# PINK NOISE

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A POSTHUMAN TALE Leonid Korogodski illustrated by Guddah



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### To Dima Fridman, in memoriam



THE CRYPTIC REGION, DARK AGAINST THE SOUTH POLAR ICE CAP, MARS

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# PINK NOISE

ஐயுணா்வு எய்தியக கண்ணும் பயமின்றே மெய்யுணா்வு இல்லா தவா்க்கு – திருக்குறள் 354 Five senses gained– what benefits accrue to them whose spirits lack perception of the true? –TIRUKKURAL, Verse 354

HE GIRL WAS IN A COMA SO SEVERE THAT IT PREVENTED digital upload of her mind. This rescue mission called not for a doctor but an artist. Nathi was one, the best master of brain debugging in his order.

It helped that he had no brain himself.

Almost six centuries ago, the first human mind had been successfully transferred into a digital format, becoming the world's first official posthuman. No body to age, digital backups—all this translated into a potential immortality. Some of the human race had followed suit. Their cyberspace reality, e-World, had grown in size, with hardware spread out all across the colonized part of the solar system.

But for all of that, every new transfer of a human mind was like an artist copying a masterpiece—*by hand and brush.* Despite all technological advances, analog debugging of a brain remained an art. One couldn't simply trap a thread and start examining the stack. What passed for analog threads leaked into each other, slippery, uncertain to pin down, like quantum particles in many places at the same time. Transfer from the analog into the digital, discretization of continuum, implied a loss. But Nathi didn't feel regret. His own mind had been transferred at more than 99% five centuries ago. He did not believe that the remaining less than one percent may have contained something important.

No, he must have simply lost some noise.

The girl could certainly use losing some of hers. No doctor had been able to unravel the jumbled mess the girl's mind had become. Three years ago, when the girl was ten, something had happened to the so-called *non-specific* part of the girl's thalamus—a football-shaped thing at the base of both hemispheres—causing a mass suicide of neurons. With a good-sized hole at the hub of consciousness..., well, self-awareness was out of the question.

What was he to do?

He moved inside.

Nathi sent billions of nanobots into her brain to form a local network, an extension of e-World, a temporary housing for Nathi's electronic mind. From his abode in her thalamus, he listened to the girl's brainwaves. Every specific part of thalamus was talking to the corresponding part of neocortex—visual to visual, auditory to auditory, motor ones to their counterparts for every muscle group. The dialogue between the neocortex and the thalamus continued, their neuronal ensembles oscillating in the network patterns that evolved in both space and time.

But something had to synchronize the oscillating circuits. Something had to bind the separate perceptions into a cohesive whole to create a *self* existing in a *now*—just as if one saw, heard, smelled, experienced the world in real time, even if the signals all arrived at different times into different locations in the brain, where they were processed differently and at different speeds.

That was the job of the destroyed part of her thalamus.

Without anything to synchronize the oscillations, there could be no *self*—as if she were a group of people, one of whom could only see, another one could only hear, yet another one could only move this finger or that toe, none of them communicating with the others. Without sensory feedback from action—*any* action, even a slight shifting of eyeballs—the brain could not make sense of its environment. Even an intact brain can't perceive a true reality, always simplifying its sensory input to be able to process it within reasonable time. For this girl, the outside world simply disappeared, contracted into zero dimensions. No need for self-awareness nor consciousness, so they shut down. No movement either, other than the vegetative rote—breathe, pump blood, move bowels. Just as a fetus in a womb begins developing a three-dimensional and temporal perception by her kicks and jerks and twitches, so a completely isolated brain begins to lose, forget that same sense of a three-dimensional space and a linear time.

So Nathi did the only thing that he could think of, wiring his own electronic mind into the girl's brain to replace her destroyed *self* and to rebuild the missing integration circuit—the one ring to bind all others.

It had taken months to make it work. But finally he made her dream.

HE DARKNESS OF THE MARTIAN POLAR NIGHT IS CUT BY plumes of glow reaching for the sky. This is a distant view of the Pincushion, an array of "solar windmills" in the southern magnetic field anomaly.

Sky-tall, the power needles pierce through the Martian ionosphere, catching streamers of a violet aurora—bare glimpses in the dark, and no one to see them but this little girl, alone in an observation bubble nestled in the curve of a castle wall. But she is not afraid. She knows there is a whole world behind the seeming emptiness and silence, shimmering with invisible curtains, "too violet" for her to see. The girl imagines—prayer flags upon the lines that stretch across a floating forest; tall, thin trunks are draped with gauze of dust—the swirling skirts of dancers that will never stop.

"Prayer wheels turn round and round, make the little devils dance." From all around, slender columns of electrified dust, taller than Olympus Mons, are drawn toward the even taller needles—baby dust devils, only beginning to form. They circle around the needles, spinning, like dancing partners straining for a kiss, like moths that opted for the longest path to flame. But they keep coming, one after another, to turn the flywheels stacked along the axis of the needle like toy rings around a pole. Round and round the wheels go, hovering above each other, resting on their magnetic pillows.

If only she could reach and touch them, turn the prayer wheels, maybe the Needle Fairy would grant her wish. But she is just a little girl; and outside, the world is so cold the air itself has turned to ice. Nanny is strong, and fast, in that special battle-dress of hers, and she can shoot invisible sharp fire from her fingers—so sharp it cuts through shining armor—the girl saw that, yes she did!

But Nanny flew toward the needle long ago. And she has not come back.

The girl has lost all track of time, forgot her own name. But she remembers...

...blueberries. The Martian kind, the blue-gray spherules that had always fit into her palm. The special kind, with tiny fragile stems—the hardened souls of unborn dust devils. They can sometimes be found by the base of power needles, and they carry luck—that's why all princesses in Martian fairy tales are always given some enchanted blueberries, or else the tales would not end well.

She used to have them, but she'd broken the stems.

Nanny had promised to bring her some. What if she's looking for them still?

An image flashes by—a piece of broken memory? A blueberry-rock garden, serene beneath a softly glowing sky—the setting sun is lingering upon the blanket of suspended dust. The larger boulders, each taller than herself, set up a game of shifting, diffuse shadows.

Could it be she had just such a garden back at home?



Silence. Only baby devils leaving their tracks across a layered terrain.

Wrists—writhing slowly, contorting through unknown mudras. Quick, jerky thrashing of her feet—steps of a dance that never ends, a dance that she does not control. Some strange, inhuman force invades her limbs. She always liked to dance—but not to this un-rhythm, and not to this un-music. When did this painful dance begin?

"Prayer wheels turn round and round, make the little devils stop."

No such luck. The Fairy keeps calling. It's now her turn to go to the needle, spin the wheels. What if her Nanny needs her help? Imagine this—her strong, fast Nanny rescued by a little girl!

A rare, nearly forgotten urge begins to build across her face, a tension pulling on her lips. She doesn't try suppressing it; she knows trying always makes things worse. She puts it out of her mind—or tries to, but she is afraid.

She *would* have laughed, but for the fear she would never stop.

#### OT IF I CAN HELP IT.

Nathi spread himself across the myriads of nanotoridriven modulators strategically placed inside his patient's brain. If those calcium spikes got out of hand, he could selectively gate ion channels open or closed in microseconds by direct electromagnetic action—faster than by slow chemical neurotransmitters. Ion channels were the porous proteins embedded in a cell's membrane that only let the ions of particular types through, depending on the channel. If the brain were like an orchestra, then such dynamic change of the electric properties of neurons would have been like switching instruments in the musicians' hands right in the middle of a performance.

Nathi's metaphoric fingers rested on the keys of the potassium ion channels. Their activation at a few selected places in the neocortex would silence the neurons, putting them into the "down" state and the entire brain to sleep in waves spreading in circles at several millimeters a millisecond—the next closest thing to a break inside a digital debugger, for a brain would never stop. But that would end this dream session—only the third one in three months.

This session was especially successful. So far, she only showed some mild choreoathetosis, a syndrome of involuntary writhing, jerky movements. That may have indicated damage to her basal ganglia, an organ at the very center of her brain—the repository of her faps, fixed action patterns. Walking, running, breaking a fall or pulling a hand away from fire, driving, making love or making music—things that we can do or learn to do without getting consciousness involved. Now some echoes of her motor faps were leaking through without being called for, like fragments of a song circling unbidden in one's mind. No matter. He would fix that later. First, he had to stabilize her consciousness, recover memories....

He was at home in a human brain—this small, enclosed world of living, fragile circuits. Nathi's electronic mind washed over it like a cleansing fluid, slipped through synapses on the magnetic wings of nanobots, the microscopic nodes of his private network. With his nanotori, he could switch the brain's internal circuitry at will—but carefully, with the lightest touch, and always following the music.

Some described it as a symphony. But Nathi heard in it *ingoma ebusuku,* "song of the night," the old tiptoe music of his Zulu ancestors—perhaps because it called for no instruments, just voice. He was tiptoeing across the brain, leading a procession up and down an undulating path, out of the land of sorrows. Switch. He is with an *isicathamiya* band, singing on stage in an all-night musical contest: *Sigadla ngengoma!—We are attacking with song.* Switch. Now a *kwaito* singer of the post-apartheid era, dancing to a soul-catching electronic beat. And, hundreds of years later, in a transport spaceship, waiting with the Zulu Zionist white-robes for their historic

touchdown in the Hellas basin. Swaying bodies, pointing arms. Deep voices, resonant. Polyphony developing like the converging horns of buffalo.

The drums and handclaps of a *qhuqhumbela*.

Something has changed.

A coherent wave in the theta range has snuck into the texture of the melody to couple with the faster gamma oscillations. Calcium spikes that have been threatening to overwhelm the girl's unsteady motor system have organized themselves into a pattern, binding the girl's senses to its will. The dysrhythmia's "edge effect?" But it could also be a long-term memory from the hippocampus entering the dream. So Nathi doesn't stop it. Staying in the dream the girl does not control, he watches with her eyes, and listens with her ears, smells it, feels it with her skin.

SUDDEN FLASH OF LIGHT AROUND HER OBSERVATION bubble—a signal washing past, within the castle walls, in nanoseconds activating the alarms. They're under attack. The enemy has broken into the castle or has been secretly let in.

And suddenly, her Nanny is behind her. And suddenly, she's lifted in her arms. A second-long, eternity-worth hug—and she is passed along, into a soldier's arms. They plunge into the transport tubes—a snake of ferrofluid armor, flying at a breakneck speed, turning at the junctures, hugging the tight curves. And she is passed from arms to arms inside the flying column, surfing forward—faster, faster!

She has forgotten how to breathe. She doesn't need to yet. Between two breaths, she's coming out at the other end into a spaceport vault, and—

Flash!

Their escape shuttle explodes in its docking sheath. A gust of air, pulling—but the breach seals shut. Magnetorheological material streams out, freezing solid in the castle's emergency magnetic field. A breath of air brings a sweetish taste into her



mouth. A voice inside her head: *You're underwater!* An osmosis mask forms out of her collar, covering her face. She didn't know she was capable of that. Wow, just imagine, and....

She doesn't know yet that tiny nanobots are busy cleansing blood of paralytic gas.

Too late. Above them, knights in shining armor are already flying out of the upper passages, in an attack formation—like a cobra poised with hood spread out. It strikes. Defenders rise to meet them in the air, the ferrofluid dark against the multispeckled shine of diamond nanorods—their flexible emergency protection suits matched up against full battle armor.

Plasma jets crisscross the vault—the enemies have brought some heavy plasma guns, yet the defensive weaponry in the walls is conspicuously silent. One man in dark explodes in a fireball. The shock wave slams the girl against a wall. She hunkers down, sucking on her broken tooth.

A flock of crows in a thunderstorm above her head-dark crows armed with Dragonclaws. Her Nanny in the air, every finger wearing a waveguide tube of weapon-grade laser-a deadly harness over each hand. She dances in her flight with all her body, with her hands, her mudras drawing curtains of invisible sharp light. The girl can't see them, but she knows they are there-oh how do they cut through shining armor! Oh how flexible her Nanny's fingers are! She's not afraid to turn them on herself in her complex maneuvers, adjusting their power gain in milliseconds.

She is good. No one can match her, either side. She cuts the space around her in intersecting foliations, anticipating the reflection angles off the nanodiamond armor—a dance in three dimensions on magnetic wings. She flips and rolls in complicated curves—topologist of death, computing Hamiltonian potentials of evasion. She is good.

Not good enough.

A stream of plasma gushes out of the transport tube they came through, spewing bodies out—their rearguard, still flying through the tube. More enemies come out after them, overwhelming the girl's bodyguards with high precision fire—before the plasma trail they're flying through has even had a chance to cool. The warrior elite, they're almost a match for Nanny. Not a single hair has been singed on the girl's head.

A bubble of life surrounds her, invisible, where neither friend nor foe dares aim a weapon. The enemy is closing, unstoppable. It's obvious they want the girl alive.

And now, she is really afraid.

It is the other side of fairy tales—the horror stories of what evil wizards do to their captives, the experiments performed on their minds. She'd be a feeling, suffering "undead," her mind in pieces, literally—if she was lucky.

*If* she had her blueberries.

With a terrifying elegance, her mental link is snapped; she hears other voices in her head—brain hackers. She is totally cut off. The color black is leaching from the air, precipitating on the floor—in broken, mangled bodies, each covered with diamond dust.

It's so hard to reach for someone in this whirlwind.

Nanny turns. Their eyes meet in a stroboscopic contact. A moment's hesitation. Then, one killer glove moves gently, like to brush her hair.

HE GIRL'S CONSCIOUSNESS COLLAPSED JUST LIKE A HOUSE of cards, the shared tune breaking into chaos. Nathi felt the rupture like a spear stabbing in the gut, opening the body wide to let the ghost out—him. He was that ghost, for one hundred seconds of a conscious life.

He left the girl's brain, streamed back to the safety of medical peripherals, and watched through monitors, for several minutes, the girl's face. Serene, unmoved. The dead ain't easily impressed. Except, she wasn't dead.

Arms folded over her chest, her hands clenched into fists and pressed together. Legs extended and turned inward. Classical decorticate rigidity—a "mummy baby." Silent baby. The girl's eyelids didn't so much as twitch. Deep coma state, the Glasgow Scale of 5. Even her reflexes were depressed. It was as if her central nervous system had refused to heed the outside world, trying to construct some other inner space, perhaps not even three-dimensional.

Just now, Nathi noticed that someone must have made her hair into curls—not long, not short, but just the right length to lie neatly by her shoulders. The burning red contrasted sharply with the clinical white of the sheets—a captured, still flame pinned down by the watchful eyes of medical equipment turning around her bed in a cylinder of vigilance.

"At least she feels no pain," her previous doctor had told Nathi months ago. "There is no 'she' to speak of. Nobody's home."

Yet. That doctor hadn't plugged *himself* into her thalamus, to fill the missing spot. Nathi knew better.

Even in a sensory deprivation tank, the brain kept generating sensory and motor context of its own-dreaming awake. The brain was like a virtual reality machine, a generator of possible worlds. Having evolved as a prediction engine, the brain churned them nonstop-in dreams or daydreams, in hallucinations or when planning for the future. Worlds of possibility.

The girl still had brainwave activity within the gamma range. Inside her brain, behind those unmoving eyelids, self-generated input for the senses—fragments of memories, sparks of emotions, failing attempts at new worldbuilding—percolated still, with nothing to connect the dots. What worlds of possibility still echoed across her mind? All Nathi did was weave the patterns once again into a single tapestry, returning her into the world she still remembered. Her eyeballs moved and eyelids fluttered—for just one hundred seconds.

Could it be that some part of the girl's "self" had survived within her digital layer? Nathi's nanobots were not alone in her brain. The girl was *parahuman*, a half-analog half-digital being that simultaneously existed in both worlds, the physical one and the cyberspace. Linked directly, parahumans interfaced with e-World at the subconscious level, just like posthumans did. But, just like humans, they had bodies. They were mortal. Nathi was a fairly good hacker. But he'd failed to even talk to the girl's digital half, never mind breaking in. He'd never heard of a parahuman *self* surviving only in the digital layer, but he knew that something had been going on there. *Something* that had generated the background for that dream.

That something must be running even now.

What was that? A sharp splash of activity in her anterior cingulate cortex, the seat of pain. If Nathi had a body still, he would have shuddered. The human doctor had been wrong. She *could* feel pain—if something brought all pieces of her consciousness together. What nightmares ran through the girl's comatose mind? By linking in, he'd only given them an outlet to recombine, the deaf at last finding the blind.

All of a sudden, it became too difficult to watch that serene face. Could that last dream be a real memory? How could it if the girl still lived? He knew what Dragonclaws in expert hands could do to nanodiamond armor, never mind to unprotected flesh. But dreams did not appear out of nowhere. REM sleep wasn't that different from waking state, except that input for a dream was redirected, the external stimuli replaced by an internal source.

He had himself fed the initial input. He'd lucked out when the girl recalled the blueberries. For someone with her level of amnesia, recalling them in fine detail meant that they must have been important. Yes, it was his touch—a subtle, subliminal suggestion—that had linked the blueberry-rock garden to her home in the girl's mind, but....

Where did her *Nanny* come from? No trace of her was present in the earlier, much less coherent dreams. Nathi ran again through the background data. Nothing to explain a Captain of the Dragon Guard as the girl's personal attendant.

The Dragon Guard? *Wait.* Nathi linked into his order's library. *Of course.* The Dragon Guard, the Order of Flamethrowers' famed warrior elite. Parahuman. Trained in their so-called "families" from early childhood. Their High Captain led a special, secretive commando force in the Wyrm Fleet. That was some food for thought. A damn big heapful.

Following the Singularity, the old-style polities like monarchy, democracy, plutocracy—the rule of kings, of people, of the rich—had given way to caste technocracy. With one's immortality increasingly depending on technology and scientific knowledge, it came as no surprise. A parahuman's caste determined the nature of one's mind enhancements—wizards, warriors, and workers of all kinds, with normal humans bringing up the rear.

In the previous two Wizard Wars, as in the current one, the Order of Flamethrowers had always been the enemy of Nathi's order. Where could the girl have seen a Dragon Captain in such astonishingly true detail?

It was only when he started digging into data on the Dragon Guard that he discovered a curious coincidence. The girl was now being treated in the Crown of the South, a strategically important castle in the south polar region. For a long time, it belonged to the Flamethrowers—until three years ago, when they had been driven off from Mars.

Three years ago—when the girl had suffered brain damage. But the castle had another name back then.

The Dragon Nest.