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## Cave of Machines

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## CAVE OF MACHINES

*by Will Ingensteds*

*“I’m inclined to think we are all ghosts — every one of us.”*

*Henrik Ibsen*

Faint scratching sounds awaken Lucas. From childhood, the work of mice behind plaster walls enters his mind. Then Lucas locates the noises. They come from his sleeping wife. He discovers that Sandy’s petite fingers are jerking in contractions, then tapping. Her fingernails, like moonlit shells, scratch persistently at the cotton sheets. Perplexed, Lucas watches for a long moment, then flips to his side, seeking a last hour of sleep.

The next night, again just before dawn, the same thing happens. Lucas watches. One of Sandy’s hands protects her chest while the other touches his pillowcase. Her fingers curve like a fledgling’s wing. Again she taps for several minutes. Her movement lacks the energy of real scratching, but there is a determination to it, Lucas thinks. From a deep well the fingertapping spills across their night covers. Lucas studies Sandy’s eyes as she breathes. Then, feeling a twinge of embarrassment for staring at what seems like private behavior, he turns back to his pillow and listens.

At breakfast Lucas asks Sandy whether she can remember any dreams. She gives him her puzzled frown, then signs to him, Why?

“You were signing in your sleep,” he answers, pointing to her fingers. “I’ve never seen you do that before.”

“I don’t sign in my sleep,” she tells him in the oddly monotone voice that, despite his love for her and perhaps because of it, always sets off a minor wave of regret. She adjusts her wire-rim glasses. Again, her puzzled frown.

Lucas decides to drop it. He gazes out the patio door toward reeds and water. He names the three years they’ve rented this townhouse, checking his memory. At Sandy’s insistence they’ve remained

near the bay, with its cadence of tidewater and kinetic orchestra of terns, cormorants, and pintails. Lucas wonders whether birds dream. He pictures Sandy preaching to her seventh grade mathematicians, two fingers tapping at a blazer button.

“Well, I think you might have been,” he says with a teasing smile when she rises. Then he signs, Last night.

On the third night Lucas resolves to discover the meaning of Sandy’s finger movements. After they’ve kissed good night, he pretends to fall asleep. When Sandy’s breathing has become deep and regular, he opens his eyes and strains to see. The room’s dark fog thwarts him. He hears no scratching against the sheets. Soon Lucas falls off to sleep.

Like the touch of a spell, her fingertapping awakens him. Lucas wills his eyes to interpret the red glow of their digital clock, which blinks “5:21” impassively. He watches Sandy’s fingers stretch forward and retreat in jumpy animation. Impulsively, Lucas presses his fingertips against Sandy’s shoulder twice and whispers her name urgently.

Sandy jerks her head of long ginger hair and groans in mild annoyance. Keeping her eyes closed, she rolls away, issuing another discordant groan. Seeing that he has disrupted the mystery, Lucas lies awake with echoes of sound and movement.



The sole professor that Lucas knew well tended to keep late afternoon hours. Lucas decides to stop by campus after three, when his shift at Best Buy ends. He feels some anxiety, as he has not followed through on the professor’s encouragement that he apply to graduate school. Computers, video digitizers, keyboards and other digital electronic gadgetry have sidetracked his interest in psychology. Sandy calls them illusion machines in minor bewilderment. For the time being, access to the latest high-tech devices and employee discounts keep him satisfied. Today curiosity drives Lucas back to his former mentor.

Lucas watches the animated, disheveled man for telltale reactions. The professor keeps saying, “Yes, yes,” as Lucas describes his observations of Sandy’s fingers.

“You always were a damn scientist,” he chuckles when Lucas finishes. “Listen, from one married man to another. Don’t ask too many questions. It could be an orgasm. And I don’t mean with you, either.”

Lucas laughs obligingly. He thinks he can smell stale pizza in the office.

Without offering any interpretations, the professor stands and directs Lucas toward the basement lab where physiological monitoring equipment is kept.

When they arrive the professor says to Lucas, as if they are right back in class, “Hypnopompic sleep, yes?” He talks on, now vaguely detached from Lucas. “Shouldn’t be twitching then. Hallucinations, maybe. But twitches?”

He rustles through a box of equipment, pulling at a Frankensteinian nest of wires.

Lucas wonders aloud whether the fingertapping could have a detectable pattern, some meaning or relationship to dreaming. He is sure that the finger movements are distinctly different from Sandy's signing.

"She hasn't had any head trauma, has she?" the professor asks, still searching through the wires.

Lucas feels his face flush. Suddenly conscious of a suppressed concern that Sandy's deafness might hint at unknown neurological faults, he bites his lower lip, angry with himself.

Before Lucas can answer, the professor's hands seize on a particular item. He holds up a bright green snake of a wire, ending in a thimble-like cup, offering it to Lucas.

"Remember what you put in there? And no, it's not between your legs."

Lucas wiggles his left forefinger into the cup, twitching his finger several times. Within the finger cup are electrodes to measure minute changes in energy that remain otherwise invisible. With the probe connected it would be possible to monitor Sandy's fingertapping precisely. The movements could be graphed like a beating heart, measured and even translated into raw digital data for analysis by computer. With these thoughts, Lucas nods his understanding to the triumphant professor, who beams at his student's insight.

So it comes down to this, Lucas tells himself on the drive home. All I have to do is persuade Sandy to sleep overnight at the lab with electrodes attached to her fingers, while I record the whole thing without any idea why I'm doing it.

In the rearview mirror Lucas catches his own eye. I'm a scientist without a hypothesis, he thinks. I'm a guy who's wandered through college and ended up entertaining myself at Best Buy. Lucas can't understand why his life feel so one-dimensional. He is no more than the "cardboard" characters his English professors railed against. Next to Sandy's dedication to her seventh graders – really her mission to help them grasp mathematics – his life feels tuneless. He searches for a hint of the source of her vitality, but cannot see beyond himself.

At dinner, Lucas waits until Sandy has a good-sized mouthful of fish before saying, "I'd like to record your fingertapping in the sleep lab at the university."

Sandy stares, not amused, and says, "Lucas!" Then she signs, Why in the world do you want to snoop like that?

Sandy considers her fingertapping completely unremarkable. She cannot recall a dream, certainly not a repeated one. When he suggests that she might be typing in her sleep she laughs out hoarsely. Sandy expresses mild concern that Lucas is obsessed with the finger movements.

I like the way I sleep!, she tells him. Why don't you try it sometime? You act like something is wrong with me.

Lucas assures her that he doesn't think anything is wrong. He can't explain why he is so curious, but asks insistently if she'll agree to sleep over at the lab.

"What can I say?" he implores her. Then he signs, I'm a scientist.

Sandy surrenders to his brown eyes and agrees to go to the university that Friday night. Before shaking hands on it, however, she extracts a promise that they will be home in time for the Saturday morning cartoons she adores.

I'll even take you out to breakfast, Lucas replies exuberantly.

~\*~\*~

Lucas sleeps through the whole experiment. He jolts awake when he hears Sandy sitting up on the single bed, yawning contentedly. In panic, he springs from the worn vinyl lounge chair where he drifted off and checks the computers. Sure enough, they've recorded an 18-minute block of data, beginning at 5:02 in the morning.

"All right!," Lucas exclaims. He walks over to the experimental bed and hugs Sandy. She blinks at her surroundings, then sniffs several times, noticing mildew in the lab.

After breakfast and a quick stop at the townhouse, Lucas rushes back to the lab. It is well past mid-morning, so he calls the professor at home. The professor sounds surprised, despite having told Lucas to call if he got any results. He promises to come in after lunch, reminding Lucas to save the data.

Sandy's stream of data graphs remarkably well, as the professor predicted. Lucas feels vindicated, but confused as ever.

"Here, let's print it out," the professor says.

They study the graph together, with the professor commenting on the amplitude and the intervals between the waves. Soon, though, it becomes apparent that no ready conclusions can be drawn. Sandy's waves resemble nothing known to psychological science. The professor suggests that they run the data through the computer to check for randomness. He has Lucas sit at the keyboard, clicking through various menus.

Very shortly the computer screen flickers with results. Lucas is helpless before the numbers, having forgotten much of the statistical indoctrination the psychology faculty required him to endure. But the professor gobbles up the calculations, pointing and leaving fingerprints on the screen.

"There's your pattern," he says. "Absolutely not random. What's the probability level?" He uses a school master tone of voice. "There, there," he points when Lucas has trouble finding the right number.

They have a pattern to nowhere. Lucas follows the gentle ups and downs of the graphed data and feels bewildered. The professor sits down to another computer and presses more keys. Lucas looks on, allowing first doubts about the whole enterprise to creep into his mind.

"Here, I'll give you some homework," the professor tells him. "Let's get an ASCII printout. You know ASCII, right? All the binary data converted into generic text format? You can look for words in the data. I guarantee it, there are always words hidden in a data set. It's bizarre, but they show up, no matter what kind of data you use."

At the printer Lucas collects neatly ejected sheets of information. Perfectly aligned rows of text, completely nonsensical, fill nearly twelve pages of paper. Lucas feels a strange sense of impropriety, holding a piece of Sandy's sleep in his hands.

"Look for words," the professor urges him.

Lucas sits at a table and begins to scan. Before he reaches the bottom of the first sheet, he sees the word, "hard" in the middle of a row. Pages pass with only broken pieces of words and unending gibberish. On the seventh page he finds "rain." After that, "me." Toward the end of the document the word, "blister" emerges from the confusion. Lucas rechecks his work. Hard rain me blister, he says to himself.

"What'd I tell you, what'd I tell you?," the professor exclaims upon his return. "Hard rain me blister? Hard rain me blister. That's great! Hard rain me blister. Jesus, that's bizarre. Isn't that nutty? I mean, it's got to be random, but then again..."

When he sees that Lucas is truly perplexed by the words that have emerged from the night of sleep, the professor says, reassuringly, "Never mind that. It's just a parlor trick. Hell, even Freud couldn't make any sense out of dreams. What are two monkeys in a room full of microprocessors going to do? Let's turn it back into pretty pictures. Let me show you something."

Swiveling to the original machine that graphed the wave of fingertapping, with a magician's hand movements, he splits the screen into eight identical blank graphs, stacked on each other.

"One for each finger," he says without looking up. "Thumbs never give any good data. I don't know why the hell Homo erectus didn't grow a fifth finger instead of a thumb."

With a few additional clicks, the machine before them translates Sandy's data into parallel streams. Eight graphs materialize from darkness as Lucas and the professor gaze, their eyes reflected in the monitor's thick glass.

From the graphs Lucas understands that Sandy's fingers are taking turns. One taps while others wait. Then two or three tap together. There is silence. Then a growing thunder of fingertapping. Lucas can visualize her slender hands at work. The trails of recorded energy stretch across the screen enigmatically, patterns that refuse to let go of Lucas.

When the professor clicks on the screen and causes the eight fingertapping wavelets to scroll in real time, Lucas steps back from the screen, startled at what he has seen. His heart races at the possibility gripping him.

"The eight waves, can you save them separately?," he asks eagerly. "Can you create eight separate files and save them on a disk?"

No sooner is the wish made than fulfilled.

"I've got to try something at home," he explains. "I think I know what she might be doing."

~\*~\*~

Lucas takes the stairs two at a time, heading to their second bedroom, his Cave of Machines to Sandy. Following her afternoon run she is famished and wants to order a thick vegetarian pizza for dinner. Lucas yells, “Good, good” and flashes thumbs up as he disappears.

Much later, with night descended and cold pizza waiting nearby, Lucas stares at his own computer screen. Attached to the computer is his keyboard synthesizer. He can control this instrument and its wealth of amazing tones through the computer. The synthesizer has eight “voices,” allowing it to play eight different sounds or eight copies of any single sound at a time. Lucas is desperate to prove that the work of Sandy’s fingers can be comprehended as music.

The hurdle is finding the right utility program on the computer to translate the eight fingertapping data files into a form that computer and keyboard will understand. Lucas is sure that he’s read somewhere that this is possible, that experimental musicians have “played” Ginsburg poems, even the Declaration of Independence. He changes data files to text files, text files to generic binary files, these to music format files. But his machinery stumbles, unable to produce information that can be shared.

In frustration Lucas thinks, hard rain me blister. He deliberately signs the four words to the computer. Miraculously, the next attempt at translation yields a message saying, “File translation complete.” Seconds later he moves the altered file into the computer’s music sequencing software. He reaches for a slice of pizza and bites it heartily.

Now Lucas clicks multiple switches on the synthesizer and commands the computer to play the translated data. A chaotic piano solo rises, stumbles through several octaves, falls, and then rises rapidly beyond the keyboard’s range. Though he has experimented with computer-synthesized music for several years, Lucas cannot quite believe what he has witnessed.

Feverishly, he translates the seven remaining files of fingertaps. He loads these into the computer and the synthesizer’s voice banks. The incredible ease with which he can shift the packets of data leaves him giddy.

His first impulse is to create a combo of instruments using the eight keyboard voices. Then a moment of frightening insight washes over him. Lucas remembers that deep in the synthesizer’s programmed memory banks, far beyond the imitated orchestral instruments, are eerie voices that “sing” in extra-human tones. In that moment, surrounded by humming electric entities, Lucas understands where his obsession is guiding him.

He spins a dial that sends the synthesizer into frenzied identification of instrument choices, then clicks the buttons that select the machine’s otherworldly voices for the eight streams of notes. On the computer screen a simulated button says, “Play.” Lucas studies it, with a mouse-controlled arrow hovering at the edge of the button. Then he clicks.

The room shimmers with the song of angels. Beautiful notes climb and intertwine themselves. Voices swell, sweeping Lucas off his chair. He looks around, trying to find them all. Their unbelievable harmony astounds him. Coalescing into a spirit of music, a tranquil, self-possessed creation, the

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sounds transfuse through his skin. Lucas covers his eyes with his hands and cries, calling softly, “Sandy, Sandy.”

~\*~\*~

He sits, drained, at the top of the stairs, watching as Sandy watches television. Photoelectric joys and sorrows fly from the screen and she receives them.

Sandy looks over her shoulder at Lucas.

So, am I normal?, she asks.

When Sandy sees his reddened eyes she rushes up the stairs, saying, “Lucas! What is it?”

He hugs her and sinks into her hug.

“I’m okay. I’m happy,” he says to her face.

She scans his eyes and a tearstain on his cheek, then lets him hug her again.

Lucas pulls urgently, wanting to absorb Sandy. His command of language seems pathetic to him, useless. He wills his heartbeat to pass into her body. Sandy drifts and sighs, moving with his body. His arms refuse to open.

Later Sandy lies curled in bed, her fetal body wrapped in flannels and down. She draws long, measured breaths, swelling and releasing like the ocean. An aroma of warm gingerbread floats from her body. Lucas closes his eyes for several seconds, inhaling her perfume and synchronizing his breaths to the rhythm that she generates. Sandy sleeps, undisturbed by his presence.

Then, walking in sock feet, Lucas returns to his machines. He presses padded headphones to his ears so that the ethereal chorus cannot escape. Lucas poises his fingers on the computer’s mouse, summoning the music again and again. In the chilly, unlit room only the tiny green synthesizer lights and a bluish haze from the computer screen touch his face. The reverberating cascade of sound rolls over his body, wrapping him, drowning him again.

Outside their bedroom window, hidden among the darkened grasses and reeds that protect the bay, brown-feathered birds settle into dreams. There is silence. 

*Will Ingensteds is a pseudonym for a faculty member in the Psychology Department.*