

Gene Wars by Paul J. McAuley

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On Evan's eighth birthday, his aunt sent him the latest smash-hit biokit, *Splicing Your Own Semisentients*. The box-lid depicted an alien swamp throbbing with weird, amorphous life; a double helix spiralling out of a test-tube was embossed in one corner. Don't let your father see that, his mother said, so Evan took it out to the old barn, set up the plastic culture trays and vials of chemicals and retroviruses on a dusty workbench in the shadow of the shrouded combine.

His father found Evan there two days later. The slime mould he'd created, a million amoebae aggregated around a drop of cyclic AMP, had been transformed with a retrovirus and was budding little blue-furred blobs. Evan's father dumped culture trays and vials in the yard and made Evan pour a litre of industrial-grade bleach over them. More than fear or anger, it was the acrid stench that made Evan cry.

That summer, the leasing company foreclosed on the livestock. The rep who supervised repossession of the supercows drove off in a big car with the test-tube and double-helix logo on its gull-wing door. The next year the wheat failed, blighted by a particularly virulent rust. Evan's father couldn't afford the new resistant strain, and the farm went under.

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Evan lived with his aunt, in the capital. He was fifteen. He had a street bike, a plug-in computer, and a pet microsauro, a cat-sized tyrannosaurus in purple funfur. Buying the special porridge which was all the microsauro could eat took half of Evan's weekly allowance; that was why he let his best friend inject the pet with a bootleg virus to edit out its dietary dependence. It was only a partial success: the triceratops no longer needed its porridge, but it developed epilepsy triggered by sunlight. Evan had to keep it in his wardrobe. When it started shedding fur in great swatches, he abandoned it in a nearby park. Microsauros were out of fashion, anyway. Dozens could be found wandering the park, nibbling at leaves, grass, discarded scraps of fastfood. Quite soon they disappeared, starved to extinction.

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The day before Evan graduated, his sponsor firm called to tell him that he wouldn't be doing research after all. There had been a change of policy: the covert gene wars were going public. When Evan started to protest, the woman said sharply, "You're better off than many long-term employees. With a degree in molecular genetics you'll make sergeant at least."

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The jungle was a vivid green blanket in which rivers made silvery forked lightnings. Warm wind rushed around Evan as he leaned out the helicopter's hatch; harness dug into his shoulders. He was twenty-three, a tech sergeant. It was his second tour of duty.

His goggles flashed icons over the view, tracking the target. Two villages a click apart, linked by a red dirt road narrow as a capillary that suddenly widened to an artery as the helicopter dove.

Flashes on the ground: Evan hoped the peasants only had Kalashnikovs: last week some gook had

downed a copter with an antiquated SAM. Then he was too busy laying the pattern, virus-suspension in a sticky spray that fogged the maize fields.

Afterwards, the pilot, an old-timer, said over the intercom, “Things get tougher every day. We used just to take a leaf, cloning did the rest. You couldn't even call it theft. And this stuff ... I always thought war was bad for business.”

Evan said, “The company owns copyright to the maize genome. Those peasants aren't licensed to grow it.”

The pilot said admiringly, “Man, you're a real company guy. I bet you don't even know what country this is.”

Evan thought about that. He said, “Since when were countries important?”

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Rice fields spread across the floodplain, dense as a handstitched quilt. In every paddy, peasants bent over their own reflections, planting seedlings for the winter crop.

In the centre of the UNESCO delegation, the Minister for Agriculture stood under a black umbrella held by an aide. He was explaining that his country was starving to death after a record rice crop.

Evan was at the back of the little crowd, bareheaded in warm drizzle. He wore a smart onepiece suit, yellow overshoes. He was twenty-eight, had spent two years infiltrating UNESCO for his company.

The minister was saying, “We have to buy seed genespliced for pesticide resistance to compete with our neighbours, but my people can't afford to buy the rice they grow. It must all be exported to service our debt. Our children are starving in the midst of plenty.”

Evan stifled a yawn. Later, at a reception in some crumbling embassy, he managed to get the minister on his own. The man was drunk, unaccustomed to hard liquor. Evan told him he was very moved by what he had seen.

“Look in our cities,” the minister said, slurring his words. “Every day a thousand more refugees pour in from the countryside. There is kwashiorkor, beri-beri.”

Evan popped a canape into his mouth. One of his company's new lines, it squirmed with delicious lasciviousness before he swallowed it. “I may be able to help you,” he said. “The people I represent have a new yeast that completely fulfills dietary requirements and will grow on a simple medium.”

“How simple?” As Evan explained, the minister, no longer as drunk as he had seemed, steered him onto the terrace. The minister said, “You understand this must be confidential. Under UNESCO rules...”

“There are ways around that. We have lease arrangements with five countries that have ... trade imbalances similar to your own. We lease the genome as a loss-leader, to support governments who look favourably on our other products...”

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The gene pirate was showing Evan his editing facility when the slow poison finally hit him. They were

aboard an ancient ICBM submarine grounded somewhere off the Philippines. Missile tubes had been converted into fermenters. The bridge was crammed with the latest manipulation technology, virtual reality gear which let the wearer directly control molecule-sized cutting robots as they travelled along DNA helices. "It's not facilities I need," the pirate told Evan, "it's distribution."

"No problem," Evan said. The pirate's security had been pathetically easy to penetrate. He'd tried to infect Evan with a zombie virus, but Evan's gene-spliced designer immune system had easily dealt with it. Slow poison was so much more subtle: by the time it could be detected it was too late. Evan was thirty-two. He was posing as a Swiss grey-market broker.

"This is where I keep my old stuff," the pirate said, rapping a stainless-steel cryogenic vat. "Stuff from before I went big time. A free luciferase gene complex, for instance. Remember when the Brazilian rainforest started to glow? That was me." He dashed sweat from his forehead, frowned at the room's complicated thermostat. Grossly fat and completely hairless, he wore nothing but Bermuda shorts and shower sandals. He'd been targeted because he was about to break the big time with a novel HIV cure. The company was still making a lot of money from its own cure: they made sure AIDS had never been completely eradicated in third-world countries.

Evan said, "I remember the Brazilian government was overthrown-the population took it as a bad omen."

"Hey, what can I say? I was only a kid. Transforming the gene was easy, only difficulty was finding a vector. Old stuff. Somatic mutation really is going to be the next big thing, believe me. Why breed new strains when you can rework a genome cell by cell?" He rapped the thermostat. His hands were shaking. "Hey, is it hot in here, or what?"

"That's the first symptom," Evan said. He stepped out of the way as the gene pirate crashed to the decking. "And that's the second."

The company had taken the precaution of buying the pirate's security chief: Evan had plenty of time to fix the fermenters. By the time he was ashore, they would have boiled dry. On impulse, against orders, he took a microgram sample of the HIV cure with him.

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"The territory between piracy and legitimacy is a minefield," the assassin told Evan. "It's also where paradigm shifts are most likely to occur, and that's where I come in. My company likes stability. Another year and you'd have gone public, and most likely the share issue would have made you a billionaire-a minor player, but still a player. Those cats, no one else has them. The genome was supposed to have been wiped out back in the twenties. Very astute, quitting the grey medical market and going for luxury goods." She frowned. "Why am I talking so much?"

"For the same reason you're not going to kill me," Evan said.

"It seems such a silly thing to want to do," the assassin admitted.

Evan smiled. He'd long ago decoded the two-stage virus the gene-pirate had used on him: one a Trojan horse which kept his T lymphocytes busy while the other rewrote loyalty genes companies implanted in their employees. Once again it had proven its worth. He said, "I need someone like you in my organization. And since you spent so long getting close enough to seduce me, perhaps you'd do me the honour of becoming my wife. I'll need one."

“You don't mind being married to a killer?”

“Oh, that. I used to be one myself.”

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Evan saw the market crash coming. Gene wars had winnowed basic foodcrops to soybeans, rice, and dole yeast: tailored ever-mutating diseases had reduced cereals and many other cash crops to nucleotide sequences stored in computer vaults. Three global biotechnology companies held patents on the calorific input of ninety-eight percent of humanity, but they had lost control of the technology. Pressures of the war economy had simplified it to the point where anyone could directly manipulate her own genome, and hence her own body form.

Evan had made a fortune in the fashion industry, selling templates and microscopic self-replicating robots which edited DNA. But he guessed that sooner or later someone would come up with a direct-photosynthesis system, and his stock-market expert systems were programmed to correlate research in the field. He and his wife sold controlling interest in their company three months before the first green people appeared.

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“I remember when you knew what a human being was,” Evan said sadly. “I suppose I'm old-fashioned, but there it is.”

From her cradle, inside a mist of spray, his wife said, “Is that why you never went green? I always thought it was a fashion statement.”

“Old habits die hard.” The truth was, he liked his body the way it was. These days, going green involved somatic mutation which grew a metre-high black cowl to absorb sufficient light energy. Most people lived in the tropics, swarms of black-caped anarchists. Work was no longer a necessity, but an indulgence. Evan added, “I'm going to miss you.”

“Let's face it,” his wife said, “we never were in love. But I'll miss you too.” With a flick of her powerful tail she launched her streamlined body into the sea.

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Black-cowled post-humans, gliding slowly in the sun, aggregating and reagggregating like amoebae. Dolphinoids, tentacles sheathed under fins, rocking in tanks of cloudy water. Ambulatory starfish; tumbling bushes of spikes; snakes with a single arm, a single leg; flocks of tiny birds, brilliant as emeralds, each flock a single entity.

People, grown strange, infected with myriads of microscopic machines which re-engraved their body form at will.

Evan lived in a secluded estate. He was revered as a founding father of the posthuman revolution. A purple funfur microsaur followed him everywhere. It was recording him because he had elected to die.

“I don't regret anything,” Evan said, “except perhaps not following my wife when she changed. I saw it coming, you know. All this. Once the technology became simple enough, cheap enough, the companies lost control. Like television or computers, but I suppose you don't remember those.” He sighed. He had the vague feeling he'd said all this before. He'd had no new thoughts for a century, except the desire to put an end to thought.

The microsauro said, “In a way, I suppose I am a computer. Will you see the colonial delegation now?”

“Later.” Evan hobbled to a bench and slowly sat down. In the last couple of months he had developed mild arthritis, liver spots on the backs of his hands: death finally expressing parts of his genome that had been suppressed for so long. Hot sunlight fell through the velvet streamers of the tree things; Evan dozed, woke to find a group of starfish watching him. They had blue, human eyes, one at the tip of each muscular arm.

“They wish to honour you by taking your genome to Mars,” the little purple triceratops said.

Evan sighed. “I just want peace. To rest. To die.”

“Oh, Evan,” the little triceratops said patiently, “surely even you know that nothing really dies any more.”

About the Author

Paul J. McAuley (1955-) is a British biologist who has written a number of adventurous, far-future science fiction novels; his first, *Four Hundred Billion Stars* (1988) won the Philip K. Dick award. His attention is often on genetic engineering and cosmology, and he is notable for the sweeping scope of his dreams. He lives in Fife, Scotland