By David Erik Nelson



#### Chapter 7

Once, during their initial courtship, Bram had suggested that Lizzie and Chet meet him at a bar he liked near his work, the 8 Ball. The place was more than a little rough around the edges, but they had dollar longnecks of Pabst Blue Ribbon and a couple pool tables. Lizzie had mentioned once that when she and Chet were kids they'd loved shooting pool on the old table in their "pap's" basement, but hadn't played much since.

Bram arrived at the bar a half hour early to stake out a table. As he stood leaning against the wall, waiting for an old couple in matching camo-&-blaze-orange baseball caps to wrap up their game, something struck him:

Everyone there was white.

With mounting dread he realized that everyone there had always been white, every time he'd ever come: A bored white bartender with an organic chemistry book propped up next to the register, the single white waitress with her crooked brown ponytail, the old white drunks slouched on their bar stools staring at the liquor bottles, the white kids necking in the sagging booths, the white bikers crowded around the jukebox, the white college boys playing darts.

And there stood Chet and Lizzie, the fire door easing shut behind them, clamping off the dazzle of late afternoon sunshine.

There was no record scratch, no sudden silence, no "sheriff's welcome" a la Blazing Saddles. Nothing overt at all, not even a glance. But there was no denying that the room chilled ever so slightly. Bram did his best to crank the wattage up on his smile to compensate, but it was like running a space-heater in a warehouse. His heart groaned even as he grinned like an idiot and waved them over.

"Nice place," Chet said. There was no trace of irony in his voice, but Bram couldn't miss Lizzie's smirk.

"Nice ambiance," she added. "Dim, though."

"I imagine the patrons worry about sunburn," Chet opined, choosing a pool

cue from the rack on the wall.

"SPF-50 is the white man's burden," Bram hazarded. Lizzie laughed in earnest, then kissed Bram on the cheek. Bram felt all the tension drain out of him with enormous relief. "Go on and fetch us some beers, whitey."

"Yes'm!" he chirped, hustling off to avail himself of the celebrated dollar longnecks.

When Bram returned, Chet and Lizzie were arguing about "Boltzmann brains." He quickly gathered these referred not to a specific guy's brains—either in his head or in some jars—nor even a biology thing; it was a physics thing.

"OK," Bram said, distributing the beers. "Bring me up to speed—who stole Boltzmann's brains?"

"The Second Law of Thermodynamics," Chet said, futzing with the billiard balls he'd racked up.

"Repeat offender?" Bram asked.

Chet snorted a chuckle, but did not look away from the balls he was trying to perfectly align. "The Second Law states that, in a closed system, entropy must increase."

"Right," Bram nodded, then paused recalling his run-in with Granny Gin at the reunion. "Wait, no: I hear what you're saying, but I totally don't know if I get what it means."

"In general terms," Lizzie said, sorting through the cues for the least warped, "Entropy is a measure of how disorderly a system is: Higher entropy means more chaos."

"OK," Bram said.

"The Second Law of Thermodynamics states that, in a closed system, entropy must increase."

Bram took a second to digest this, sipping his beer. "OK; why? Why does entropy increase?"

Lizzie smiled and nodded, the proud teacher of an apt pupil; Bram should have felt patronized, but he secretly swelled with pride, and then sorta felt like a putz.

"This is just exactly what Chet and I were bickering about" she mugged a stink-eye at her brother. "Again. That entropy increases, that's not some theoretical thing. That comes from actual empirical observations. Boltzmann, he gave the first rational explanation of why that might be."

She paused, and Bram obligingly offered a "tell me more!" gesture.

Chet rolled his eyes.

"Statistics," Lizzie said. "Look at the pool table."

Bram did so, slugging from his beer. There wasn't much to see, just the triangle of racked balls.

"This is a closed system—just like our universe. Right now, it's like the beginning of the universe. All the matter is compact, small and smooth," she pointed to the racked balls. "They are packed in the most orderly possible way, right? As tight as can be. There's no real room for them to be anything other than orderly." She balanced the battered cue ball on top of the center of the triangle of racked balls, just behind the 8 ball.

"Now, let's say the universe starts expanding. New matter isn't created—those 16 balls are all there is—but the existing matter has more room to rattle around."

She smartly pulled up the worn triangular rack. The cue ball slouched into the gathered triangle of balls, which subsequently rolled away without rhyme or reason. "We could do that a dozen times, and each time it would look a little different, 'cause that's chaos, brother. You can imagine a scenario where we pull the rack and all the balls just roll into the nearest pocket, tidy as could be—but you can also imagine how many centuries of racking the balls, balancing the cueball on top, and pulling the rack it would take for us to get that. Order is just less common than chaos. Meanwhile, no matter how many times we put the rack back on the table, the balls are never gonna just gather themselves back into a tidy little two-story pyramid ever again."

She gave Chet a moment to ruminate, grabbing his arm to stop him from scooping up and re-racking the balls. "But," she continued, "Once Boltzmann laid it out, we had a sticky situation: Boltzmann's statistical explanation makes a lot of sense—but it isn't the universe we see."

"Because the universe we see is orderly," Bram supplied.

"Exactly!" Lizzie's eyes sparkled, and Bram again felt that rush of swelling pride, quickly followed by embarrassment for being such a fool for love.

"Statistically speaking," she continued, "creation should spend almost all its time being a random mess just sitting there." Lizzie gestured at the balls randomly distributed throughout their bounded little pool-table universe. "An orderly and active universe—like the one we see around us—isn't the norm; it's the exception. And an exceptionally rare exception."

Chet disentangled himself from Lizzie's grasp. "I'm just gonna tidy up

and get this show on the road, professor," he said. "If those white boys leaning against the bar wanted to watch black nerds jibber-jabber about cosmology, they'd download Cosmos."

Bram warily looked at the boys by the bar. They didn't particularly seem like trouble, but they did seem particularly keen on shooting pool. The place only had three tables. One of the other two was currently occupied by the kind of unsmiling guys that came in with their own collapsible pool cues in little hard-sided cases. The other was crowded with a bunch of guys in ragged leather vests proclaiming them to be members of the "Outlaws M.C."

"So then," Bram hazarded, eyes still glued to the innocuous white boys waiting for their table, "we've got a paradox. Law of averages tells us there shouldn't be an orderly universe with all this going on, and yet there is. I don't imagine that the punchline is 'God is Real!"

Chet lifted the rack and stood back from the table. "Just 'cause things get more disorderly over time doesn't mean random order is impossible—"

"I think 'random order' is an oxymoron," Bram quipped.

Identical looks of vexation surfaced on Lizzie's and Chet's faces, making them the spitting images of their Grannie Gin. Bram's heart curled up and died a little.

"No it isn't," Lizzie said matter-of-factly. "You shuffle a deck, you start laying out cards, they're in 'random order." She used air quotes around 'random order.'

"Point being," Chet said, "Boltzmann's increasing-disorder situation is averaged over the entire universe. Little 'random fluctuations' can lead to brief pockets of order in a given locale."

"So we just live in a very unlikely orderly corner of a basically increasingly chaotic universe?" Bram said. "That seems . . . convenient."

Lizzie smiled her appreciation once more—which was almost starting to annoy Bram; he wasn't a dog, for chrissakes. True, this Boltzmann thing was a bit above his pay grade, but it was hardly rocket surgery.

"Boltzmann ran into the same problem. Even given a very large universe and a very long timeline, we're talking about sustained systems that are orders upon orders of magnitude more organized than random fluctuations could supply. His explanation—which held for a long time—was a species of what we now call the 'anthropocentric principle': We see an orderly universe because only orderly universes can support evolved life capable of looking around and noticing how orderly the universe is."

Lizzie set her beer on the edge of the table and leaned in to break, sinking the 1, 7, and 13. She cursed under her breath. "I'll take the 11 through 15," she said before standing to survey the table and continue her dissertation.

"Anyway, that's where it stood for about a century, before Albrecht and Sorbo said, 'Hold up a second: If we accept that the universe seems orderly simply because orderly universes are the only ones that can support self-aware consciousnesses, why do we need a whole world of consciousnesses? Wouldn't one conscience be enough?' Do the math: it obviously takes a much smaller random fluctuation of much shorter duration to just get a single consciousness to pop into existence for a single self-aware second than it does to get what we've got." She leaned over decisively, tried to sink the 11 ball in the side pocket, and was off by a hair.

Bram circled the table, looking for his shot. "And what's that? What have we got?"

"We've got billions upon billions of self-aware consciousnesses encased in billions upon billions of bodies that are each composed of 37 trillion cells that only evolved as a consequence of being on a planet in a precisely tuned solar system that has kept spinning, largely undisturbed, for 4.6 billion years. That free-floating 'Boltzmann brain' popping into existence just long enough to say 'Yow! I am! There's an orderly universe!' seems insanely unlikely, but it is clearly ahelluvalot more likely than what we've actually got. But nonetheless we are here. If you see it Albrecht and Sorbo's way—which most folks would—then it seems like, statistically speaking, the most likely explanation is that all of this, and all of us, are just the weird fever-dream of a free-floating, disembodied mind."

Bram shot, knocking the 4 ball into the corner pocket with the cue ball hard on its heels. Chet fetched both out, setting the 4 back in front of the corner pocket and taking the cue ball with him.

"So," Bram sighed. "the upshot is that we're all a delusion inside a ghostly brain floating in space?"

Chet—who had been circling the table, scoping his shot—came to an abrupt stop and threw up his hands. "Exactly what I was saying!"

Lizzie rolled her eyes theatrically while Chet took his shot and missed. Lizzie took another shot at the 11, again missing the side pocket by a hair. "I'm sorta with Chet here: If you're saying that this," he gestured at the bar, "Is all insanely less likely than the floating brain, then it really sounds like the floating brain is it—even though that seems super unlikely. I guess I choose floating brain in space."

Bram finally took his shot, managing to sink the 2, although he was shooting for the 5. His next shot hit nothing.

"Knuckleheads!" Lizzie faux shouted in frustration. "This isn't a Chinese buffet; you don't get to pick and choose. And it isn't the Boltzmann brain hypothesis; it's the Boltzmann brain paradox: The whole point is to point out the major shortcomings to Boltzmann's statistical model. No one is suggesting that there are actual disembodied brains floating in space."

She shot, quick and hard, sinking the 12 and 15 in a single blow, then shifted around the table and dispatched the 11 and 14 in two neat clacks.

"Rack 'em again?" she asked, draining the beer. She didn't notice Chet checking again on the white boys before demuring. They left soon after.

#

As Lizzie and Bram's days dwindled, it became increasingly difficult to get ahold of Chet: He stopped swinging by their brownstone, never returned calls, and was slow and terse to reply to texts. He also seemed to have totally evaporated on Facebook, although Lizzie couldn't tell if that was because he'd tweaked his privacy settings such that whatever he was posting was invisible to her, or if he'd just stopped logging in altogether.

It wouldn't have been shocking if Chet had ditched social media; a lot of people had. Columbus as a whole had become weirdly edgy in a guarded, wordless way, like a city of rats that had been put through too many ill-conceived Skinner box experiments.

A big part of the problem was there were so many weird notions floating around. Everyone's social media feeds were flooded with claims at once absurd and absurdly persuasive. These powerful swells and surges were driven by oddly precise currents of fake news that were somehow not quelled, but bolstered, by the tireless, exasperated debunking of The Plain Dealer, Columbus Dispatch, Toledo Blade, and a single transplanted Buckeye working a fact-check beat at The New York Times.

The week before she'd seen a news report—on TV, with actual "eyewitness footage"—showing Ohio Stadium in flames. That ended up being totally fabricated. She'd texted one of her post-docs in a panic, knowing Zhang Yu had a view of the stadium from her apartment. The girl had immediately replied asking if Lizzie was "making jests," and then, at Lizzie's ALL CAPS!!! insistence sent a picture of the

stadium, fit as a fiddle.

Two days later, Lizzie had been walking down Woodruff Ave. and seen, with her own eyes, a column of 15 military Humvees: unmarked, no plates, tinted windows, painted matte grey with some sort of spray-on fiberglass coating, their long whip antennas tethered down in jaunty arcs. No explanation—not even newsworthy, judging from her Facebook feed—but certainly real. Likelihood, it seemed, was no longer a yardstick by which to judge if something might be happening.

Finally, four days before she and Bram were scheduled to die, Lizzie broke down and went to the crooked, peeling old house Chet shared with four guys he'd played Warhammer with since grade school.

Lizzie had heard that Chet's neighborhood had been cordoned off by some sort of anonymous SWAT team. She didn't believe this, despite hearing it five times in one morning from people who swore it was true. Had they seen it with their own eyes? Of course not; who would walk into such a mess? But they had seen it all over Facebook and Instagram and . . .

But even if she didn't believe in "ghost SWATs," she did believe that they were a believable excuse to break her stalemate with Chet. She took a personal day instead of going in for her final Friday, ran the Columbus gauntlet of off-schedule busses and ill-conceived transfers, and found her way to Chet's neighborhood by 11am.

There was no conspicuous armed presence there, "ghost SWAT" or otherwise. If anything, the streets were conspicuously empty. Lizzie stood on the curb for a moment after the bus let her off, slowly swiveling her head: No cars, no kids, no barking dogs.

Just as this began to creep her out an elderly man on a rhythmically squeaking 10-speed rounded the corner, rang his bell, cat-called her with remarkably lewd specificity (given his rate of travel) and disappeared up the block. A Chevy Cruze passed. A dog started yipping in one of the houses. Someone scolded it. Business as usual.

Chet did not answer when she knocked, so she just leaned on the bell, slowly counting as she thumbed through her Facebook feed. She got to 456 before the door popped open.

Chet was both annoyed and distracted, still holding an Xbox controller, a wireless headset bracketing his neck. She could hear distant gunfire, but it was clearly video-game gun fire in his headphones, not anything paramilitary happening out in the streets behind his place.

"Nope," he confirmed "No Black-Ops SWAT team. No nothing. My neighborhood is both as crappy and quiet as ever. Yours?"

Lizzie said nothing.

"No extermination squads there either? Swell. Look: I'm sorta in the middle of some stuff." He lifted the controller to tap the headset. "I really gotta—"

"Chet," she said, "Bram and I are leaving town."

He muttered "Gimme a sec, guys" into the little mic curving out from the left ear cup, then pulled the headset off his neck and set both it and the controller on top of a chair next to the door, piled high with ignored mail. He stepped out onto the porch, leaving the door ajar. "What? Over a SWAT team that wasn't there?"

"No. We decided a long time ago that we were going to split town before . . . at the . . . at the end. But now, also, yes: Because of the SWAT teams that aren't there, and the ones that are, and all the craziness. Something is building up around here."

She gestured around her, but meant more than just Chet's neighborhood.

Chet was nodding. "OK," Chet said, clearly hemming and hawing. "I see that. And I agree."

"So come with us out of town. You don't gotta go where we're going, but at least go somewhere less . . . fraught."

There was a long pause.

"Yee<br/>eeah, you know, sis I've . . . Got things to do this week. Around town. Just gonna chill."

"Here."

"Yeah."

"In a city that's devolving into a rolling paranoid dumpster fire?"

"Yeah."

"cause Granny Gin told you your numbers?"

Chet said nothing. His eyes drifted away, down to the splintery porch boards to the left of Lizzie's feet.

"When?" she asked.

Chet continued to say nothing.

Then broke. "A long time from now."

Lizzie rolled her eyes. "No, jackass, not when are you going to die: When did she tell you your expiration date?" It wasn't until then that Lizzie discovered she was furious, and she didn't even know why or at whom. She was furious with the universe. She was furious, full stop, the verb more of an equal sign than a simple

state of being. She was a Fury, a chthonic deity, every breath a vengeance.

Another long silence from Chet, then: "When I asked. When we were kids. After you told me she'd told you."

"After you promised you'd never ask."

Chet was silent again, nodding. Then he looked up, finally meeting her eyes. He was angry, too: "After you made me promise to never ask. You know, you and Granny Gin are just exactly alike: You run everyone's life around—even your own—as though knowing is the same as knowing best."

"And now you're gonna ditch me in the final hour, baby bro?" She suddenly saw that he was desperately enraged.

"I know you're going through a lot right now, sister-my-sister, so I'm not gonna beat around the bush: Have you spared a single goddamn second to wonder how it's been for me to know my amazing sister—who was gonna die young, no matter what—isn't even gonna survive the whole season of iZombie?"

She clearly had not considered this.

"Or, hell, did you ever think about Bram? It's a little tough to argue that falling in with Clan Bradford has been champagne and roses for that dude."

She was speechless.

"Yeah, so, I'm not coming out to play. I got this important hostage recovery scenario and they need their star sledge. Also, you've got messed up priorities."

Lizzie clenched her jaw, shaking her head. She could not continue looking at him. He stepped back inside and closed the door. A few minutes later she started home.

Back at her brownstone she sat in their little balcony and looked out at nothing in particular until Bram came home with a roasting chicken, a bottle of very cheap wine, and a determination to master both Mark Bittman's roast chicken recipe and the proper carving of the roasted bird.

And damned if that chicken wasn't delicious, and didn't look like something out of a foodie's Instagram stream.



Find the next chapter at http://www.arborteas.com/Summer-Reading-Series/