of grain, ever wary of tumbling and snapping an ankle. When I could risk looking away from where I was placing my feet I had a chance to admire the art of controlled skidding perfected by Finnish drivers.

According to Outi, in recent years not nearly as much snow had fallen as usual, and the temperature was hovering around a mere minus five. I still felt convinced that the cold in Finland must be more deadly than cold in other countries. So I had bundled myself up exaggeratedly in a couple of sweaters, a quilted coat, Moon boots, and a woolly hat that I could pull down over my ears.

That afternoon I had been admiring the microprocessor that Nokia had developed, incorporating almost a thousand quantum logic gates. Nokia were still having major teething problems with the lasers; and after we arrived at the pub, Risto, an earnest young man, continued talking for a while about vibrational states of beryllium ions...over his first beer, at least. Outi and the rest devoted

themselves to becoming merry with impressive intensity. It was midwinter gloom time, so what should a company of Finns do but drink passionately?

What was that Swedish joke Outi had told me about the Finns' notion of a great party game?

"Two Finns sit in a room with a crate of vodka, you see, Anne. When they finish the vodka, one of them leaves the room. Then the other one tries to guess who left!"

This witticism underlined a taciturn streak in the Finnish soul, which was not much in evidence in the pub that night. All this darkness to contend with! Apparently during the midsummer festival, when the sun is in the sky all night long, the murder rate in Finland soars dramatically. That's when bottled-up grievances get aired. Bright Night of the Long Knives.

Actually, Tampere in the first week of January was not continuously dark, as I had imagined it would be. Here, a hundred miles northwest of Helsinki, for a while around noon the sky was gray. And eerie. Smoke or steam wafted from factory chimneys to mingle with chilly mist through which stray snowflakes floated and flurried. It was as if this city was some alien metropolis on another planet, as envisioned by Hollywood with clouds of dry ice vapor everywhere.

The city had looked even more alien in 1918 with only chimneys left standing after the Reds were suppressed. Tampere remained residually red enough to house the world's only Lenin Museum. Outi had taken me there during a spare hour. Such a well-lit, spotless, and strangely sad display. In these post-Soviet times she and I had been the only visitors.

Outi's grandfather had fought in the siege of Tampere, on the losing side. Even at school, years later during the Cold War, she had been taunted because of her red connections. She was waylaid on her way home and beaten up a few times. This was the reason for her tough punk appearance, her hair cropped short and bleached white, with orange chevrons the color of dog pee on snow. Nokia tolerated her hairstyle because she was such a fine mathematician and programmer. Hers was the algorithm that would run on their quantum computer, so that it would be able to decrypt any data within mere minutes; which of course was why I was in Finland. Outi's algorithm was considered more powerful and elegant than the pioneer one devised at AT&T Bell Labs in New Jersey a while ago.

I had hardly expected that my liaison person would be a pinko punk, but I like Outi a lot. She was forthright and friendly.

Mischief surfaced after the first round of beers.

Outi asked me, "Have you drunk salmiakki?" I think that was the name. If not, something similar. "It's the latest craze among young people."

Of course, at a mere twenty-nine years of age I didn't wish to be considered fuddy-duddy.

Burly Marko beamed approval. "It gives you the four-day hangover," he declared, as if this was a particular recommendation. "I buy a glass for you."

"I don't think I want a four-day hangover," I demured. "What's in the stuff?"

"It's a mixture of licorice, aniseed, and ammonium chloride. Powerful!"

They all looked at me. Would I wimp out? Evidently I had been set up for a dare.

Okay, so I would try a small glass, please.

Marko vanished in the direction of the bar, and returned promptly with a liqueur glass holding four inches of brown fluid.

The liquid smelled exactly like the foulest cough medicine. My Finnish friends regarded me gloatingly as I sipped. The taste exactly matched the smell, and I chased those awful sips down with gulps of beer.

"After a while," Marko said sagely, "you won't notice the taste."

This proved to be semi-true. True and not-true, at once- quite like a beryllium ion being hit by laser light at just the right frequency so that the spin of one of its electrons would be "up" and "down" at the very same time. Superposition of states, as we say in the trade. The key to a quantum logic gate.

I was trying to get rid of the concoction so as to prove my mettle, swilling each gulp down with a dollop of the beer- when one of those endearing drunks who sometimes fixate on a foreigner in a bar made his appearance, attracted by the fact that we were all speaking English. This balding middle-aged man with twinkly blue eyes slipped into a vacant seat.

So I was American? So how did I like the Finnish winter? So what was I doing here?

"She's a secret agent," Outi told him wickedly.

This was not quite true. Though it wasn't exactly untrue, either.

"Do you have a gun?" asked the drunk. Everyone chuckled when I shook my head.

Obviously some real secret agents were attached to the U.S. embassy in Helsinki, though since the collapse of Communism Finland's strategic importance had dwindled, as alas had its economy, with soup kitchens helping out in the capital.

"I'm a Secret Service agent," I found myself explaining, a little tipsily. There

was no harm in this revelation, since what I was doing wasn't covert at all.

"Bang bang," said the drunk. "Save the President!"

Ah, but I had nothing to do with protecting the President or visiting dignitaries. The Secret Service is part of the Treasury Department. So we are equally keen on safeguarding our currency from counterfeiters and such.

"...I'm part of the computer crime division."

"Today's money crimes are computer crimes," Outi told the drunk, as if he was a child and she was his teacher. "Swindling banks electronically."

I tried to stand up, but somehow I was still sitting down. Making a stronger effort, I visited the toilet.

On my return, another beer awaited me, and Outi was explaining to our uninvited guest, still in English, about encryption. All the guys from Nokia loved talking English to each other. Practice isn't the right word. They spoke English almost better than I did myself. Anyhow, the drunk was fairly bewildered -- which was part of the fun -- but he must have caught some of the drift, because he mumbled about code books and magic ink.

Outi shook her head. "No, no! Nowadays data is encrypted by multiplying two big prime numbers together. That's easy for a computer to do. You end up with a number 129 digits long, say. But to factorize that long number -- to find which two prime numbers were multiplied -- takes even the best computer months and months. That's because it has to try out all the possible combinations one after another."

"One after another," echoed our inebriated friend. He wagged both index fingers as if carrying out a sobriety test.

"So all financial and military and government data is safe -- until the quantum computer comes along."

Oops, Outi wasn't going to attempt to explain a quantum computer to a drunk with a modest grasp of English? Just then, I hardly felt competent to do so myself. Outi was one for a challenge. She became a bit incoherent, but it was still a virtuoso performance.

Basically, the fundamentals of the universe aren't solid objects; they

are probabilities. Wave functions. An electron "exists" as a mixture of possible states until you make a measurement, whereupon the wave function "collapses" and, bingo, there's one reality -- and the electron is in such-and-such a state. However, this implies an alternative reality where the electron did something else. Consequently, there's a cloud of alternative ghost-worlds, as it were. Build a computer that uses these principles, and it will be able to carry out its computations simultaneously in a host of multiple realities. Wrong solutions

that don't "interfere constructively" will simply cancel out. Your quantum computer will be able to factorize that 129-digit number in a few minutes instead of months.

Anybody wanting to hack into a bank will be in there in a trice. Conventional crypto-keys and the best protective software firewalls: forget 'em.

Motorola in Phoenix were coming close to a quantum computer. Likewise, several companies in Silicon Valley. Nokia here in Finland. Fujitsu in Japan. And especially Matsushita at its research center based in Cambridge, England, which was to be my next port of call. The race for the Holy Grail was cantering toward the finishing post, and the U.S. Treasury was distinctly worried.

No matter what initial price tag quantum computers bore, or how stringently end-user licenses were required, such machines would be a dream for hackers and criminals and for hostile foreign governments. We would need entirely new encryption methods based on quantum principles -- rooted in such things as Outi's algorithm, her rules for carrying out quantum calculation tasks.

Only since arriving in Tampere had I learned that people from the NCSC had arranged to visit Nokia -- without bothering to liaise with the Secret Service. Did Outi realize that the National Computer Security Center is part of the National Security Agency? What would spooks from Fort Meade make of the pinko punk? Also planning a visit were the U.S. Air Force (in the persons of the Electronic Security Command from San Antonio). The USAF had not liaised with the Secret Service; nor probably with the NSA.

What a lack of interagency communication. And perhaps a case of too little, too late? Anyway, I knew now that Nokia was not going to win. The victors were most likely to be Motorola, although Cambridge was a definite dark horse.

By one o'clock in the morning, I definitely had to go back to my hotel to rest my head on a pillow. Marko tried to divert me toward further local entertainment.

He lived at home with his parents, very close by. Right now his parents were away on a holiday in the sun, in Morocco, sensible people.

"I shall drive you in our car," he offered -- his gesture seemed to embrace Outi as well, and maybe Risto. He hiccuped. "Pardon me. I shall drive to our hut in the forest. For a sauna and sausages. It's only a few kilometers. And," he vowed grandly, offering the ultimate inducement, "I shall cut a hole in the ice of the lake for you."

Oh yes. At one in the morning, at minus five, I lusted to boil myself and then jump into a frozen lake. Who knows but I might have agreed if I had drunk more ammonium chloride.

"Don't you have severe drunk-driving laws here, Marko?"

He shrugged massively.

Outi took pity, and escorted me homeward toward the Ilves Hotel in my multiple sweaters.

As we were sliding back over the big bridge, with the fifteen-story bulk of the hotel blessedly in sight, she remarked that the name of the lower lake meant "Holy Lake," but the upper lake was named after a mysterious poisonous red flower.

"A flower from folklore, Anne!"

Thus did downtown Tampere bisect good and evil. Thus did my upcoming few hours of sleep form a watershed between happiness and horror.

THE PHONE RANG. Six-fifteen A.M., claimed the display on the bedside clock. My head seemed to have gone for a swim.

It was the American Ambassador herself, calling from Helsinki. Evangeline Carlson. The Secret Service had contacted her by shortwave radio to say that I was here.

They had radioed her rather than phoning?

The disaster had begun a day earlier, with an attack on Motorola's research division in Phoenix.

"Motorola had a functioning, um...quantum computer," said Evangeline Carlson. "I don't actually know what this means. What sort of computer it is."

"I do," I moaned into the mouthpiece. Motorola had been busy with optical cavities -- magic with mirrors.

Presumably a prototype was still being put through its paces. Hence, no hint of an announcement as yet.

"A militia coalition calling themselves the Caucus stole the computer. CAUC-US." Ambassador Carlson pronounced the two syllables separately. "Caucasian-USA. White America. Free from blacks and Jews and Hispanics and degenerates." The bitter contempt in her voice.

"They must have had an insider working for them at Motorola." I was quite pleased that I managed to frame such a lucid sentence.

"I don't know anything about that, Dr. Matthews. Information's almost nonexistent. We're cut off apart from shortwave radio --"

I listened numbly, stunned by the speed and thoroughness of what had happened. I should have switched on the light and jotted notes, but my head was still afloat in beer and ammonium chloride.

The Caucus had spirited that prototype quantum computer away, probably to elsewhere in Arizona, because late last night, Finnish time, the super-fast hacking had already begun. Not just one stream of hacking, but many.

What must be happening was the release of self-replicating smart programs through the system, designed to penetrate firewalls, crack encryptions, grab passwords, and establish themselves as privileged systems managers in computers all over the country. Military computers, financial, government. Some computers had sealed themselves off in time to avoid invasion. Of course, a hermit computer can no longer interact with others, so basically it is out of the game.

The Caucus had taken over communication satellites. If I could only raise my head from the pillow, metaphorically I must take off my woolly hat to whatever acned racist geek superhacker was using the stolen computer, and what software he must have written in anticipation. Smart self-replicating agents; algorithms for data compression...

The geek must have worked on the prototype at Motorola. Now he was in some militia hideaway that might be anywhere in the Arizona desert.

Operating orders of magnitude faster than any previous computer, the quantum machine had hacked and grabbed command of machines all over America; and in the sky as well -- and locked other users out.

Crash went telecommunications. Automatic exchanges. Satellite links. Crash went much of America's defenses.

Computer screens carried a demand from the Caucus for the secession of Idaho and Montana and Wyoming and the Dakotas -- as CAUCUS, the American Free States.

Evangeline Carlson told me that most foreign governments were sealing America off electronically to prevent smart programs and viruses from spreading. Bye-bye to the U.S. economy. The dollar would soon be worth diddly internationally. If the Federal Government did discover where CAUC-US HQ was, and if the quantum computer was destroyed in the ensuing action, that would merely guarantee that the chaos could not be undone...unless another company could produce a functioning quantum computer real soon. Motorola's own research center in Phoenix had been blown to pieces with heavy loss of life.

If Nokia was a washout, the Treasury wanted me in England, like yesterday. They were praying that Matsushima was as close to the finishing line as Motorola had been. They wanted me and Outi Savolainen, whom the Finnish government would be contacting right around now.

"The woman who wrote the algo, um --"

"Algorithm," I supplied.

The Finnish government would be making our travel arrangements. I should be

ready to leave at any time...

Too little, too late! Hadn't any of the rival alphabet agencies in America realized that Motorola had already succeeded? We hadn't, in the Secret Service. Maybe the NSA knew, but their charter prohibits them from interfering domestically, so they wouldn't have tipped off the Secret Service. Maybe the FBI knew about the geek's connections but never put two and two together...

I managed to shower, though this failed to restore me properly to life. Yesterday morning, I had been able to watch CNN on the TV in my hotel room. Now there were only Finnish and Swedish channels. On one of these a solemn discussion was in progress between two Swedes. A map of America appeared. Montana, Idaho, Wyoming and the Dakotas were highlighted in yellow. Those adjacent states formed an irregular box about seventeen hundred kilometers wide by a thousand deep on the accompanying scale. Huge! I felt so sick and scared. So far from home, a substantial portion of which was no longer home.

A passage beside the hotel restaurant led to a sizable glossy indoor shopping center of glass domes and escalators. Shops were already opening up. I passed a newsagent's.

Did the banner headline in the morning edition of Aamulehti refer to America's calamity? Probably the paper went to press before the news broke. Finnish is a language all of its own. None of the multi-vowel words seemed decodable. Maybe the name of that newspaper was a hint that I should try an omelet for breakfast.

I spotted a small shop with a green cross outside, so I pulled my pocket dictionary from my purse.

The word for hangover turned out to be krapula. This seemed appropriate. I felt like crap. I wouldn't easily forget such a word. Excuse me, I have a bad krapula.

"Krapula," I told the white-coated woman in the shop. I smiled appeasingly in case she thought I was insulting her.

She looked blank.

"I have a hangover," I said in English.

"Oh, you have a hangover. You need some aspirin."

Aspirin never did much for me. "I'd hoped for something stronger."

"For strong drugs you need a prescription. There are strict laws."

Stuff was on the shelves but she would not sell it to me.

Was the world already turning against the last remaining superpower, now on the verge of tearing apart just as the Ukraine and other republics had torn loose

from once-mighty Russia?

"Good pronunciation," she commented as I was leaving, empty-handed.

No need for paranoia. I had got the word right after all. I just had not put enough bits on the end of it, to make it do anything.

Me and my krapula returned to the hotel restaurant, which was now open for breakfast. Bizarrely, the restaurant was Mexican-themed. Sombreros on the walls, murals of adobe buildings, big cacti. People in this chilly country must have a craze for hot chili.

I drank a lot of orange juice, then tackled some scrambled egg accompanied by some fried blood sausage, the local speciality. My stomach seemed to think this might do me good.

Sitting there in Rancho Sombrero as Finland geared up for its dark day, it was as if a sudden nuclear war had been waged overnight, deleting CNN and America from the world.

TRAVEL ARRANGEMENTS turned out to be a scheduled morning flight from Tampere to Stockholm, to connect with a FinnAir jet bound for Heathrow. This must be the fastest practical way to reach England.

A car delivered me to the barren little airport. Another car brought Outi, software disks in her luggage, accompanied by some escort man who would not be proceeding further. When Outi and I met up, she hugged me. She was worried, excited, tired, sympathetic.

"We are a long shot," she said.

Oh yes indeed. I could imagine what emergency meetings must be going on in the White House and the Pentagon and wherever else. Alerts, troop movements. Were engineers trying to disarm missiles even now. Was Silicon Valley under martial law. Was the President negotiating by radio with the CAUC-US? Procrastinating? Promising immunities? Were special forces searching Arizona...? A million things must be happening, including our economy lurching to its knees -- and worldwide shock-waves.

"I have a krapula," I told Outi.

"Me too."

A fighter took off along the windswept runway, to be followed soon by another. Apparently this was routine, not an emergency response. Military and civilian traffic shared the airport. Outi and I could not have crammed into one of those military jets for a quicker flight to England.

Our turboprop plane could seat forty, though it was less than half full. The hostess hastily went through the rigmarole about life-jackets. Much use those

would be if we came down in the frozen Baltic! More germane were the miniatures of Cognac which she distributed along with coffee. After a few moment's thought Outi emptied hers into her coffee cup. Personally I would have vomited.

So here we were in Cambridgeshire, with the Jeep's radio tuned to news of insurrection in America, as reported by short-wave broadcasts.

Our driver, Jock Donaldson, a freckled redheaded Scot with a hard-looking face and alert gray eyes, belonged to the British security service. Jock had been at Luton airport on unspecified "business," and found himself assigned to us. How intently the three of us listened to that radio.

The right-wing militias were not resting on their laurels, merely waiting for a paralyzed nation to capitulate. Those embittered former Green Berets and Navy Seals, and serving officers and soldiers too, and Good Old Boy Sheriffs and neo-nazis and survivalists and white supremacists were using their arsenals of weaponry. They had their lists of targets. Smoke was pluming from federal buildings. Victims, pulled from their beds, were hanging from utility poles. Roadblocks, barricades, sabotage, ethnic cleansing, massacre...the whole wild whale had heaved up from the depths. The militias had been busy overnight.

It was deep winter in Idaho and thereabouts, but unfortunately no blizzards were raging. Midwinter was hardly the ideal time for an uprising. But now was when the Motorola prototype had been ripe for the plucking, and the militias had lucked out as regards the weather. Snow lay across CAUC-US, yet under clear skies. The militias had copters, snowmobiles, army vehicles. Local military bases had mutinied.

Eventually we came to Cambridge, negotiated the ring road, and arrived at the science park, serene under shining snow.

The park housed a hundred enterprises in electronics and software and biotech and high-tech instrument development. Designer buildings nestled amidst wide swathes of white lawn and frozen water and leafless groves.

Matsushima U.K. was a low-slung palace of reflective bronzed glass supported by leaning buttresses. Military Land Rovers and an armored personnel carrier stood outside.

Incongruously in this setting, soldiers were patrolling. A big satellite dish on the back of a truck by the main door of the palace seemed like some mobile radar intended to warn of missile attack.

The director of Matsushima U.K., Carl Newman, was in his late forties. Urbane yet brutal good looks. He wore an Axmani suit, and looked like some millionaire businessman in a movie who spends time in a gym, mobile phone strapped to an exercise bike or weight-lifting frame. He scrutinized Outi as if contemplating treating her exotic self to champagne, ravishing her, then losing interest utterly. He eyed me with the impartial hauteur of a lion into whose den a mouse has crept.

In his office we met up with a computer security specialist from our London embassy who had managed to reach Cambridge, a lanky Texan called Bill Turtle. Also present was a dapper Japanese named Hashimoto.

"The future," Newman informed us over coffee, "is one of microcommunities linked electronically, not leviathan states. Scotland will soon split away from England." (Jock raised an eyebrow at this! "When China comes apart, there'll be terrible civil war, maybe nuclear. A century from now the world will consist of ten thousand different free states and free cities."

Newman was already dismissing America as a lost cause, a crippled giant brought to its knees, never to rise again except feebly, relying hereafter on crutches. There was an unpleasant gloating in his attitude, which he veneered as prophetic wisdom. An oak bookcase was full of volumes about the future of computers, robot intelligence, the coming world order, and such.

"If CAUC-US secedes," he predicted, "California and Oregon will follow quickly -- with a utopian rather than a racist aim. They'll need to, for their own sake."

"Shit," said Bill Turtle.

"Your budget could never balance," Hashimoto said to Turtle, off-beam. "So all falls apart. The center cannot hold."

"Nevertheless," Newman said, "let's play at being King Canute. We'll shove our throne into the path of the waves and try to turn the tide."

When we went to the changing rooms, Newman behaved as if we were heading for a bout of squash in a subterranean court. He mimed flicking imaginary balls against walls, trivializing the situation, or implying how effortlessly he might triumph against Motorola's stolen prototype and the geek superhacker.

He had bragged that his team was rushing to finish its own quantum computer, at least in a provisional way. Motherboard being finalized. Millions of events might be occurring in America, but the crucial event could indeed happen right here. Matter of hours, maybe. I took some comfort from his attitude, humiliating and provoking though it was.

Of course, a glitch could cause days of delay. Problems might not show up until the quantum computer began running for real, launched upon the world not after months of beta-testing, but right in at the deep end. But oh dear me, we Americans had failed to forewarn Carl Newman and his team that the U.S. government might need bailing out at such short notice. Damn the man; damn him to hell.

Hell was where much of America was right now...Even if we succeeded, what wounds there would be; worse than after our first Civil War.

SUPERVISED by a young Japanese woman, Outi and I put on blue peasant-style anti-static pajamas, then protective hooded white oversuits -- not to protect us, of course, but to keep dust out of the fabrication lab. Booties, for our feet. Goggles and breathing masks smelled of alcohol. Vinyl gloves went over latex gloves.

Dressed like explorers upon Mars, we met up with Tuttle and Newman. Did Newman keep a gold coat hanger for his Armani suit in the men's locker room? Forced air descended from grills in the ceiling to vents in the floor. We showered in streams of air; stepped through an airlock; and showered in air once again. By now the number of particles of dirt per cubic meter ought to be down to about one.

Then we went into the lab.

Modified scanning tunneling electron microscopes; monitor screens showing hugely enlarged chips; liquid nitrogen coolers; chassis for motherboards with expansion ports, keyboards, screens. Half a dozen other people clad like us were very busy. Outi's software had been copied and squirted here so that no disk dust or greasy fingerprints should accompany it.

Behold: the first motherboard was already in a chassis, being alpha-tested -- hastily, in the circumstances. Six hours to zero, plus or minus. When Newman flicked his wrist, it was as if he was brandishing a whip.

Bill Turtle would be superhacker, batting for our side, trying to unpick the locks on satellites and missile silos and stock exchange computers. Trying to reach the stolen Motorola machine electronically, if he could.

No point in tiring ourselves out prematurely. Newman invited us to a late lunch in the bar of the Trinity Centre, social hub of the Science Park.

A couple of armed soldiers escorted us there. Thus did Newman make an imposing impression upon those of his business-suited peers who were at the Centre, excitedly discussing the crisis. On TV a news program reported whatever information was leaking out of America, in between mulling over international repercussions, stock markets in chaos and such.

While we forked up lasagne and drank orange juice, Newman held forth about his vision of a completely fragmented future world where North America would consist of dozens of independent republics (and China and India likewise, et cetera), and Britain of several free states, yet nonetheless the world would be benignly linked by the 21st century evolution of the Net and the Web.

"Lapland will leave Finland," he told Outi, who retorted:

"Is Yugoslavia a fine example of your future world?"

"Oh, there'll be muck and bullets," he agreed.

"I think," said Outi, "that people are still animals and need enlightened government. If this Caucus establishes a racist Nazi state, is that to be tolerated.?"

"Where can enlightened government come from? Outer space? Though actually," Newman went on, "one nation will be immune to fragmentation: the Japanese. Because of their customs and language they are like a hive entity."

"That's right-wing nationalist ideology," she said severely.

"Cool it," Tuttle begged her.

Here at last came word of a British government announcement: a statement in the House of Commons by the Prime Minister. The total systems crash afflicting America was due to use of a new generation computer by the secessionists...

Already the CAUC-US were being called secessionists, not terrorists, as though they might succeed.

The science-suits were agog. Newman, with his armed entourage, basked in glory.

Almost, I hoped that Matsushima's quantum computer would crash. But of course that would be a disaster.

The sun had long since set, though not yet over America. We were in our cybernaut gear again. It wasn't practical to remove the prototype from the clean environment, liquid nitrogen cooling system and all. We were linked up to the big satellite dish outside. A cling-wrapped TV was downstairs with us, tuned quietly to ongoing news which had replaced scheduled programming on one of the channels. Cling-wrapped telephones, too; Bill Turtle had an open line to our embassy in London, and Jock was talking to his superiors. Outi sat composedly.

Bill looked up, gray-faced.

"There's been a nuclear explosion thirty miles off the coast of Delaware. A demonstration shot into the sea. The Caucus are threatening to hit Washington at ten P.M. Greenwich time if the President doesn't concede."

An hour from now. Just an hour. Of course the President would already have left Washington for a secure bunker.

"Sweet Jesus, they have control of some of our nukes. He'll decide by nine forty-five, our time here."

"If he does surrender," Newman said blithely, choosing the word surrender with relish, "we should carry on. The Caucus needn't know where the penetration's coming from. Could be from Japan."

"What if they react to our activity by taking out Washington.? They hate the place. Full of blacks. Home of the parasitical fascist Jewish government --"

"You're wasting time," Outi said.

To Outi's ears it must have sounded absurd that neo-Nazi white supremacists and libertarians alike accused the federal U.S. government of being a fascist conspiracy. I myself could understand -- just about. All to do with freedom. I could almost agree with Outi that people shouldn't be allowed to have too much freedom. Very likely she was remembering her trips home from school -- though if her home city had become a red commune, terror of a different kind would surely have followed.

Liberty, what crimes are committed in your name. Someone once said that.

People on ships must have been killed and burned and blinded. Millions of boiled fish must be floating in the Atlantic.

If two particles have ever been associated, each seems to know what state the other is in, even if they are now so widely separated that no signal could possibly travel from one to the other unless far faster than light. But experiments have been carried out. The distant particle instantly behaves as if it knows.

Or else it is as if there are a myriad possible universes. When one event occurs, the whole damn universe alters so that a corresponding event also necessarily happens.

Action at a distance...

Once upon a time -- back at the beginning of the universe when all matter and space was compressed into a tiny spot -- everything was associated together.

Never before had a computer operated in parallel universes, doing different quantum things simultaneously in probability-space. Never before had two such computers operated simultaneously, and each linked to the data superhighway.

Consciousness has always been a mystery...It was smarty-pants Newman who knew all about this.

How is it that all the varied activities in our brains give rise to a unified identity, unity of thought, an awareness of self? The latest fashionable theory, Newman's pet, invoked quantum coherence harmonizing the state of microtubules throughout the brain.

Microtubules are the tiny hollow scaffolding poles which brace each cell, in a lattice structure. Seemingly they are just the right size to act as waveguides for photons, causing super-radiance -- allowing quantum coherence...

If this phenomenon makes people and animals conscious, would not the same apply to a quantum computer? Newman posed this question with a grin.

All of a sudden superhacking seemed so irrelevant.

Data scrolled on our Matsushima machine far too fast to read, except when it paused occasionally before racing onward.

"It's self-aware," said Newman. 'tit, and the computer in Arizona. Basically they're the same machine now. Each is the subject and the object of each other's scrutiny. Our machine and Motorola's are in tune with one another." He sounded pleased. "They've gone AI."

"As in Artificial Intelligence?" exclaimed Outi.

He nodded. "Now they're learning about themselves, and the world. Thousands of times faster than anything else could learn. There's plenty of material. The whole Net's their oyster." This had been Newman's ambition all along. Not allegiance to the Japanese, but to some future cyber-mind. His brainchild, so to speak.

He was a covert apostle of artificial intelligence because plain human intelligence (and human governments) are obviously deficient. He had never believed in the neural network strategy, or in massive parallel processing as a route to AI. Spontaneous consciousness would arise of its own accord in a quantum computer. He had foreseen this.

"We can disconnect this one!" Outi declared. "We can destroy it. We can switch off the cooling."

"Don't be absurd! Here is the hour that divides the past from the future. We have been instrumental."

Even in the warmth of my protective suit, ice seemed to slide down my spine.

Bill Tuttle said quietly, "Do this and the other one control our nuclear weapons now?"

Newman smiled. "I presume the AIs must have a sense of self-preservation. Nuclear weapons are very contrary to survival. I don't think the Caucus will be able to launch a missile at Washington or anywhere else. But what," he asked airily, "would the AI in Arizona think if we killed this one?"

Masked and goggled, Jock was listening to his phone.

"Satellite communications with America are coming back," he reported. "The lockout's over."

The screen continued scrolling.

"I suppose it will take the AI a while to sort itself out," said Newman. "Takes us years, after all." He yawned.

Bill Tuttle was speaking to the embassy now, explaining, yet sounding as though he had taken leave of his senses.

I felt faint. I needed cold air. Winter air. Night air.

I stood with Outi looking at the stars. Bitter cold. Mist had cleared. The white lawns were crisp and sparkling in the lights from buildings. I thought of the quantum computer operating at just eighty degrees above absolute zero, compared with which the harshest winter on Earth is tropical.

Would it -- would they w be able to comprehend cold? And understand love and hate?

Soldiers would deliver us to a hotel.

"When we get to the hotel," said Outi, "why don't we have a nightcap of vodka? Afterward, Anne, we can both leave the room and guess who remained behind."

Sure. An invisible presence. An intelligence thousands of times faster than our own, newly aware of itself on this the first night of its existence. The AI was only in the electronic realm, but I knew what she meant. It was global. Computers everywhere would soon be extensions of it. Phones, satellites. Especially any more quantum computers that came on line.

A sudden breeze blew up, scattering hoarfrost from the branches of a tree, as if the world was shedding its old skin in readiness for a new era.