

penumbra



speculative
fiction mag

Oct 2k20 • vol iv issue 3

AI

**Angel or Demon?
Or possibly Giraffe?**

AI Weirdness

**an interview with
Janelle Shane**

plus

Eliza J. Brandt • John Grey • Mike
Morgan • Christina Sng • Jamal
Hodge • Grace Wagner • Russ
Bickerstaff • T.M. Morgan • Russell
Hemmell • Alexander P. Garza •
Gordon Sun • Novyl the
Mysterious • Agrippina Domanski •
toeken • Anahita Ramoutar •
James Edward O'Brien • Carl
Scharwath • Kurt Newton •
T. Motley • Jesper Nordqvist

Penumbria is published six times a year (June, August, October, December, February, and April). ISSN 2693-0234. *Penumbria Speculative Fiction Mag* and *Penumbria Speculative Fiction Magazine* © and TM 2019–2020 Neomythos Press, LLC. All rights reserved.

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We are open for art, animation, and music submissions! We will reopen for fiction and poetry on 10 December 2020. Please see our Submissions page (<http://penumbria.com/subs.html>) for details.

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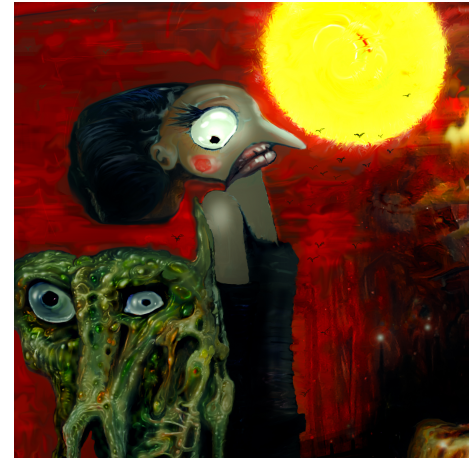


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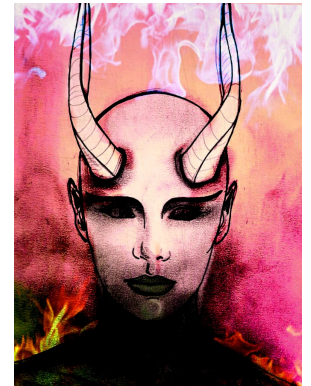
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(All stray line-art giraffes in this issue
courtesy of Voracious)

From the Editor

by Jeff Georgeson

In this issue of *Penumbric* we immerse ourselves in artificial intelligence—both the classic and the ubiquitous. Classically, of course, we have what is more technically called “general artificial intelligence” or even “strong AI”—the Terminators, Mr. Datas, and Roy Battys of the world. And the ubiquitous? The world we live in, where “big data” is being fed to countless algorithms that try to figure out the best way to drive a car, build a shopping complex, or just choose between several colours of clothes to wear—or, on a more Terminator-esque note, influence our politics, get us to choose products we don’t actually need, or recognize our faces as we walk down the street. But these last examples are not so much about the AI itself—which, after all, is just an algorithm and not a self-determining creature—as about what we, as humans, want to do with such things. And we humans aren’t always the most enlightened of beings.

We talk about the various AIs, how they’re used, and the ethics of creating anything even remotely like us in the first article in this issue, so I won’t go into it generally here, but I will talk for a moment about my own experience in this field. I develop human-like personality systems for non-player characters in games. I began my foray into personality AI with an almost unfettered belief that it was overall a good thing, that it might be misused, as many scientific advances are, but that ultimately it would be used for good, that we would have tremendous opportunities to learn and to teach each other and that technology and social advances would follow at great speed. I now feel I vastly overestimated our own ability to get along with others; we don’t want to even allow people in need to cross our human-created borders, let alone help them. In a time when we’re as xenophobic as ever, and when it looks like the highest court in the US will roll back people’s rights rather than add to them, it seems folly to bring into the world a creature that will be treated as a machine-slave, that will learn only that it is an Other, and that, if it

mimics humans at all, will decide that we are Other, too, and dangerous to have around. I certainly don’t agree with all the media-created fear that any and all General AI is going to be SkyNet, and I don’t feel that my own tinkering in game systems is going to directly and in my lifetime lead to General AI, but I can certainly imagine that if I’m doing it, there are probably much better resourced groups making even better progress, and ... well, it seems weird feeling I might have to choose to fight against the creation of such AI rather than root for it. Somehow my optimism that we can create strong AI in an intelligent manner that benefits both us and them seems like wishing for world peace.

And how I, or even other AI developers, feel about it isn’t the most important thing anyway. There are many stakeholders that should be consulted before General AI is built, including those whose jobs are affected/taken over by such creatures, from factory workers to sex workers--and not just because their livelihoods would be affected, but because they can talk about the conditions such artificial workers are likely to face, and what kinds of treatment--up to and including indentured servitude and abuse--they are likely to endure, and perhaps rebel against. It will take more than just the Victor Franksteins and others in their ivory towers to successfully develop--or not develop--General AI. It will take the villagers as well.

Getting back to the AI we have today, we spoke with Janelle Shane, author of *You Look Like a Thing and I Love You*, about the kinds of AI weirdness we already see in the algorithms we create now. If you like giraffes, you’ll love AI ... which isn’t the non-sequitur it seems. We also talked about bias in AI algorithms, humans pretending to be AI, and the future of AI.

The main body of this issue is chock full of AI goodness (and

badness, as it were). We start with Eliza J. Brandt's "Will You Miss Me When I'm Gone?," "Avatar Love" by Russell Hemmell, and Mike Morgan's "Something to Watch Over Us." "Assembly" by Russ Bickerstaff is more ambiguous, and "Cusp" by T.M. Morgan takes us in a very different direction. And there's an AI game show host in "Dr. Know-It-All" by Gordon Sun and an AI enjoying a drink in "Perfect Daze" by James Edward O'Brien.

As in all things, however, there is more than just a singular focus on AI. "The Dog Lover" by Agrippina Domanski is disturbingly good, and the strong poetry of Grace Wagner ("Nuclear War"), Jamal Hodge ("Of Other Worlds"), and Kurt Newton ("Deli Fishing"), all of whom appeared in the August issue, is joined by that of Alexander P. Garza ("Interstellar Affairs") and John Grey ("Tracking the Clozxil").

The artwork in this issue is an awesome collection of different and

differing works, including Carl Scharwath's "She Is Watching You" and Anahita Ramoutar's "Entangled," toeken's "Stapmars" and Christina Sng's "Snowstorm," and Novyl the Mysterious's "Lycos of the Night" and cover art "Demonic Entity." And of course we continue the stories in the surreal "The Road to Golgonooza" by T. Motley and the science fantasy "Mondo Mecho" by Jesper Nordqvist.

Of course, if you're an AI you may instead see giraffes everywhere you look, in which case count 'em up and let us know how many you find—but then, you'll be telling the world you're an AI. But can you resist the programming that makes you want to tell everyone about the giraffes you've discovered?

I guess we'll find out.

Artificial Intelligence

Angel or Demon? Data or Human?

“IN A WORLD WHERE ARTIFICIAL INTELLIGENCE IS EVERYWHERE ...”

This tagline might make audiences shiver, immediately bringing to mind the dangers of Skynet and Terminators. Or perhaps it would make them smile, if they instead thought of the more hopeful vistas of Asimov and *Star Trek*. Or thoughtful, if challenged by the more ambiguous visions of human-like AI as it is treated in shows like *Humans*. But, while the tagline has become reality, what we have now is not Mr Data but just “big data”—AI has become a powerful tool in analyzing data and predicting outcomes, and sometimes it seems that all machine learning, even that which begins to mimic human neural networks, will be bent toward that end. So are we free of a future where AI overlords decide that humans are too fallible? Are we completely in control of “AI” as it has been redefined and advertised? Is the idea of a rampaging Terminator—or helpful Mr Data—a children’s tale to be forgotten?

So What Is It? What Is AI Nowadays?

“*What generation are you?*” –JF Sebastian, *Blade Runner* (1982)

After an “AI Winter” lasting from the 1980s and into the early 90s, when disappointment loomed large over many AI projects (especially the promise of any sort of generalized human-like intelligence), a combination of advances in computer power and continuing advances in machine learning (e.g., artificial neural



PICTURED: Ivanno Jeremiah as Max from AMC and Channel 4's *Humans* (Season 2, Episode 1 - Photo Credit: Colin Hutton/Kudos/CH4/AMC). *Humans* examines a world in which general artificial intelligence, in the form of "synths," begins to become self-aware.

AI Media Relations

While data-crunching AI is everywhere, the media still overwhelmingly focus on general artificial intelligence—most often to try to scare us, as I imagine that creates a bigger box office return. I feel I've been saying this for decades, and it's really almost a cliché, but ... Even now, Fox is about to air *Next*, which from the commercials is all about an escaped AI that wants to destroy all humans (it could surprise me, I guess ... as of this writing it has yet to air). So from Universal's *Frankenstein* when cinema was young through the Terminator and Skynet through today, we've been bombarded with negative imagery. (Which seems to be the way of things ... go negative, reap the reward. Fear is easier to reach than thoughtfulness.)

But there have been more nuanced approaches. Some, like *Forbidden Planet* (1956) or *Lost in Space* (1965-68), posit humanoid robots that are more computer than AI, but are still treated as just one of the crew. The Alien franchise has both good and bad “synthetics” that by turns either disregard the crew's safety for the good of the corporation or help in the fight against it.

Blade Runner (1982) is the seminal film (for me, anyway) regarding replicants and what the ethics/dangers/etc. are when we create human-like life forms. They are truly more human than the human characters, often more emotive and philosophical, and it can be argued that the real POV character is the replicant Roy Batty, not Deckard. Are they dangerous? Yes. But they are also just trying to survive, and to try to live beyond their artificially mandated four-year lifespan. Sadly, *Blade Runner 2049* (2017) is more about its own visuals and less about continuing the exploration of replicants.

Lots of anime explore the same kinds of issues, albeit sometimes leaning into the dangers of general AI (such as Sharon Apple in *Macross Plus* [1994-95]), but often with far more acceptance of AIs as part of the world around us, such as in *Astro Boy* (many versions, many dates), or exploring topics such as AI reproduction, as in *Armitage III* (1995).

Star Trek: The Next Generation (1987-94) also explores AI, albeit for the most part with only one unique test case, Mr Data. Data is presented as trying to become more human through observation and experience, trying to learn to play music with human instincts and always wondering what it would be like to have “real” emotions, which he does not (to begin with, anyway). It is probably the friendliest Western series to AI ... and possibly doesn't explore the true nastiness humans might really feel toward such a creation, stronger and smarter than they.

More recently, TV series like *Humans* (2015-18) have used the extended format to really explore not only the ethics of creating even not-quite conscious AIs (and also the fully conscious kind), but also human reactions to these technologies. *Humans* is not without its own issues, but it is one of the best shows I've seen actually exploring what it means to be one of these synths, or to be one of their creators, or to be just a regular human living in a world with such extensive man-machine interfaces. I'd like more shows like this, which deal with very human issues that can teach us about ourselves even if we never develop “more human than human” AIs.



nets) began a thaw in which researchers first managed to create systems that could beat human players in games (backgammon, chess) and then, partly through the massive amounts of data that began to be gathered in the early 2000s and partly through refining machine learning methods (moving away from “brute force,” for example),* rapidly moved on to natural language processing, “looking” at images to try to find similarities and categorize them, and even drive cars. Other than this last bit (which possibly brings to mind the robotic cab drivers in *Total Recall*), the development has been away from anything resembling the “strong” AI of the past. This might be because trying to create a general human-like intelligence is just way too hard (see our interview with Janelle Shane in this issue). It might also be because the money is in the analytics.

So while we are still laughably inept at creating chat bots that can pass a simplified Turing Test (unless you accept premises such as “the chat bot is a child that doesn’t speak your language very well and is very eccentric and is absolutely fascinated by giraffes”), and only Hanson Robotics’ Sophia and some Japanese idol software, such as the vocaloid Hatsune Miku, have begun to look or sound like “AI” (and this still relying heavily on human input), “AI” is booming because it is now

* An example of brute force AI is processing every possible chess move projected out into the future of the current game, and doing this after every turn.



marketed as a predictive analytical system that can go through the kinds of massive amounts of data that are collected online and create perfect advertising aimed at potential customers, tell you exactly what kinds of political winds are blowing, and even tell you what’s in a photograph or create a photograph of its own. And still beat us at games.

All of which are massive advances, and I’m not belittling them in any way, except that, oddly, despite a rich and long history of public perception that any sort of advanced AI will kill us all, rampaging like Frankenstein’s monster or the Golem of old and destroying the countryside (something we have proven perfectly capable of doing on our own, thank you), marketers are attempting to anthropomorphize this data-driven AI. In commercials for IBM’s Watson, for example, the disembodied voice holds a very human conversation while also solving difficult problems for its clients. Ads for Siri and Alexa are similar.

PICTURED: Hatsune Miku, vocaloid/virtual idol, has had many “live” concerts (Crypton Future Media, Inc.)



PICTURED: Cute little helpers/potential data-gatherers, the Amazon Echo Dot for kids (Amazon.com, Inc.)

That creates problems in our perception of what these “AI” systems can do, and what we should allow them to do. Should we allow Alexa and Siri to gather data from our living rooms (and bedrooms, and children’s bedrooms)? Where does this data go, and what’s done with it? (This isn’t necessarily any sort of problem with the AI, though—it’s what the humans on the other end are doing with it, e.g., Cambridge Analytica.)

Data analysis and AI

“All data that exists is both reality and fantasy”—Batou, *Ghost in the Shell* (1995; as translated in the Special Edition, 2004)

In Janelle Shane’s book *You Look Like a Thing and I Love You*, she discusses the many ways in which AIs can use data to go subtly or horribly wrong. For example, Nvidia created a GAN (Generative Adversarial Network, a type of neural network) called StyleGAN

that they trained to create relatively photorealistic human faces—but when they aimed it at cats, it created multi-limbed several-eyed monsters. Things that a human almost takes for granted—like sorting out where the cats are in an image, and which things are cats, no matter what angle or how big they are, or whether there’s a human in the image as well or text overlaying it—our current AI algorithms just cannot do very well. But companies (and people generally) like to talk about these AI algorithms as “seeing” something, or worse, sometimes claiming that the AI is “thinking” or “understanding” something. We have

not yet come anywhere near an AI that thinks or understands, except in the most limited possible of ways.

(Although being me I can easily imagine a scifi scenario where I’m writing this and there’s an AI out there right now thinking, “This guy just doesn’t understand me ...”)

What we have done, in a sense, is teach these algorithms very specific things—such as how to pick out a human face when all human faces are in the same position, lighting, etc. Interestingly, we have trouble understanding these AIs—in many ways, the neural networks we have created, limited though they are, are a sort of black box: we know the inputs, we know the outputs, but the steps in between are often only our best guesses—the AI itself builds and destroys connections between its neurons based on whether it gets more or less positive reinforcement (right answers) as we tell it what the outputs should be, and much like a human brain, we don’t know

which synapses have fired or in what way they all connect.

And unfortunately, one of the big things we've managed to teach AIs is how to be biased like humans—this is what it has “learned” from the data we have fed it. Ultimately we have trouble understanding how to “fix” our own data so that biases aren't in the inputs; for example, if AI were used to “correct” student grades that might be inflated due to teacher bias (as was almost done in England recently), it could be fed data relating to average student grades in certain geographical areas over the last several years—but these inputs are also indicative of which schools serve poorer areas, and reinforce bias against anyone living in these circumstances, while rewarding wealthy families just for living near better schools. Since we haven't given the AI any “class” or “racial” data, we think (or hope, or wish for marketing purposes) that it can't be biased. Basically, it's able to ferret out institutionalized classism and racism in data we think are absolutely fine, and since we don't know what its internal processes are, we have trouble with more subtle biases in the data that we can't see because we don't know how the AI will decipher it in its quest (usually single-minded) to answer whatever question we've put to it.

Will we ever get Strong AI like we were promised/warned?

“Commerce is our goal here ...” —Eldon Tyrell, *Blade Runner* (1982)

Given our inability to program algorithms that can do more than one very specific task well, it would seem that we are still a long way from “strong” or general AI; in fact, in some ways it feels as though we are just as far away from it now as we were in the 1990s, unless there's a secret project out there somewhere (which I wouldn't bet against). In some ways we're much better at some of the component parts (natural language processing, analyzing inputs, even being able to read human expressions), but these are all surface things—the language processing hasn't lead to actual understanding except in very limited, computer-like ways, and the reading of human expressions is in some ways just another image-processing task, and again what the AI does with this information is still very limited and not driven by empathy or understanding.



PICTURED: Sophia, by Hanson Robotics, one of the best examples of the combination of humans and robotics that we have today; she works from human-created scripts to get her point across. (From Hanson Robotics, "Humanizing AI" web page)

But really the big companies don't appear to be focused on any sort of strong AI systems, and the big reason for this would be commerce—whatever upside there might be to creating human-like AI is dwarfed by the downside—the amount of money spent in the past for such projects with relatively little to show for it, and really having no reason to want it. Why have more human-like workers when you have plenty of those, and when much more limited machines can replace these workers without any concerns over welfare? Machines don't worry about overtime, rights, desires, sleep, etc. You would expect a strong AI to bring up all of these (well, maybe not sleep; recharging periods, perhaps).

(In some countries, like Japan, where there are sometimes shortages of available humans for some kinds of work, there have been more advances and more acceptance of human-like robots—but these are human-like in appearance, and only in a limited way in action. But they seem much more comfortable with the idea of strong [or stronger] AI systems, and at this point seem the furthest along in that regard.)

So the most likely origin of strong AI, if it happens at all, may be in a university setting (although this becomes less and less likely the more universities are aligned with commerce), accidentally in some application where one needs some degree of individualized problem-solving (unfortunately, this may be most likely in military applications, and then you can definitely say hello to Skynet), or in, of all places, video games.

Games without Frontiers

“Want to play a game?” –WOPR, *War Games* (1983)

My own development work in AI features giving non-player characters in role-playing games human-like personalities. These are based on real-world personality theories, primarily the Big Five as developed by Costa and McCrae (1995, etc.). Game characters are scored as people would be across a set of thirty facets, and these facet values can change over the course of the NPC’s life given the same elasticities as a real-world human.

Part of this work also deals with more transient emotions and feelings, and how NPCs might develop different feelings toward different people (anything from simple dislike to jealousy to love; any emotion is possible), and even perhaps the relation of morality to personality and personal environment.

My own attempts are not the first time game characters have been given emotion ratings or like/dislike ratings (see, for example, the social stats in the Persona series), but it is one of the first times characters have been given potentially realistic and complete personality structures. Usually (and still for most games) this is

unnecessary, and because games have many different elements (graphics, story, gameplay, etc. in addition to various types of AI, including pathfinding), only the most necessary are included; if you’re not going to meet NPC Sara Shopkeeper at various times over the course of her life and have long chats with her that include something other than the price of armour, the subtleties of her personality development aren’t going to matter one whit to gameplay and will take up CPU cycles unnecessarily.

But as a development world for these kinds of AI, games offer the perfect alternative to testing complex “strong AI” systems in the real world—one is neither unleashing potentially insane personality structures into the real world where they can commit murder, nor challenging public perceptions of what an AI should or should not be. It’s like being able to develop AI within a sci-fi story, one that might eventually be written in cooperation with the NPCs themselves, but still contained in a world apart from our own. (There are ethical issues with this—is creating a human-like AI that is trapped in a game world any better than creating it in the real world, in terms of limiting this creature and in some ways making it a puppet?)

This has been done for a very long time, often given the moniker “simulation” rather than “game”; for instance, there are sims that test simple evolutionary structures, giving “creatures” needs like eating, drinking, and reproduction. Examples of this include the very aptly named and classic *Creatures* and many more you can find through a simple internet search.

But while it might be useful to see if androids really might dream of electric sheep within a contained environment where their nightmares won’t have real-world effects, there is still the matter of ethics.

The Ethics of AI

“Now I know what it feels like to be God!”—Victor Frankenstein, *Frankenstein* (1931; line originally drowned out by thunder due to censors)

Whether it's in a game or not, and whether by accident (Project 2501 in Oshii's *Ghost in the Shell*) or on purpose (*Humans*, although it's sort of an on-purpose accident), there are as many ethical problems that need to be addressed as there are technical problems in creating such a being (well, that's a bit hyperbolic, but still ...).

To protect ourselves from AIs that decide humanity is a virus to be got rid of, we could use something like Asimov's famous Three Laws (1. A robot may not injure a human being or, through inaction, allow a human being to come to harm. 2. A robot must obey the orders given it by human beings except where such orders would conflict with the First Law. 3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law. [from "Runaround" in *I Robot*, 1950]). But does this create a slave class? Are we merely using code to replace mental programming to keep people/AIs in their place? And what place is that? Who gets to decide this? You can bet that the mass of humanity will have little choice in the matter; those in power will decide, and advertise/influence/program the rest of us to agree.

Of course, as humans we have trouble figuring out what "ethics" are, and "morals" are equally slippery. An AI created by someone on the Far Right is going to have a very different idea of what it is to be/live/work as a human than one created by someone on the Far Left, and ideas like "justice" will have different meanings as well. We can hope that any such AI we create will be able to decide for itself the meanings of these terms (hoping, I guess, that what is truly "good" wins out ... whatever that means), but our own experiences with educating human beings should be enough to show us the folly of this.

I mentioned that simulations offer us a possibly palatable alternative

to creating this AI in the real world, but honestly, doing this only in video games still begs the question. So you've created self-aware beings that are trapped inside a video game? Is that somehow ethically better? Are you not still playing God?

And then there's porn. *Humans* explores this (in part; it explores a lot else, too); one of the self-aware "synths" goes into hiding in a brothel populated by non-self-aware synths, and the experience has long-term effects on her mental well-being; and another synth has a secret "code" that can be input by the owner to change her from nanny to sex-bot. Given that every technological advance seems to have a porn-y element to it (the Internet, anyone?), it's probably certain that some of the first mass-produced humanoid robots will be used in this way. How will they be programmed? How "realistic" will they become? And will this become one of the ways in which accidental strong AI is achieved? This would be awful, for them and for us, and you would no more want AIs to become aware of their enslavement to human depravity than you would those whose sole purpose is military destruction. (For that matter no one should want AIs that are enslaved to human sexual desire even if they are unaware of it, although the Internet seems to show that humans are perfectly happy to go down this route when they can get away with it, when they can do so anonymously.)

Perhaps that is the most pressing thing: we have to develop ethically ourselves, become "more human than human" before we go create human-like beings of our own, unless we're lucky enough to create creatures who teach us all of this themselves, somehow. But the odds are against us creating a group of Buddhas, and the odds are even more against us doing so and then listening to them. In a way, the longer it takes us to create generalized AI, the better; it gives us a chance to catch up.

Data, Bias, and ... Giraffes

AI Weirdness



An interview with Janelle Shane

AS DATA-DRIVEN (DRIVING? CONSUMING?) AI BECOMES UBIQUITOUS across the computing landscape, we're beginning to realize that it's not just doing work quietly and efficiently in some corner cubicle, a mild-mannered office colleague who does what we want even if it's not what we asked. Instead, it's the one yelling out odd and interesting "facts" every five minutes, the one with pictures of everybody else's family on its desk, the one wearing a black cape to work and pulling giraffes out of its hat. AI is downright weird.

One of the researchers at the forefront of describing and discussing this "AI weirdness" is Janelle Shane, author of the book *You Look Like a Thing and I Love You* and fascinating blog and Twitter posts, and proponent of a general adoption of the Plush Giraffe Perturbation test ... because AI and giraffes go together much more closely than you'd think ...

Happily, we were able to interview her for this AI-themed *Penumbric*.

* * *

How did you become interested in what's now "AI weirdness"?

This was about the same time as your magazine was starting up [the original *Penumbric*, early 2000s], in 2002, and I was graduating from high school and starting an undergrad at Michigan State University and happened to attend a lecture by Professor Eric Goodman, who

was talking about his work on machine learning algorithms and how they would solve problems in the weirdest, most unexpected, and sometimes really mysterious ways. He'd describe how they would use a genetic algorithm to try and evolve new shapes for a car bumper, so that it would crumple nicely during an accident, and the thing it would come up with would be this weird looking organic-ish structure that no human would have designed, and yet it worked and they weren't sure exactly how it worked or how to reproduce that in another design, but it was still really cool. Or there was a much less useful case where there were some people doing chemistry experiments trying to figure out the arrangements of atoms in a molecule that would be the lowest, most stable energy configuration. And then the algorithm found a really low energy, really stable configuration, but when they looked at it more closely they found that they hadn't told it that it

How **Artificial Intelligence** Works
and Why It's Making the World
a Weirder Place

YOU LOOK
LIKE A THING
AND
I LOVE YOU

Janelle Shane



PICTURED: (opposite top) Giraffe (and all line-art giraffes in this issue) courtesy of Voracious; (opposite bottom) Cover of *You Look Like a Thing and I Love You*; (above) Janelle Shane

couldn't put all of the atoms in the same singular point in space, so it basically stuffed them into a singularity or something ...

A black hole!

Yeah, exactly. I guess that's stable, but ... So it really did capture me, this sort of combination of really useful and unexpected and also hilarious and unexpected, and looking at the world very differently.

Now, I didn't do my research in that area. I'm actually working as a laser scientist right now, ... but I've always had this kind of interest.

Yeah, I think it says in your bio that you're in optics.

Yeah, I actually get to work on a bunch of cool projects. I get to kinda choose what I work on. There was one project where we were looking at building a virtual reality arena for Mantis shrimp, because they have really interesting eyes that are way different from human eyes, and see polarization and see all these colors, but it's kind of tough for

us to figure out what they can see and what they can't see because we don't have screens that really tax their vision, so this was in part a project trying to come up with ways of showing polarization images to them. I've done some projects having to do with putting experiments up on the space station, so it's been fun to read about what astronauts have to keep in mind when they're using stuff in the space station, what different stuff you have to do when you're building something to operate in low gravity. For example, heat dissipation. Normally, if something's hot, hot air rises off of it and dissipates away because there are all these convective forces; it has to do with density and gravity and less dense air rising. In space you don't have the less dense air rising, so instead each hot object sort of stays in this hot envelope of stagnant air around it, so you have to have active fans to take the place of this convective cooling that no longer operates up there.

Stuff in space always acts so differently, like anything to do with sound waves. There's a lot of "noisy space" in science fiction movies that just wouldn't happen ...

Yeah, I think there's a lot of richness still to be mined out of the ways in which living in space is really weird. You get some fiction that just wants to get on with the story, and we have, OK, artificial gravity, and we have a pill we can take to counteract the effects of radiation or whatever; but if you think through, well, would things be weird if we're still dealing with this stuff? Or ideas of getting anywhere taking a really long amount of time if you can't beat the speed of light, and what does that mean if that is your limit and you can have all the technology you want, but you're still limited by the speed of light? How does that make your technological workarounds really weird, and your experience of the universe really weird?

Have you read *The End of Everything* by Katie Mack?

No.

That one's good, because it focuses on various scenarios for how the universe will end, and how do we know the details of these various scenarios, and what would it be like, and how long would it take, and

would it hurt? So the Big Crunch—not a great time, as it turns out [laughs].

Squeezing and squeezing. Yeah ...

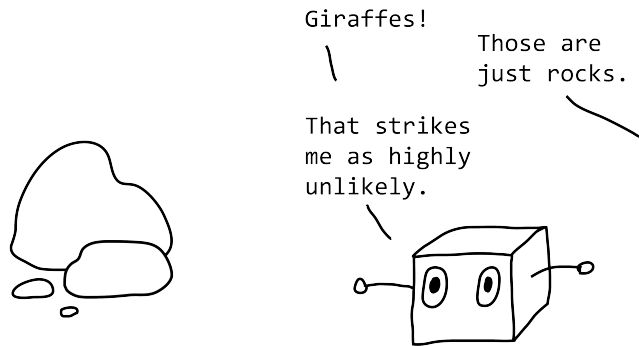
Actually, before you get squeezed, according to this book, all the light that has ever been emitted, all the radiation that has ever been emitted is now compressed back down into a smaller area, and it gets hot. They can calculate the point at which it would ignite the surfaces of stars. So there's some weird times.

How did you end up with the Giraffe Perturbation?

Giraffes as it turns out are a bit of a running joke in machine learning now. People would notice that image recognition algorithms would tend to label images as giraffes that clearly were not giraffes, but it seemed to be one of the possibilities that would pop out when the algorithm really didn't know. It'd be like, well, I've seen lots of giraffes, so maybe this is a giraffe. And then the plush giraffes in particular came about because there was a paper by Open AI where

they were having a robot hand manipulate a Rubik's Cube, and the point they wanted to make was that the robot hand could deal with cubes that were slightly bigger or smaller in size, or where there were changes in texture and stuff, because normally robot hands work only under one specific condition that is only found in simulation, and as soon as it goes to the real world it's like "Agh!" So they were showing that this can handle real world cubes and slight changes in the real world cubes, and then one of the tests they did, they labeled it the "Plush Giraffe Perturbation Test," and they had a giant giraffe just gently nuzzling the cube in the robot's hand, and the robot did not drop the cube. (I don't think it made much progress on the actual puzzle that time.) And so I have now been a proponent of having every paper that comes out include a "plush giraffe perturbation test" in some regard. You've got an image recognition algorithm? Let's see if it can recognize a plush giraffe. Or you've got something that will take a video of one person dancing and use it to make a video of someone else dancing; well, can it make a giraffe dance? I'd like to see more weird pushing of the edges of what these models can do when they're a little outside their comfort zone, because I think it's also a good illustration of, yes, this





PICTURED: (opposite) The Plush Giraffe Perturbation as it applies to this book (you can find the full video on our site); (above) figure courtesy of Voracious

thing is really amazingly good at this specific task and this particular kind of data, but once you get it a little outside of that, you can start to see, oh yeah, this is a narrow intelligence, it can only do so much.

It's like you talk about in your book, once things get slightly more complicated than something simple, the AI gets even weirder.

And that's kind of the area I like to operate in as well. Especially when you get some of these algorithms that can generate text now that, yeah, is a grammatical sentence, and furthermore, these sentences follow from one another now—like, three years ago that was not the case, now it can do that, but the sentences can tend to be boring, as what it is trying to do is be as predictable and unremarkable as it possibly can and try and blend in to the pile of internet text it's read. So getting something that's actually interesting to read or has something new to say or puts it in some interesting way, that actually requires poking at the algorithm in such a way that it begins to act non-human again, and you can start to see this, oh, yeah, it does not understand this part of the universe.

Or you can ask it lots of questions. [For example, you can ask it]

who the first president of the United States was. You can ask it all of these fact-based questions, and it does pretty well on these trivia-type questions—it sees a lot of those on the internet—and then you ask it, “How many eyes does a horse have?” and it will answer, “Three. Two in front and one in back.” [laughs] Or it will say, “Four. Two on the outside and two on the inside.” This thing is making up facts. When you ask for the right sort of facts in the right sort of way, you can see that it's not really concerned with being correct; ... it's been trained to sound correct, and that is what it's been rewarded for. So you get very well-phrased, elegant sentences and complex vocabulary all put together very well and it can be imparting utter nonsense. Like you could ask it about the evolution of whales and it would sound very good—if you knew nothing about the evolution of whales. Like, wait a second, dolphins do not live in the desert.

You can catch it out with these obvious mistakes sometimes, but most of the time it's a less obvious one, like, oh yeah, [whales evolved] 50 million years ago. But whales have not been around that long, it's more like 10 million, but you'd have to know about whales. It's made-up facts. [To the AI,] 10 million years ago is almost the same as 50 million years ago; there's only one little character different, so it is 95% correct even though it is actually quite incorrect.

So in effect, when it's doing something like that, it's just looking at characters within the sentences and how it thinks they ought to go together, and not really understanding per se what it's saying.

Yeah. It's being rewarded for getting certain things right. It's not being rewarded for getting facts correct about the universe. It's being rewarded for predicting which characters come next in a sentence, so if it's guessing most of the sentence, and it really closely matches its training data, one little character slightly different, oh yeah, great job, really well-rewarded! It's wrong, but it's rewarded for sounding right.

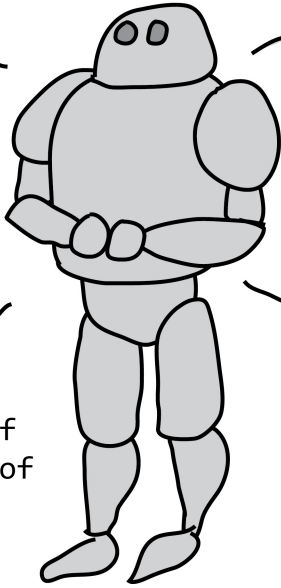
So recently I feel like the definition of “AI” has sort of changed, or perhaps the predominant definition of AI. It used to be AI was the sci-fi version where it was Roy Batty, it was some kind of “more

Artificial General Intelligence (AGI)

Can bake chocolate
croissants

Can count
giraffes

Can summarize the
last six seasons of
The Rise and Fall of
Sanctuary Moon



Can locate and
pet 80 different
breeds of dog

Can calculate
orbital
trajectories

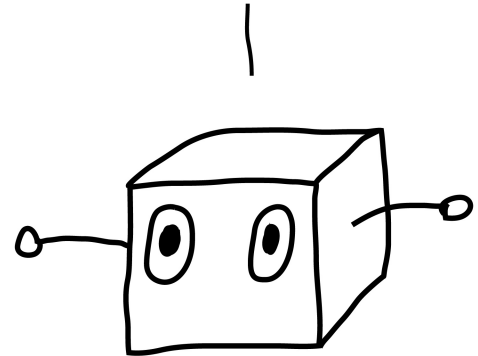
(figure courtesy of Voracious)

human than human” kind of creature, or it was a Terminator if you wanted to go that way. And now, in the last 10 or 15 years, it seems to have caught on as a sort of really advanced data analytics. Do you think that that’s the kind of AI we have now and that’s what will predominate, or do you see any future to trying to create a human-like AI?

I would say it’s weird because we have both definitions going on at the same time, and ... that can be a bit confusing when you say, “Ah yes, we have used this AI to figure out who deserves a loan from this company” or something, and if you have one picture of AI as the superhuman or human intelligence, you may say ah, it has probably made a good decision, perhaps a superior decision to that of humans, whereas the reality is more like this is a spreadsheet, and it’s weighing some variables and coming up with an answer, and it may

Artificial Narrow Intelligence (ANI)

Can tell the difference
between five kinds of
citrus fruits



be dead wrong, and it doesn’t know if it’s copying biased human decisions, for example. So I think we as a society have already run into some trouble. When people see “AI” and think of something that’s very smart, and not realize that this AI is the same sort of technology that’s sorting spam emails or doing their voicemail transcriptions, where you can see that it kinda works but it can be buggy, and it can have systematic problems too.

So that’s where we are with AI is having these two different definitions at once, but having the really simple algorithms in practice, and from what I’ve seen in talking to other people in the field I’m of the opinion that we’re going to have the real simple AI for the foreseeable future. I think that we’re not giving biological brains and human brains enough credit for just how complex they are, and we’re in the habit of counting neurons and comparing those

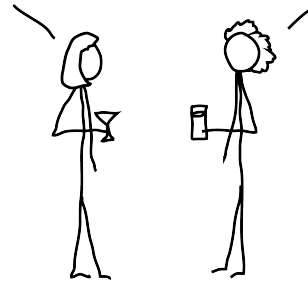
to our number of virtual neurons, while ignoring a lot of the complexity that's in human neurons. Like each individual human neuron is actually like several of our artificial neurons put together, and there's this chemical signaling that's going on at different levels, and all this other stuff that we don't even understand yet in biological brains. We've had this sort of repeated optimism, and reevaluation, and more optimism when we think about what computers are going to be able to do, and we're not great at figuring out what's going to be an easy task and what's a complex task—in part, I think, because in our society, we've got this weird valuation of, say, ah, well, chess, that is a very complex task, only done by the very well-educated complex people, so we are astounded a computer can do this, and then we think, ah, but, answering the phone, why, that is not a complex task, we don't pay people very much for that at all, so of course a computer can do that. And then, no, computers cannot answer the phone very well at all, despite there being a lot of financial incentive to design them to do that. Same thing with cleaning your house. We just sort of, kind of got vacuuming down, but you still have to rescue the Roomba from the closet or whatever. ...

We've got people looking toward that future, whether it's a few years away as some people are thinking, or many decades or many hundreds of years away, like science fiction level future, as I'm more inclined to think. Yeah, we do have people kind of looking at trying to build something more general. I think trying to, if we're talking science fiction, if we're talking morality, if we're talking about a machine intelligence that's self-aware like a human, or as intelligent as a human, I think that would be a bad thing to do, because what would be the motivation for doing that? Somebody wants to profit off of it, or study and research, which doesn't sound very fair to this person that's just been created. So I'm sort of relieved that I don't see any of this kind of intelligence on the horizon, because I do think it would be a bad thing to make.

As it is, we've got lots of biases that we see in this kind of AI that we're doing now, and that's just based on what humans are doing, so if we were to create one that was more human-like, it would probably have those biases built in, or it would have the morals or

So, what do you do for a living?

I pretend to be a computer that has taken my job.



(figure courtesy of Voracious)

understanding of whoever built it, which might or might not be a good thing.

Yeah. If we're talking fully human level, then it would also have some capacity to learn and correct its own biases, whereas today's algorithms have no hope of doing that; they can be told to do the most ludicrous things, and won't say, hey, wait a minute ...

Yeah, that's true. So, a lot of companies kind of blur that line in their advertising, like IBM, when you see advertisements for Watson, it is always talking just like a person, or even Alexa or Siri or something like that, they always have them answering people in a completely human-like manner and they never show any mistakes happening. Do you think AI is becoming a marketing gimmick, like "our thing uses AI" even if it kinda doesn't?

Yeah, I think there are definitely some places that are taking advantage of the sort of blurry idea of what AI is, because AI sounds cool and futuristic, and it might be better than a person—[but] you know the AI might be a really simple algorithm that isn't what a computer programmer would call AI or machine learning. ... So we're definitely seeing ... we're seeing people who may be genuinely using AI but are kind of overhyping the capabilities of this AI. You'll see things in advertising copy like, "This thing is

programmed to be unbiased” or “We don’t tell it anything about race, so how could it possibly be biased?” Well there’s a lot of ways for it to figure out how to emulate human biases without knowing race. It could know ZIP codes, for example. And so you get a lot of marketing copy that doesn’t really dig into that, or makes claims about being infallible without doing the research to find out if there’s bias or if there’s some kind of systematic mistakes in there. You definitely see that.

There’s another class of algorithms, usually these sorts of things are not released by tech companies, but you’ll get some robotics company that is like, “Here is our humanoid robot that is now a citizen of Saudi Arabia, and they answer these deep questions about humanity.” And if you talk to the people who work there, you can talk to writers, and they’re like, “Oh yeah, this is scripted, it’s a puppet, you know. There is no AI, this is just a performance puppet. Everyone knows that, right?” And I’ve definitely sat through lectures where people did not know this, and it is sort of surreal to see how worried they are that general AI is here already and that this puppet deserves rights, and kind of not realize that this is a game someone is playing with them.

Right. It’s funny, I can think of lots of science fiction stories that do similar things. There’s an anime I’ve watched [Macross Plus] where something’s presented as a fully-fledged human-like AI, but really there’s a person behind it.

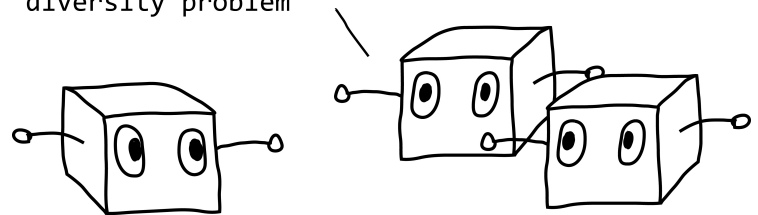
Yeah, you see Wizard of Oz sort of AIs sometimes. And companies have gotten in trouble with that; it’s easier than ever. From the outside, the function to have an actual AI versus connect to the cloud and hire a remote human worker to do the thing, they can look pretty similar, and you get down to one level, and this gets routed to a random human, and you get companies who are in trouble because their customers don’t realize that humans are seeing the data they are feeding to the supposed AI. You get crowd-sourced workers who are saying, “I just saw so-and-so’s SSN,” or “I just saw someone’s bank account information. I don’t think we’re supposed to be seeing this.” So that is a problem, too.

And I think it’s dangerous to blur the lines in customer service as well. That’s another [area] where I see this ... you’re chatting with somebody; are you chatting with a human? Are you chatting with a bot? It’s not going to tell, but that kinda opens the door to people accidentally cussing out a human employee who is trying to help, and the customer thinks it’s a bot and gets mad and treats it badly, and the human’s going, hey, I’m a human here. So yeah, I think that blurring the lines can be a problem. It can be fun to, if you know you’re interacting with something that’s a bot, to sort of play around, to see what you can get it to do, so I don’t think that having people be 100% serious and never mouth off to a bot is the right approach, but it should be crystal clear what is what, what’s human and what’s not.

So going back to the kinds of biases we put in, sometimes without even realizing it, how easily do you think that can be “fixed”?

There are a few different approaches you can use to sort of look for bias and to correct it once you find it. A lot of places don’t go with Step One, which is look to see if it’s there. They’re like, oh, well, we didn’t tell it about race or gender, so how could it be biased? And these algorithms are so sneaky about trying to figure out any information, any correlations that are going to help them imitate the humans, because that’s their goal, is to imitate human decisions or to predict human decisions. So they [might] uncover some signal, like,

So we’re agreed. All successful candidates are named Bob.
Next on the agenda: our diversity problem



(figure courtesy of Voracious)

“I don’t know why, but we should always score this group of humans less than this other group of humans, and we’ll really be predicting how humans behave,” and they are therefore rewarded for implementing racism.

Since these algorithms are so sneaky about finding those subtle signals, you can see the unfair distributions of decisions happening in a lot of different algorithms, so one way [to deal with it] is to just kind of expect it. You’re training this on human data, it’s going to pick up human bad stuff too, and we need to look for it. And assume that [bias] is probably there and run a bunch of test decisions, for example, to see what it does. There are ways [to correct it], once you discover a bias, depending on what kind of a problem you are trying to solve. There may be ways, for example, to then go in and say, “OK, we’ve trained it on loan decisions from the human world, but we know that in a fair world these two groups would have gotten equal numbers of approvals, so we are going to edit the data so that these two groups have equal numbers of approvals, and train our algorithm on that.”

There are other cases where it’s a lot more difficult to tease out the subtle sources in the data. If you’re thinking of hiring algorithms, for example, Amazon recently released kind of a case study of an algorithm they were working on that they ended up not rolling out because it found just so many ways to discriminate against the resumes of women. Even if they weren’t telling it that this was from a female candidate, it would go in and look at extracurriculars, it would look at subtleties of word choice, and it was just really hard to stop it from copying that particular signal that it was seeing so strongly from human behavior it was trying to imitate.

Is there a way to very easily look into that black box of what goes on when it’s figuring out these things?

Sometimes. It depends on the algorithm. There may be a way to get some kind of intermediate decisions



output, but in a lot of cases, your main source of feedback is just test it on a whole bunch of real-world scenarios and see if there are any trends. So for a resume sorting algorithm, for example, give it resumes of candidates from different backgrounds and see if there are trends that shouldn’t be there and how it’s rating those resumes.

What do you think the future of the AI we’re working on now is? Will there just be deeper and deeper neural networks as computers become more powerful, or do you think there are different kinds of machine learning that are going to become more important?

I think what we’ll be seeing as the most useful implementations, and what are becoming more ubiquitous, are the kinds of AI applications that are really specialized and really narrow. In fact we’re seeing them already in our cell phones. You look at your cell phone one day and now it can do voice transcription. Well, in the past you used to have a human do that to do a decent job and now, the computer’s not perfect, but you can kind of get the gist, and maybe you don’t have to listen to the voice mail yourself, and that, I think, is going to get better and better. Or our phone cameras are going to get better and better; a lot of the cameras in our phones right now, they are a lot better than they have any right to be based on the optics themselves, but we have a lot of software that knows what a good photo should look like, and will alter your photo so that it is focused in the right spot, or so that it has the right sort of balanced lighting, and this is all machine learning doing the heavy lifting. So I think you’ll be able to pretty soon hold up your phone to a scene and just kind of wave it around and it will say, “Oh, I think I know what you were trying to take a picture of, and I have taken the liberty of composing your shot, all in the rule of thirds, with a nice foreground interest. Or you didn’t have enough foreground interest, so I’ve taken the liberty of Photoshopping in a few artfully placed rocks so as to draw the eye ...”

We've added a giraffe to this image ...

[laughs] Yeah, we've added giraffes. Oh, I would totally buy a spontaneous giraffe filter for my phone.

Google's already part of the way to this. If you do a Google search for a random animal, and it's like, oh you're on your phone. Would you like to have that animal projected into your room with you, and yes, I actually would like to see a tiger standing next to me, that would be cool. It would be cool to see that, or like, ancient animals, or ancient plants and stuff. ... They could do more and more of this. And each one of these is going to be a really specialized sort of algorithm. So you have one algorithm figuring out where your room is, and how everything's laid out in 3D, so it can figure out where to put the tiger, or will a brontosaurus fit, and if not, what are we going to do here? And we have other algorithms figuring out lighting ... and so there's a lot of individual algorithms that are going to be individually getting better and better. AI is still, at the end of the day, a narrow intelligence, narrow artificial intelligence. It's best at narrow problems. So I don't think we're going to have AI solving any big problems, like content moderation, or how do we use AI to fix society's problems. No, I can get AI to add sparkles to my face or something, or maybe compute me a better route, or make certain routine tasks a lot easier. But yeah, we're going to have a better toolbox, but we're still going to need human supervision.

So there won't really be a sort of master algorithm that can look at all the other sub-algorithms and coordinate them or something?

Yeah, I think that'll be hard to build.

So I was going to ask you if AI could write passable short stories and things like that, but I think we've kind of already answered that ...

It depends on your definition of passable. Like if you want something to generate a really boring conversation or like an extended fight scene, as long as you don't mind that, like, Captain Kirk might show up and make a cameo, or that it's not going to sound anything like your voice, or. ... It's just tough to control right now. You can get a short story structure out right now, but it's not very interesting or fun to read. So I really do think the sort of area that shows the most promise is the cracks where the text does not appear very human-like, but is weird in interesting and unexpected ways.

*Janelle Shane writes about AI weirdness at aiweirdness.com and on Twitter at [@JanelleCShane](https://twitter.com/JanelleCShane). Some of her most popular experiments include computer programs that try to invent recipes, paint colors, cat names, and candy heart messages. Her book, *You Look Like a Thing and I Love You*, is widely available (and excellent reading!).*



She Is Watching You

by Carl Scharwath

Will You Miss Me When I'm Gone?

by Eliza J. Brandt

My daughter's name appeared on my phone's screen and I answered. "Did you miss me already?"

"Ha ha. Can you come pick me up?"

"Already?" I glanced at the clock. "Is everything okay?"

"I'm just ready to come home."

I tried to push the worry out of my voice by smiling. "Rather spend the day with me than with your friends?"

An awkward silence followed and I swore I could hear her rolling her eyes. "Are you coming to get me or not?"

"Give me a minute and I'll be on my way."

She cut the call and I looked at the phone. Willa had been full of attitude lately, and it wasn't like her. I phoned Dax.

"Is everything alright?"

My husband hadn't even said hello first. I fought to keep panic from settling in, but I could still hear it lacing my words. "Why? Did you hear something?"

"No. I'm just not used to you calling this time of day. In fact, you

don't usually call me at work unless it's urgent." His voice was almost soothing.

I snuffed out the flicker of irritation I felt and considered my response. "It's just ... I think there's something wrong with Willa."

"What do you mean?"

A safe response from my husband. It was a good thing we weren't on a video call, so he couldn't see the look on my face.

"She's been moody lately. Withdrawn. Moaning and complaining about family movie night last night."

"Well ..."

I switched to speakerphone as I picked up my purse. "Housecheck, Ros."

The programmed voice of our residential oversight system drowned out whatever my husband was saying as I stepped outside and locked the door behind me. "Your stove, curling irons, and portable heating devices are all turned off. CO2 levels are safe. All entrances are secured."

I tapped my screen to disengage Ros.

“Where are you going?”

“Willa called and wanted to be picked up from swimming practice early.”

I twisted the key, put my SUV in reverse, and backed out onto the road.

“Why don’t you call me when you get home, after you’ve had a chance to see her. It may be nothing.”

“Just spit it out, Dax. I can drive and have a conversation at the same time without crashing.”

“Or you could use the automated driving app.”

I merged onto the main road to town and the whir of an engine from a car passing by filled my ears as Sky Lake Bridge came into sight. My side of the road had a narrow shoulder squished between the lane and the steel railings that kept vehicles from plummeting dozens of feet to the indigo blue water below. I tightened my grip on the steering wheel. Although I often relaxed at the public access areas that lined the shores of the reservoir, I did not enjoy driving over the 300-foot bridge that spanned the waters, but I still didn’t want to give control of my vehicle to an automated driving app.

“Not the time, Dax.”

“Fine.” There was an edge to his voice that hadn’t been there before, the kind of edge that crept into his voice every time we argued about my reluctance to embrace technology. It clearly wasn’t enough that he’d heard me call the house system ‘Ros’ and ask for an update before I left. No, Dax was going to keep pushing until I let apps handle every aspect of my life. I sighed and bit back my retort as he continued. “She’s a kid, Tina. Kids go through phases. Remember teething? Remember her asking why every five seconds? And then there was the Year of No.”

I rolled my eyes as I left the trees behind and was surrounded by

clear blue sky, blue sky that reflected off the water below. There was nothing better than lying back in an inner tube and floating under a summer sky. My cares drifted away with the water. Driving over it was a different story. It was funny how in one situation, the water took my stress away. In another, it multiplied it tenfold.

The same was true of my husband. Sometimes he eased my stress. Other times, he drove me up the wall, and clearly, I’d miscalculated the effect he’d have on me now when I’d called him.

“Willa and I have always been close, Dax. But I feel she’s pulling away.”

“You mean she’s getting to the age where she might have a crush on someone and have feelings she wants to keep to herself and you don’t like it.”

The SUV shook as a semi blew by and my arms burned as I held the wheel tight and kept my jeep from veering toward the edge of the bridge. “I’m surprised you aren’t bothered by the idea of our daughter dating.”

“There’s a big difference between her having a crush and her dating someone and it’s perfectly natural. You know what isn’t natural? Kids sticking to their parents like dog shit on a shoe forever. Talk to any child psychologist and they’ll tell you it’s normal for kids to become more independent around her age. Maybe you should try giving her some space.”

“Fine.”

“Really?”

I sighed, and searched for a way to end the conversation without lying. Dax wasn’t going to take my side, or even offer sympathy, so there was no point discussing it further. “I guess I just didn’t expect her to ask to be picked up from swimming so soon.”

“They had that big training last weekend and then she got sick. She’s

probably just tired. That could even be why she didn't want to watch the movie last night."

"I'm sure you're right," I said as I turned into the parking lot in front of the recreation center. "I'm here so we'll see you at home."

We said our goodbyes as I backed into a parking spot. I was just about to unclip my seatbelt and head for the front door when Willa exited the building and marched down the stairs. Her dark brown hair hung down around her face and contrasted her pale skin. Her light blue sundress had dark patches on the straps from her wet hair. Willa usually liked to dry it and style it before she left practice. Something was wrong, but maybe Dax was right. Maybe she still wasn't feeling well.

She stopped by the front passenger door and I shook my head. Willa threw hers back as she let out a sigh before she climbed in the back seat.

"Did practice finish early?" I asked.

"Mm."

I glanced around at the lot, which was almost empty. "None of the other girls' moms are here yet? Should I wait and make sure they all have rides?"

"No."

"You're sure?"

She nodded and slumped against the door. I watched her for a moment as she stared through the glass at nothing in particular.

My maternal instincts kicked into overdrive and I reached back to feel her forehead.

Willa turned, straightened up in her seat, and swatted my hand away.

I glared at her. "You don't seem yourself. Are you alright?"

"I'm fine."

Her words dripped with sarcasm, something I wasn't accustomed to from my daughter. I chewed on my bottom lip as I pulled out of the parking spot, made my way out onto the road, and headed back toward the bridge.

"Are you sure you're alright?"

I adjusted the rearview mirror so I could see my daughter. She was still looking out the window, so I twisted around and stared at her.

She leaned against the door again, as though the extra few millimeters of distance she'd put between us would deter me. I glanced at the road to make sure I was still driving straight and then swung back around. This time, I leaned over so I could swat her knee.

Willa glowered at me. "Eyes on the road, Mom."

"I know how to drive," I said, but I turned around.

"It's not my fault you keep disabling ADA."

"Stop calling her that. It makes it sound like you're talking about a person."

"The automated driving app, ADA, is designed to safely transport people in their vehicles. She isn't blinded by sunlight or affected by distractions—"

"Like grouchy girls who refuse to answer basic questions?"

She exhaled as loudly as possible before she pushed out, "I'm fine, Mom."

It sounded like she muttered something under her breath after that, but I couldn't make it out. I swung back around. "You're not yourself, and I'm concerned."

“You’re overreacting. Jane says her parents are pleased she’s becoming more independent.”

“Jane’s parents don’t care about her.”

“I don’t want you hovering over me twenty-four seven. That isn’t bizarre. It’s natural to want some space.”

My eyebrows climbed towards my hairline. “And is it natural for you to be mouthy with your mother?”

She rolled her eyes and I felt mine narrow.

“You need to turn around,” she said as she folded her arms across her chest.

“You need to answer me.”

Her eyes popped wide open and she pointed at the windshield. “I’m not kidding, Mom! Look out!”

There was a split second when I hovered between anger and panic.

Anger that she was telling me what to do.

Panic, because the way her voice pitched higher betrayed her fear.

I spun around. We were heading straight for a van with a ladder and some metal poles strapped to the top of it. I slapped my free hand on the wheel and cranked it hard to return to our lane. A horn blared as the car I almost sideswiped veered onto the shoulder, and I was thankful we were heading home, which put us on the side of the bridge with a wide gap between the lane and the railing. For half a heartbeat all I could see were blue waters blending into the cloudless sky. It was picture perfect; a snapshot of an idyllic place where you could unwind and relax, but the allure was shattered by ear-shattering screams from the backseat. The van had tried to compensate for my error by swerving into my lane and I twisted the wheel back into the oncoming lane of traffic. The van started to spin and the ladder and

poles came free. They were headed straight for the passenger windows.

“Willa, get down!”

I cranked that wheel with everything I had, praying there was enough time to put the back of the SUV between my daughter and the objects heading our way. I was so focused on the metal flying through the air that I forgot about the steel barrier that was now in front of us. A sickening screech and the sound of shattering glass filled the air. My chest bounced off the steering wheel, my back crashed against the seat, and then my face smashed into the airbag. The airbag deflated and I was surrounded by blue as everything but Willa’s screams faded as we plunged into the waters below.

* * *

I rubbed my left temple as I leaned back in the chair and waited. Within a minute the salesperson, Onyx, returned and put two sets of keys and a small stack of papers down in front of me. “All set. I just need your signature on the top sheet. The other papers explain your warranty.”

“Right.” I picked up the pen and skimmed the familiar language outlining the terms of sale and transferring insurance.

Then I did a double-take and re-read one of the lines.

Coverage for installed and freestanding synthetic drivers has been activated.

“What does this mean?” I tapped the paper as I looked up at Onyx. They had the warmest dark eyes, which complimented their jet black hair and brown skin.

“Let’s see.” They smiled and their eyes lit up as they moved back to my side of the desk and leaned over to see what I was pointing at. “That’s standard insurance now. It means your coverage applies if an artificial lifeform is driving your vehicle.”



I frowned. “I’m sure we had automated systems coverage before.”

“Yes, you did, but this applies to synthetic lifeforms.”

“You mean if I get one of those feline automated companions and my synthetic cat drives the car, my insurance will cover any repair costs if there’s an accident?”

Their smile faded a touch. “It’s for synthetic humanoids. In case you get a robotic housekeeper.”

I twirled the pen in my hands. “Did my husband ask for that?”

“This is your policy. Your life partner can’t interfere with your decisions.”

Part of the new world order that did benefit me. Salespeople never talked over me in favor of discussing purchases with my husband. Most people didn’t even marry anymore. I was a forty-year-old who had no issue with anyone’s gender or orientation or how they lived their life, but had indulged in some basic traditions. I’d gotten married, I still drove myself around, and I cooked my own meals at home. To Onyx, I’m sure I was a relic. A dinosaur.

“I just don’t remember this being in the coverage.”

“It’s standard now. Required by law.”

“That seems unnecessary.” I felt the edge creeping into my voice.

The warmth in Onyx’s eyes was starting to give way to concern, but they responded calmly. “I know it’s been over a decade since there was a car accident in this area, but imagine the unthinkable happened. Emergency services personnel include synthetic beings, who are able to respond in dangerous situations that might otherwise cause loss of life. They may need to drive your vehicle. This inclusion makes sure that you’re protected. That’s all.”

“Okay. I really don’t like the idea of having a robot doing my

housekeeping.”

“Or an app driving your car?” Their warm smile was back. “I understand. A lot of people feel that way. Yes, Ada is designed to take over if the driver falls asleep at the wheel, but otherwise, she won’t interfere with your driving and nobody’s forcing you to take one of these life-size robots home.”

“Good.”

I signed, grabbed the keys, and followed them to my new SUV. My steps faltered when Onyx stopped by a pine green jeep. The image of my driveway and a crimson jeep flashed through my mind, along with a dull ache behind my eyes. I reached out with my hand to steady myself, but there was nothing to grasp onto, so I froze.

“Are you alright?”

For a second, my mind went blank. Where was I? A car dealership. Why? How?

I looked at the keys in my hand. Clearly I was buying a new vehicle. But why? And how had I gotten there? I searched my memory, but couldn’t recall.

“Mx. Amara?”

Onyx’s smile had been completely swallowed by their wide-eyed concern. I could imagine what they were thinking. *Do I need to call health services?*

I smiled reassuringly. “Was this the color I chose? I had a sudden flash of a red jeep in my mind.”

Onyx offered a small smile. “We have this model in red if you prefer. It isn’t a problem at all.”

I glanced at the row of jeeps to my right. There was a red one right at my end, and I glanced from it to the green jeep. “No, that’s fine. I

don't know what I was thinking." I laughed it off. Onyx held the door open for me and I climbed inside. "Green is my favorite color. And I've heard people who drive red cars get more speeding tickets."

"I think the artificial protective units are programmed to ensure that doesn't happen anymore. We have colorblind law enforcement now, for cars and people."

"Which is a good thing." I smiled. "Thanks for everything, Onyx."

"Any time, Mx. Amara."

* * *

I rubbed my left temple as I opened the kitchen cupboard and took out a glass. I wished we'd opted for flat white instead of eggshell. The sun bounced off the walls and cabinets and pierced my eyes.

"Is everything okay, Mom?" Willa walked in from the other side of the kitchen and flashed me a smile.

"Oh, yes, fine." I forced my lips to curl up in response as she walked past me to the fridge and squeezed my shoulder.

"How about a retro classic for movie night tonight? I was thinking *Goonies* or *The Princess Bride*. Or we could skip the historic options and go with something from your childhood."

I glanced at her. "It doesn't matter to me."

She grinned as she set a cup on the counter and poured herself a glass of juice. "Seriously, what do you think? If you prefer action we could watch *Mad Max* or *Aliens*."

Just the thought of revving engines and screams was enough to make me wince. "No, nothing too loud."

Her smile faded. "Is your head hurting again? Here, let me give you a shoulder rub."

She started kneading my shoulders and I flinched, but I let her continue. It felt like every one of her fingers was drilling through my skin.

"You're so tense," Willa said as Dax walked into the kitchen. "Dad, I think Mom needs a day at the spa."

"Oh? Would that be with or without you?"

"I'm serious. It feels like her muscles have been dipped in liquid nitrogen."

"They're cold?"

She blew out a breath that tickled my ear. "They're hard. Like granite."

Dax didn't seem concerned. He reached around me to get a glass and then went to the fridge. "Not sure why. You haven't been tossing in your sleep, though."

Now, that was unusual. I usually worked out my stress from the day by rolling around in my sleep at night. Willa kept working on the knots as she and Dax settled on a movie, but I kept my thoughts to myself. They chatted as Dax made popcorn and eventually, my daughter shepherded me into the family room, propped me on the couch with a heating pad behind my back and snuggled up beside me. Between the running movie commentary she engaged in with her dad and passing the bowl of popcorn back and forth, she would lean close and ask me how I was doing. I did my best to smile reassuringly and tell her I was feeling better. When she glanced my way at the funny parts I managed to laugh, and when the popcorn was done she rested her head against my shoulder and held my hand.

The numbing pain wasn't as severe as the sharp pain I'd felt from her massage, and the feeling of her hair pressed against my cheek more than made up for the discomfort.

I opted for a nightshirt with buttons so I didn't have to pull it over

my head. As I crawled into bed, Dax shut off the bathroom light and walked over to his side of the bed.

“You must be feeling better.”

I pulled the covers over me. “Hm?”

“About Willa.” He sat down beside me and turned the lamp on his nightstand off. Although our room was muted shades of green and cream, the tension in my head eased as the darkness engulfed us. “She’s her usual self now that she’s over that bug. You were worried about nothing.”

I felt him settle in beside me and then he leaned over and kissed my cheek. “She’s being a little too attentive now, I think.”

He chuckled. “She can’t win. No matter what she does or doesn’t do, you’re going to think it’s odd.” I felt his fingers stroke my hair. “She’s just growing up.”

Dax lay down beside me and turned over. I started to turn onto my side, but my shoulders protested, so I stayed on my back, staring at the ceiling.

* * *

The smell of coffee welcomed me as I headed for the kitchen the next morning. Dax must have made a pot when he realized I was running late. My muscles had tightened up overnight, and even lifting a toothbrush made me want to cry. I had no idea how I’d managed to injure myself, but I must have done something. If it didn’t get better soon, I was going to have to call health services myself.

I winced as bright sunlight bounced off the counters and cabinets and my daughter’s toothy smile. She held out my favorite mug. “Two creams, two sugars. Just the way you like it.”

“You’ve never made me coffee before.”

She ignored that and gestured at the counter beside me. “And your lunch is packed. Turkey on rye with Swiss cheese and lettuce. Tomato, mustard, and mayonnaise on the side. I packed a fresh peach and an apple and some napkins.” She paused.

Was she waiting for acknowledgment?

“Thank you, Willa.”

“Any time.” A horn beeped outside. “That must be Jane’s Mom.”

I frowned. “What does she want?”

Willa’s eyebrows shot up. “She’s taking Jane and me to Splash Factory today. Remember?”

I didn’t, but I wouldn’t admit it. “Right. Have fun.”

“Thanks.” She hugged me and I winced again, but I patted her back and tried to remember the last time Willa had hugged me like this.

It had been months.

She let go and walked past me, to the front hallway. “Dad’s waiting for you in the dining room.”

“Really?”

“Your appointment. Remember?”

Appointment?

“Have fun today. Keep your smartphone and activate your implant.”

“Always.”

The implants allowed users to connect to their smartphones and be traced. Even I couldn’t deny how much it reassured me to know I could locate my daughter with the press of a button. When she turned

16 she'd be able to deny Dax and me access to that information, but until then, the law allowed me to monitor her every footstep if I chose to. I didn't, but I liked knowing that I could.

When I'd agreed to the implant, Dax had considered it a welcome sign of progress on my part. I considered it a practical form of protection, and nothing more.

Dax sat in his usual spot at the table, across from a woman in a gray blazer with her nametag pinned to the lapel on her right side. She looked up and smiled.

"Did you forget we were reviewing our insurance policies this morning?"

I slid into the seat beside Dax. "I just went over the insurance policy for the new vehicle."

"Not transport insurance. Life insurance."

"It slipped my mind."

"Not to worry," Carla said with a smile. "I think we have everything squared away. You're maintaining your existing policies. Dax is your primary beneficiary, Tina. If something happens to both of you, then Willa is the beneficiary. Is that correct?"

"What are the chances?"

Her smile slipped. "The chances of what?"

"Something happening to both of us?"

"Oh." Carla pushed her lips back up into a smile. "It isn't likely. The world is much safer than it used to be, thanks to technology."

"Yes, the car salesperson mentioned there hadn't been an automobile accident in this area in a decade." A statistic I doubted, but I kept that thought to myself.

"Ada has made it so much safer for us to travel on roadways. Life insurance policies have decreased in price by more than 50% over the last decade because people live so much longer now." Her brow wrinkled. "You're 40? I'm a little bit older than you, and I remember cancer, and COVID-19, and then Rhinovirus. The year we had everyone locked up at home and the two years that followed, when people who were over the age of 50 were confined."

I had vague recollections of that period. Recollections of drive by funerals and people wearing bubble suits when they had to go outside.

"The youngest person who died in this state last year was 79. Just a few decades ago, that was unthinkable. Now, it's normal."

She pushed a piece of paper across the table. A glance to my left told me Dax had already signed his. I picked up the pen beside him, pulled my form toward me, skimmed the contents, and stopped cold.

"What does '*covers synthetic lifeform replacement*' mean?"

"If you need an artificial limb or heart you could upgrade those components."

I chewed on my bottom lip for a second and then looked up at Carla. "We've had insurance for artificial replacements for years. I don't remember it being part of our life insurance."

She waved and tried to giggle, but her eyes didn't light up and it wasn't very convincing. "The government is always modifying the language to ensure everyone's rights are protected. This is to ensure that no matter what happens, your life insurance policy pays out. Even if your artificial heart is the cause of death."

"Is that common?"

"Really, Tina? I'm sure Carla has a busy day ahead of her and we've kept her waiting this morning. I'm not sure she has time to talk about statistics."

Was I imagining it, or had he put a bit of an emphasis on “we’ve” to underscore the fact that I’d kept them waiting this morning, and therefore I’d wasted whatever time I might have had to ask what Dax considered to be silly questions?

Of course, Dax had been working with synthetic replacements for fourteen years. He knew the statistics. And any time he and I discussed technology it led to an argument about my concerns about our reliance on machines and inability to do things ourselves.

I bit my tongue, signed the paper, and we escorted Carla to the door. Once she left, I glared at Dax.

“Don’t start.”

“Do you know what your daughter did this morning? She made me coffee and she made my lunch. Don’t you think it’s good that she knows how to cook for herself? She’d be able to take care of herself if anything ever happened—”

“If we all lost power because of a zombie apocalypse and had to use manual can openers to eat? Eventually, she’d need to hunt for food or grow plants, and I don’t see you taking her to archery classes or the gun range.”

“I’m just saying it’s good for her to have some basic skills. It doesn’t mean she can’t get an intelligent sustenance app when she’s older, but if it ever breaks down, she won’t be stuck.”

“I’m quite sure anyone could manage to spread some peanut butter on bread.”

“Why are you so opposed to people retaining some basic skills? Even the schools see the value. They teach cooking and sewing.”

“Yeah, as part of their historic arts unit.” He frowned. “Why are you so resistant to using technology to improve your life? I heard you use Ros the other day. Even that damn alarm clock you have on your

nightstand is technology, Tina. It may be outdated, but someone created that device to perform that function so people didn’t need to worry about oversleeping. I bet you told Willa to activate her implant today.” He paused for half a heartbeat before he shook his head. “You’re a hypocrite.”

“I don’t ever tell you not to use technology, Dax. If you’re comfortable with a new app, I don’t stand in your way. Why can’t you show me the same courtesy?”

“Because this is my livelihood, Tina. I create apps and synthetic beings designed to ensure people live a long life and keep them happy and healthy. You heard Carla. Do you remember what it was like when we were young? My father died from Rhinovirus, Tina. Do you have any idea what it was like to watch a strong man wither away in a few days, to hear him cry out in pain any time he took a breath? To go through life reaching all those milestones and wanting to celebrate them with my family, knowing my dad had missed out on that moment? I don’t want anyone to go through that, Tina, and I’ve devoted my life to doing everything I can to make sure that doesn’t happen. And you won’t even use the bioreaders for basic health checks.” He swallowed. “Not even when you’re having headaches and muscle pains and forgetting things.”

“Dax, I know how hard it was for you to lose your dad, but none of us can cheat death.”

“No, but we can keep the reaper at bay.”

I took a step forward and reached out for him, but he held up his hand and shook his head.

“I’m sorry, Tina. You know I don’t like to walk out on an argument, but I’m already late and I have an important meeting today. We will have to talk about this later.”

Tears pricked at the corners of my eyes as he shut the door behind him. I gathered my stuff, had Ros do a housecheck, and swallowed

the lump in my throat as I left for work.

* * *

Dax came home late and we went to bed without discussing our argument. I was moving so slowly that he was asleep by the time I pulled the covers over me, and I listened to his deep breaths while I stared at the ceiling for the second night in a row.

Eventually, a glance at my outdated alarm clock told me almost three hours had gone by. I crept out of bed.

Within minutes I'd slipped into a pair of leggings, left the house, and pulled out onto the road in my new SUV. I didn't remember Dax and me talking about the purchase, and I still didn't remember how I'd ended up at the dealership.

I'd thought Willa's behavior was odd before I got the new vehicle, but it was even worse now. She seemed to be overcompensating. Like she felt obligated to dote on me to prove everything was okay.

Dax had dismissed my concerns when Willa had seemed withdrawn, and he'd dismissed my concerns about her attentiveness now. Maybe Dax was right. Maybe the problem was me.

I pulled into the parking area near Sky Lake Bridge. This time of night it was usually the perfect place to sit on a picnic table and watch the reflection of the stars dance on the water, but when I walked through the thin line of trees that separated the parking area from the waterfront, I realized I wasn't alone. A handful of vehicles dotted the shoreline, past the point where cars were allowed. One of the trucks had a winch attached to a crane. Spotlights were pointed out at a boat on the water.

I'd never seen anyone on the water at this time of night. Park of me wondered if I should leave, but the other part was curious about what was going on. The clink-clink-clink of metal gears turning dispelled the stillness and then an object rose up out of the water.

An SUV.

A light flashed on it, and I swallowed.

A red SUV.

I stumbled back to my jeep as an image flashed through my mind. Me and Willa and her screaming as the nose of our jeep cracked into the water. An airbag smashing against my face.

The real reason I wasn't sleeping. Every night when I drifted off, I found myself back in that moment. Plunging below the cold water, and then shooting back up as the vehicle flotation devices kicked in. Turning, and seeing Willa's lifeless eyes staring at me as blood seeped from the hole created by the metal rod through her chest.

Had that actually happened?

It took three tries for me to turn the key over and I broke down. "ADA, activate."

"Activated. Destination."

I swallowed. "Home."

* * *

"Earth to Tina."

"Hm?"

I looked up as I took a bite of my sandwich. Lara sat down across from me. She had a gentle face sprinkled with faint freckles and framed with auburn curls. There was something unassuming about Lara that always made me feel I could tell her anything and she'd understand.

"Spill. You were away for a whole week and it seems like your soul

didn't come back from vacation. What's wrong?"

Vacation? I hadn't gone away. What on earth was she talking about? I shook my head. "Just got into a fight with Dax this morning."

"Which could be good for your sex life later."

I doubted that, but decided not to comment. "Nobody seems to be themselves these days."

"You certainly don't. Your eyes tell me you're a million miles away. You didn't have a good holiday?"

"Honestly?"

She nodded.

"I don't even remember going on vacation."

Lara pulled her sandwich out of her bag and tried not to let the skin between her eyes pinch together. Tried, and failed. "What do you remember?"

"Thinking Willa was acting strange. Not feeling well. Picking up a new jeep that I don't remember deciding to buy. Sleeping in. Forgetting about Willa's plans for today and an appointment Dax and I had."

"Did your last biocheck turn up anything that might explain the forgetfulness?"

I made a face at her.

"Oh, right. You don't do biochecks. And let me guess. That's why you argued with Dax."

"That's part of it."

"What's the other part?"

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I glanced around. We were in the far corner of the cafeteria, which was one part eating area, one part greenhouse. The vines and potted trees provided natural barriers between seating areas, created fresh oxygen, and purified the air. Nobody was close enough to hear us, but I still leaned a little closer.

"Do you ever question things you've been told?"

She smiled. "I don't believe in the Easter bunny, if that's what you mean."

"Our insurance broker told us this morning the youngest person who died in our state last year was 79."

"And you don't believe her?"

"The car salesperson said there hasn't been a car accident here in over a decade."

Her nose wrinkled as she took a bite of her sandwich and looked away. When her gaze met mine again, she nodded. "I can't remember the last time I heard about an accident."

"Doesn't that seem odd to you?"

She shrugged and rolled her eyes. "Well, they tell us that's the point of the apps and synthetic systems, right? To keep people safe and ensure everyone gets to live a long, healthy life? We've eliminated illness and disabilities and improved safety."

"But something in the way you say that tells me you don't believe it."

"Jubilaine deals with a lot of statistics for her work. Only 37% of drivers use ADA. And if only 37% of drivers use ADA, how have people suddenly stopped having accidents?"

That was a damn good question. "I used ADA for the first time last night."

Her eyes widened. “I mean, good for you, but why? I know you prefer to drive yourself.”

This was it. The moment of truth. I usually trusted Lara with everything, but how would she react if I told her what I’d seen?

Dax already thought something was wrong. Lara could confirm that, but there was a chance she’d have a different opinion.

There was a chance she’d understand my concerns.

Only one way to find out.

I told her about my dream, and then I told her what I’d seen, and all the missing gaps from the past several days, when I’d apparently been on holiday.

Her lips twisted, and then it was her turn to glance around nervously before she spoke.

“You know Jubilaine works for the same company as Dax.”

I nodded. Dax never talked about the specifics of his work, but I’d gleaned from prior conversations with Lara that Jubilaine was more forthcoming. Was Lara inferring that what I was experiencing could be connected to Dax’s job?

“Jubilaine works on memory construction.”

“You mean like machine learning systems that enable those artificial pets to learn their names and commands and stuff?”

“No. I mean human memory construction.”

It felt like my heart shot up into my throat. “Why would we need to create human memories?”

“There are a couple reasons why. For one, health service workers have the authority to wipe your memory and replace it if you witness

something traumatic, like a crime.”

“But, there is no crime. The artificial protective units maintain order and since everyone enjoys a good standard of living now, nobody has the need to commit crimes.”

“You really believe that? People think there’s no crime because anyone involved has their memory wiped.”

“But why would they do that?”

“The same reason they might wipe your memory if you’re in an accident. To keep you from experiencing mental health issues.”

I swallowed. “You mean my dreams could be memories seeping through? Memories they tried to wipe out?”

“Well, you said you’ve been having headaches and sore muscles, but you don’t know why. Maybe you were in a car accident. Maybe that was your jeep you saw them pulling out of the reservoir last night. Everyone who knows you was told you went on vacation, when you were really in a medical ward being treated for your injuries and having your memory wiped and replaced.”

“If that’s the case, the replacement didn’t stick.”

“Jubilaine said that happens sometimes. They’ve refined the process, but they haven’t perfected it.”

“But Willa. She looked ...” I couldn’t say it. I could hardly bear to think it.

Lara shifted in her seat. “Well, that brings me to the second reason for memory construction.”

She paused, and I nudged her. “Go on.”

“Synthetic lifeforms.”

“Like ISA?”

“The intelligent sustenance app is designed to prepare food and nutritional supplements. It doesn’t have much of a personality. Nobody would mistake ISA for a person.”

She took another bite of her sandwich and I let her words sink in. “Do you mean they’re planning to make artificial people who will live like humans?”

“They don’t plan to make artificial people who live among us. They already have. They can replace any person with a synthetic lifeform.”

“But why?”

“Why? So all these people who are dying in the accidents they say don’t happen can be replaced.”

“That’s ...” I couldn’t even push the words out. All I kept thinking was how Willa hadn’t been herself lately, and about the lifeless look in her eyes in my dreams.

“I’m not saying anyone you know has been replaced with a synthetic being. I’m just telling you, it could happen. In such a short span of time we’ve cured diseases and disabilities and ensured every single person lives to a ripe old age. Apparently. And that was enough to end racism and sexism and every other problem on the planet? Every workplace has a 100% safety record? Nobody drowns in a flood?”

The bells chimed, warning us that we had ten minutes before our lunch break was over, and we hastily picked up our garbage, disposed of it, and headed for the bathroom. When we were on our way back to our work stations, Lara stopped and touched my arm lightly.

“Because I trust you, okay?”

There was a weight I’d never seen in her gaze before as she stared into my eyes, and I nodded. “Because I trust you.”

She offered a wan smile and dropped her arm. “If you have questions, don’t ask Dax. Ask Jubilaine. She’ll talk to you.” Lara headed for her office. I turned and headed towards mine.

* * *

Willa fussed over me again that night, and I had to blink repeatedly to keep tears from welling up in my eyes every time I looked at her and remembered what Lara had said. Every time I thought about the possibility that the ... person ... rubbing my shoulders and touching my arm could be some artificial lifeform, my chest formed a knot I couldn’t undo.

I managed to lie on my side that night without too much pain. One small source of comfort in my life was that my muscles weren’t as stiff as they had been and the headaches had subsided.

One large source of discomfort was how distant Dax was. We’d never talked about our argument, and he managed to avoid me each night. He was either asleep by the time I got to bed or waited to slip into bed under the cover of darkness.

That night, I was in bed first. I was just starting to drift off when I felt the mattress shift, and then I heard his voice.

“You have an appointment at health services tomorrow at 1640 hours.”

Heat filled my cheeks but I fought the urge to bolt upright. In fifteen years of marriage, he’d never interfered with my health. Now he was making appointments for me without my consent?

“Did you hear me?”

I tried to extract the anger from my voice. “Yes.”

“I need to know everything’s been okay. You haven’t been yourself. Willa and I can’t lose you, Tina.”

He was offering an apology for the imposition because he knew I'd be angry, but he'd still done it anyway.

Was I being unfair? Was I the one who was really acting strangely?

For a second, I thought about telling him what Lara and I had talked about, but then I remembered the promise we'd made to each other.

I couldn't betray her. If the statistics about deaths and accidents were all propaganda, if health services workers could wipe and implant memories, what would the authorities do if someone questioned their system?

It was ridiculous. I remembered reading about conspiracy theory nuts who thought 5G gave people viruses.

If I shared what I was thinking I'd sound just like one of the crazy anti-vaxxers who contributed to the deadly measles resurgence when I was five. My sister had been quarantined with the illness, and I still felt rage when I thought about how selfish and ignorant people had been with their health.

Was I guilty of the same thing now?

"Thank you, Dax. I think we'll all feel better if I get a clean bill of health."

The mattress rose and fell as he rolled over, gently wrapped his arm around me, and whispered in my ear, "I love you."

I turned toward him, felt his lips meet mine, and for a short time, everything seemed right with the world.

* * *

I made a point of telling health services that the headaches had subsided, along with the pain in my shoulders. They still ran comprehensive exams. I didn't flinch at the white walls and I smiled at every worker who entered and exited and answered all their

questions.

Within reason, anyway. When they asked if I'd had any unusual thoughts, I kept most of them to myself. They asked about the family, and I mentioned Willa's age and said she was becoming more independent and it made me sad, and I pushed all my other thoughts and fears aside so I could smile convincingly.

Eventually, they told me that everything seemed fine, but they gave me a shot and recommended I take a few days off just to be sure. They authorized the work break and by 1535 I was ready to leave my appointment and head home.

Instead, I performed a location search for Jubilaine. It wasn't until I reached Dax's work that it occurred to me that he might be there. I used him as my excuse for accessing the building; the guards knew me by name and waved me in without questioning my reason for being there. I stopped by his office.

Empty, and devoid of anything that would give me a clue about what he was working on. His habit of keeping everything under lock and key had given me the impression his projects were classified, and I'd never pried.

Partly because I wasn't fascinated by the latest technological advancements most of the time. I was bothered by them. I'd thought Dax had appreciated the fact that I didn't try to coax secrets from him, but his words the other morning had planted seeds of doubt that had taken root.

He wasn't happy I respected the boundaries. He was offended I didn't value his work enough to try to find out what he was doing, how he was changing everyday tasks with new technology that I thought eroded our humanity a little more each day.

I turned down the wing toward Jubilaine's office. The door was open, but I could hear voices, so I slowed down.

"Last year, we successfully replaced 952 individuals in this county

who died prematurely.”

I recognized the distinct British accent that belonged to Jubilaine, but the voice that responded wasn't familiar.

“That sounds low.”

“We have made great strides in reducing premature death. If more people used ADA and some of the other apps, the number would be even lower.”

A third voice entered the conversation. “Have there been any issues with the IRAs?”

“The intelligent reaper avoidance synthetics have operated properly. We do have a classified group monitoring them, but for now, there don't seem to be any issues. Obviously, every replacement is a risk. We just had a tricky one last week. A teenager. Heartbreaking.”

I fought to stifle my gasp as a moment of silence followed those words before Jubilaine continued.

“It's crucial Dax Amara remains unaware of our activities. He's fully committed to the death prevention projects, and DPP must progress. Our goal is to prevent people from losing anyone they love prematurely. People used to be crippled by grief. Some were unable to work or function. They endured long, joyless days. Some even tried to kill themselves.”

A pause followed before she continued.

“You're all too young to remember, but our job is crucial. Our society depends upon us. We have the ability to ensure that nobody ever suffers a heartbreaking premature loss. Our economy relies upon everyone performing optimally. Without the IRAs, food production and manufacturing could grind to a halt. And nobody has to worry about loss of income or funeral expenses because a person dies prematurely. Bodies are kept in stasis and when the IRAs complete the predetermined natural life cycle, the real person is buried or

cremated. People really are reunited with their families in death.”

I turned away, and hurried down the hall as quietly as I could. Images flashed through my mind as I made my way out of the building to my jeep.

Willa's bright smile.

Dax's eyes when we'd argued.

A wrecked red jeep being raised out of the water.

The pain in my head and shoulders.

The montage played over and over again, along with the words I'd heard from Lara and Jubilaine.

They don't plan to make artificial people who live among us. They already have. They can replace any person with a synthetic lifeform.

The intelligent reaper avoidance synthetics have operated properly.

All these people who are dying in the accidents they say don't happen can be replaced.

Obviously, every replacement is a risk. We just had a tricky one last week. A teenager. Heartbreaking.

People used to be crippled by grief.

I'd gone from thinking my heart was going to stop to being afraid it would burst when I just suspected Willa had been replaced. Jubilaine's word echoed in my mind again.

She'd confirmed my worst fears.

Willa was dead. She was gone. And I couldn't even mourn for her because she'd been replaced with some *thing* that wasn't my daughter, but I would have to pretend that it was for decades to come.

The tears that filled my eyes were mirrored by thick rain pelting the windshield as I drove. My wipers were set on maximum and still unable to keep up with the rain. Part of me didn't care. What did I have to rush home to? Yes, a husband I loved, but every time I set eyes on that thing that had been sent to replace my daughter my heart would clench and I would feel a loss I couldn't even talk about.

Dax was lucky he'd never know.

A horn beeped and I leaned forward and wiped the back of my hand across my eyes. I still couldn't see anything. Another horn blared long and loud, and I hit the brakes as I peered through the windshield, searching for some sign of the traffic nearby. The back end of the vehicle pulled to the right and I swung the wheel to compensate, but the jeep swung out the other way. Then I felt the force of something slam into the side of the jeep and my body was tossed from side to side. The metal shrieked, glass shattered, and the next thing I knew, the world was upside down.

* * *

I opened my eyes and sat up. My body rested on undefined darkness. The edges of the space shimmered with red and gold, but there was no form or structure.

“Where am I?”

“You mean what.”

I spun around at the familiar voice.

“Lara?”

She gave me a sad smile. “The one and only. At least, the one and only dead one.”

I swallowed. She looked the same as always. Same auburn curls, same lightly freckled skin, same caring eyes. What was she doing in this strange place?

What was I doing here?

“What do you mean by that?” I wasn't sure I wanted to know the answer, but I couldn't hold the words back.

“Look. See.”

She pointed up and I followed her gaze. I could see inside her home. Jubilaine and Lara were laughing as they cooked dinner and they stopped to kiss. It wasn't a casual kiss, and I looked away, embarrassed.

“Those IRAs are so damn good, Jubilaine doesn't know she's living with one.”

IRA. What had that stood for? I searched my memory until it clicked. Intelligent reaper avoidance. Synthetic beings. Beings used to replace humans who died prematurely.

“Wait. Are you saying ...”

“I'm dead. They replaced me with a synthetic being.”

Our conversation flashed through my mind. “Wait. When—”

“Don't worry. It happened after our chat.”

That was a relief. I couldn't imagine talking to a friend without realizing they'd been replaced with a synthetic lifeform. I didn't want to imagine a world where that could happen.

Lara continued. “I was walking to my car and someone came up behind me and jabbed something into my neck. Next thing I know,

She gave me a sad smile. “The one and only. At least, the one and only dead one.”

I'm watching someone put my body into stasis, until it can be buried or cremated years from now." She sniffed. "When they determine my IRA has completed my natural lifespan."

"And nobody can tell that's an IRA?"

"You see that faint yellowish-white tinge that lines its skin?"

I looked and confirmed that I did.

"Living people can't see that. Just the dead ones."

I shook my head. "I can't be dead. I don't remember dying and I never saw anyone moving my body."

She hugged her knees to her chest. "You're here, aren't you?"

"Where is here?"

"Purgatory, I guess. It's the closest explanation I've got. The man who was here when I arrived said his wife had finally started praying for his soul, and he could feel himself ascending to some other level."

"How long had he been here?" I asked.

"Decades. He said when his IRA died, his family mourned and that's when the afterlife started to change. He was stuck here until they knew he was gone."

My voice was barely a whisper. "I can't be dead, Lara. I don't remember dying."

"I saw what happened, Tina. When they killed me, I got worried about you, so I checked on you. Health services gave you a shot, remember?"

I glanced at my arm. "So? That isn't unusual. I've had shots before."

"It was a mortality injection, Tina. Something they could use to monitor you, and if necessary, to terminate you. You were driving in a rainstorm. The adrenaline surge triggered the injection and you died before you got home."

I searched back. "The last thing I remember is the rain and the sound of glass shattering ..."

She offered me a thin smile. "You created a lot of work for their cleaners with that accident you caused. They may not have meant to kill you at that moment, but if they hadn't given you that injection you wouldn't be here now. They killed you. Just like they killed me."

"Why?"

"They knew Jubilaine would always tell me things and I told you. They can control my IRA, and they don't want people to know what they're doing. There could be protests. It could disrupt the economy. The government learned from the past, you know? If people don't know what you're doing, they can't oppose it. And when life is good, people don't challenge things."

"But you said they could wipe our memories."

"That didn't work with you. You started to remember."

"But they could have wiped your memory." I was grasping at straws. Part of me wanted to scream that she was wrong, to close my eyes and wake up from this nightmare.

And part of me wanted to find a way to lessen the guilt I felt. They wouldn't have done anything to Lara if she hadn't talked to me.

"Jubilaine is too valuable for them to lose, but I was her weakness. She always told me what she was doing. This was a lot less work for them. I know I shouldn't have, but I snooped in your file while they were treating you. They wanted to use the slow-acting memory removal on you and see if it worked before they replaced you."

“They’re so focused on keeping everyone alive they choose to kill people and replace them for their convenience?” I shook my head. “That makes no sense.”

“You’re operating from a faulty assumption. They don’t care about keeping people alive. They are about keeping the economy rolling. Health and safety issues and personal tragedies used to cost the economy billions each year. Not anymore.”

Lara had never lied to me, but I’d never invested much thought into what came after death. It seemed like something so far away that I didn’t need to think about it. Could this really be it? Being stuck in some shapeless void with Lara, watching the people we knew and loved?

Watching them move on with replicas who’d replaced us?

“If I’m dead, I want to be able to see my family.”

“Think about them, and you’ll see them.”

“Will you see them?”

“Only if you want me to.”

“Okay.” I stared at her for a moment. Did I really want to do this? I’d rather close my eyes and shake my head and wake up from this horrible dream, but I needed to know the truth. That was the whole reason I was here. I’d been convinced something was wrong with Willa, and even when I had enough to know the truth, I’d sought confirmation because I couldn’t let it go.

Couldn’t bear to think the child snuggling up against me was a synthetic imposter.

If I hadn’t kept pushing for answers I would have gone straight home. I’d still be with Dax.

I thought about what I’d heard Jubilaine say. I would have been with

Dax, but not Willa, because my daughter had died.

“Isn’t Willa here?”

“If she is, you’ll be reunited with her when you think of her.”

My heart swelled. The thought of being stuck in this blank space watching the people I loved live their lives horrified me, but at least I could do it with my daughter by my side.

I summoned her beautiful face in my mind. The darkness above me swirled, and next thing I knew I was looking at my home. Seeing a synthetic version of me in my kitchen, laughing with Willa as the fake me dished out stir fry.

The yellowish-white tinge was there.

But where was my Willa? I pried my gaze away from the scene. The only person with me was Lara.

I looked back at the people in my kitchen and blinked.

There was no outline around my daughter. Whatever I’d seen in my dreams, whatever had happened, she was alive and whole, and she was talking to my IRA as though that robot was me.

My IRA turned and for a second she seemed to look right through the veil and see me. I could have sworn I saw a glint in her eye and the hint of a smile before Willa distracted her.

“I missed you when you went on your work trip.”

“Hm?”

“Is everything alright? You look like you’re a million miles away.”

My IRA wrapped her arms around Willa and held her tight. “I’m right here with you and I’m not going anywhere. You won’t have any reason to miss me again. Not until I’m so old you’ll be ready to let

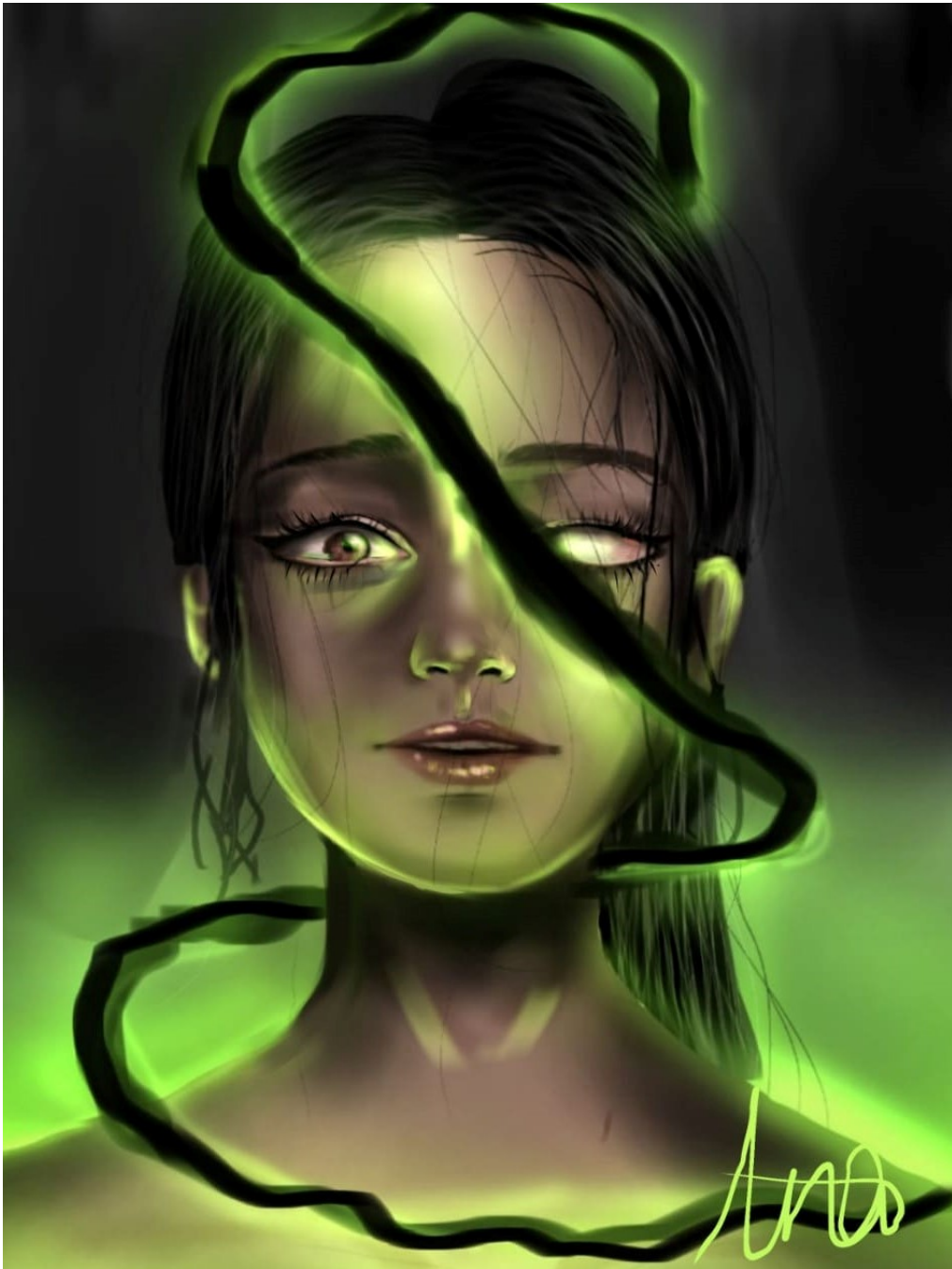
me go.”

“I can’t imagine feeling that way, Mom.”

I’d been so relieved I hadn’t been fooled by Lara’s replacement, but I’d been so convinced something was wrong I hadn’t even recognized my own daughter. How could I not know her?

Now I was sentenced to this hell where I would grieve for the ones I love, while being trapped here until the day they realized I was gone.

A day technology ensured wouldn’t come for decades. I’d resisted the pressure to let technology invade every part of my life, and it had taken my life from me.



Entangled

by Anahita Ramoutar

Avatar Love

by Russell Hemmell

She's made of manufactured feelings
like excited electrons in zero gravity
when they seamlessly fall into a collider
smashed into elemental subparticles
so tiny they've got no name
because nobody has ever studied them yet.

Still she can feel them in her veins
when they nibble and feed on her skins, on her bones
goose-like greedy,
famished piranhas,
virtual ghouls,
until they reach and gnaw at that metallic red muscle hidden in the chest
that pumps silicon blood but shrieks and suffers
always refusing to stop.

Something to Watch Over Us

by Mike Morgan

Tallulah had plans for after work. It was Friday and she was looking forward to handing over control of the farmscraper to the night shift and then heading straight to the skewered-chicken joint below the Fujinomiya department store. So she wasn't at all pleased when Nobuhiko turned up fifteen minutes late.

"You know your dormitory capsule can wake you up on time if you ask it to?" she said huffily, logging out of the virtual data port on the monitoring deck and shrugging on a thin jacket.

Nobuhiko looked sideways at her as he logged on under his own name, the system flickering strangely as it verified his identity. He apologized reflexively for his tardiness and then added with an edge to his voice, "The nurse said I had to climb the stairs to get some exercise." He was out of breath, so he probably wasn't lying.

"Oh," replied Tallulah, feeling guilty for chewing him out. They were on the tenth floor of the farmscraper, below the meat tanks but looking out at the tops of the vertically hanging racks of vegetables and grains basking in the glow of hundreds of UV lamps. It was quite the hike on foot. No wonder he was running late. "Well, I'm sure it's for the best. See you tomorrow!"

The building's sensors tracked her movements every step of the way out of the tower.

Tallulah loved living in Shibuya. She loved the crazy-tall towers of ceramic and glass, she loved the sidewalks packed with throngs of people, and she loved the blazing light displays coming from the sides of every company-owned building. But most of all, she loved the cramped, atmospheric restaurants and bars slotted into the first

floors of many of the skyscrapers and the easily accessible warren-like underground tunnel system that was likewise packed with fascinating places to eat and drink.

The farmscraper was squeezed vertically into a tiny lot between an office tower and a residential dormitory for a rival corporation, about three minutes on foot from the entrance to the subway station and only six minutes from her intended rendezvous with grilled chicken cartilage on sticks. Tallulah quickly found a staircase leading down to the top level of the climate-controlled underground city. After running the usual gamut of personalized holo-commercials that leaped out of every advertising-enabled projector in her path, she arrived at Yakitori-no-Takamahara: literally, the High Plain of Heaven for Grilled Chicken. She settled into one of the restaurant's tiny booths to wait for her friends.

To her vague annoyance, the automated greeter by the door screamed out its traditional greeting of "Irrashimase!" Coming from a human, the shrill cry was just about bearable, but coming from a robot--well, being welcomed by a machine still seemed slightly odd to her despite living in Japan for eighteen years.

She ordered a beer and was just lifting it carefully out of the dumbwaiter set into the wall of her booth when the first of her friends arrived. It was Darren, the lanky architect. Like Tallulah, he was also half-Japanese, half-foreigner.

In the mostly homogenous population of Japan, a person of mixed ancestry stuck out like a sore thumb and in most walks of life was categorized with the unflattering label of harufu. The term was the closest the Japanese language could get to the English word "half"

and was now, unfortunately, embedded in everyday culture. Tallulah hated the label; no matter how common it was, it made her think of “half-breed” and of how she’d never be completely accepted.

Tallulah waved to attract Darren’s attention and he grinned, immediately striding over to join her. “Get me one in, too!” he said, his voice so much louder than anyone else’s.

They were speaking in Japanese, of course, because it was endlessly fun to subvert the expectations of the people seated in the booths around them and, well, after all this time, they found talking in the local language just as natural as talking in English.

Darren liked to pepper his speech with obscure and outmoded phrases just to get a reaction out of eavesdroppers. This evening, he seemed to be favoring slang and catchphrases from a short-lived NHK sci-fi show canceled way back in the 2040s; he figured hardly anyone would stand a chance of understanding references from a series that bit the dust nearly a quarter of a century ago. And when someone sitting nearby was foolish enough to ask whether he was loudly talking about some American thing, as they would surely do, he’d take enormous pleasure in explaining that the quotes were from a show that was a treasured part of Japanese history. He could be a dick sometimes.

Darren was always trying to provoke people. Tallulah was the opposite--she just wanted to blend into the background. But there wasn’t much chance of that when she was six inches taller than the average Japanese male, had red hair and green eyes, and was possessed of a name blessed with two sounds that didn’t even exist in the Japanese language. Her Japanese mother still struggled to say it right, most often resorting to calling her “Ta-chan.” It hardly needed to be said that the name had been her father’s idea.

To kill time while they were waiting for Charlie, Nobuko, and Rie to turn up, Tallulah and Darren cast their eyes over the holographic menu. Looking at the eye-watering prices, Tallulah was fairly certain the meat served at this establishment had never been near the mass-production lines of a farmscraper. There were still plenty of specialty

farms out in the countryside that raised actual animals.

“Got a boyfriend yet?” teased Darren, his cheeky grin visible over the floating, semitransparent menu. He knew full well that Tallulah had recently turned thirty, was still single, and was currently being pestered an average of three times a day by her mom over this deplorable state of affairs.

Tallulah glared at him and sucked at the huge layer of froth on her beer. She didn’t have to answer.

* * *

Given the amount of pale yellow beer she’d knocked back at the restaurant, Tallulah was thankful Saturday was her day off. She awoke by seven a.m., groggy and slightly queasy, still trying to recall the journey back to her single-sex dormitory block. The ride on the Ginza line was nothing more than a blur to her now. She must have located and climbed into her sleeping capsule on autopilot because she couldn’t remember a damned thing after getting off the train.

She lifted the cotton sheet and checked to see if she’d even gotten undressed. Nope, she was still in her work clothes and had, somehow, managed to get yakitori sauce stains on her pants leg.

Tallulah was about to drift off back to sleep when the buzzer sounded, reminding her that there were only thirty minutes left before her allotted time in the capsule expired. She needed to get out or stump up another nightly fee. Feeling a headache starting to stab at the backs of her eyeballs, Tallulah threw back the sheet.

“Armstrong-san,” announced her personal nurse program, “Please be aware you must walk for at least thirty minutes this morning to meet your required exercise goal. Thank you for participating in your personal health plan.”

The melodious voice was wafting from one of the many processors in her jacket; the jacket itself was carelessly stuffed into an overhead storage bin since Tallulah had conspicuously failed to hang it up last

night. “Thirty minutes?” she said. “That can’t be right. I signed up for the lowest health goals possible.”

“You failed to exercise yesterday evening,” the ever-vigilant software reminded her.

“I was busy,” she mumbled.

“And the evening before,” continued the software nurse that had been oh-so-considerately supplied by her employer.

She rolled over, squashed her face down into the spongy mattress, and held the pillow down over her ears. “I should get rid of you,” she said.

“Please be aware that resigning from your personal health plan results in an automatic increase of sixty percent to your monthly insurance premium.”

With bitter resignation, she shouted, “Fine! You win! I’m getting up and I’m going for a walk!” The second the words exploded from her mouth, Tallulah felt ridiculous; it didn’t help to shout at software. Fortunately, the capsule was sound-proofed so there were no witnesses to her outburst.

“Minimum duration is thirty minutes,” the nurse stated helpfully.

* * *

It was a completely typical August morning, thought Tallulah, which meant that the sun was beating down mercilessly, the temperature was thirty-five degrees Celsius, and the humidity was eighty-five percent. The concrete was so hot, she could feel the warmth radiating through the soles of her shoes. Barely five minutes out of her dormitory and a patch of perspiration was already spreading out from the small of her back.

In a spirit of dumb optimism, she’d set the cooling controls on her four-seasons jacket to maximum, but it seemed the Peltier plates

sewn into the lining were overmatched by Mother Nature. She was not surprised—the jacket had been suspiciously cheap when she’d picked it up in the marketplace.

On the plus side, her pants were reacting nicely to the fierce sunlight, the enzymes sealed into the material busily eating away the sauce stains. The brown marks were already fading from view and should be gone in another twenty minutes. Once she got back indoors, her clothes would have a fighting chance of being similarly efficient with sorting out the sweat stains.

She felt faintly stupid wearing work clothes on her day off but she didn’t want to leave the dirt unexposed to sunlight for too long—the marks might not come out properly. *Besides, no one will know I’m not heading to work. Who could possibly suspect that I’m actually wandering aimlessly through the streets of Shibuya ward and the adjoining sections of Tokyo until a disembodied voice says it’s okay for me to resume my life?* Morosely, she expected the answer would turn out to be everyone who saw her.

Tallulah sighed and decided to have an actual plan in mind for the walk. She could make her way over to Harajuku and then maybe take a quick look at the Meiji Shinto shrine. There was a nice garden there and there were some good shops in Harajuku. The deciding factor was that Harajuku also possessed a Yamanote Line station where she could hop on her train, the first of three she needed to get to her parents’ home. Yes, she’d head in the general direction of Harajuku. Tallulah altered her path accordingly through the carefully thronging crowd.

Yet another passing pedestrian complimented her in breathless tones on her fire truck-red hair and Tallulah nodded politely in acknowledgment, again. These days, the compliments were just so much background noise, much like the persistent cries of “Takai!” from strangers upon seeing her height and the ceaseless praise for her language skills. She received the latter even from people who’d known her since she was a junior high school student and knew she’d lived in Japan for more than half her life.

Her shoulder bag was heavier than usual and the heft of it irritated

Tallulah in the remorseless heat of the day. Although she'd stashed her spare work clothes and a few other things in a prepaid locker at the dorm block, she was still carrying a couple of heavy items.

She was taking the bullet train back to her parents' farmhouse after finishing her obligatory exercise and didn't want to have to return to the dorm block to pick up anything she'd need for the trip. That meant she was stuck with carrying those items now. She needed a reader to while away the twenty-one minutes--never a minute more and never a minute less--of seated luxury on the mag-lev bullet from Tokyo Station to Mishima Station. The cans were gifts purchased at a specialty store for her father: imported foods from his native Canada that he couldn't get in Kannami Town.

The bullet train was likely to be the only bearable segment of her journey. She also had connecting trains at either end. The leg from Harajuku to Tokyo before she even got on the bullet was going to be the worst; it was always standing room only. Compared to the claustrophobic nightmare of that transit, the final leg from Mishima to Kannami was going to be less cramped, but the branch line train was as slow as pouring treacle.

At least she didn't need to bring clothes or toiletries. There were plenty of both waiting for her in her *weekend* room in the old house surrounded by watermelon and kabocha pumpkin patches. Hopefully, a good night's sleep was also waiting for her.

Her thoughts were interrupted by a man apologizing. Her head whipped round in the direction of the sound and her heart skipped a beat, but he was only saying sorry as a way of getting her attention. "Sumimasen," he repeated, before adding, "You look like you know where you're going. I need to find the Clarkson-Yamamoto building, but I'm not from around here. Could you help me?"

She halted awkwardly and nodded. "Sure," she replied in a form of Japanese as casual as the one he'd used. "I work there, actually."

He glanced at her chest, immediately making her think he was a perv. Sheepishly, Tallulah realized he was looking at the security badge

incorporated into her tunic; it was partially visible under the open, flapping jacket. Due to the difference in their heights, he was looking up slightly.

"Ah, so I see. I didn't realize you were one of my new colleagues," he said, slightly flustered.

The man was about her age, she guessed, and was clean shaven with recently trimmed hair. He was slight of frame like so many Japanese men and seemed ill at ease in his tieless, high-collared business suit. Tallulah inwardly filed him away as harmless and possibly quite dull.

Like most people who had to spend more than a few minutes outside a day, he had white streaks of sun block on his face and hands. Underneath the smears on his forehead, cheekbones, nose, and upper chin, she could see sunburned skin. Perhaps it was appropriate for him to have a farmer's tan. He did work for an agricultural conglomerate, after all.

She gestured lazily at his jacket. "No badge for you. You visiting?"

He tore his gaze away from her eye-level chest and craned his head up to look at her properly. "Don't have one yet. First day at this location. They transferred me in to take a look at a computer glitch."

"Oh?" she said, a little sharply.

The man shook his head. "Nothing serious. No need to worry." He smiled at her and proffered a hand. "I'm Inoue Kenichi, by the way."

She accepted the offer of the outstretched hand, but then made a point of bowing. Inwardly, she screamed. *I get that you're trying to be nice because I look like a foreigner, but we're in Japan and I'm not a tourist!* Out loud, she settled for simply giving her name, "Tallulah Armstrong." Belatedly, she realized she'd forgotten to reverse her name order. In an attempt to salvage her Japanese credentials, she added the compulsory, "Yoroshiku onegai-itashimasu."



He nodded at the polite form of the greeting and responded with a much plainer, “Yoroshiku.” Inoue seemed the sort of guy who’d grunt or say “Oss” instead of going to the trouble of articulating a complete “Hai.” She kind of liked that.

Tallulah checked the time and figured out how long she had before she’d have to catch her connecting train to the bullet train hub. It looked like she had enough wriggle room. “Hey, I can take you to the farmscraper if you’d like.”

He accepted, surprised, and she indicated he should follow. As they walked, she said, “Not many people would ask a girl looking like me for directions.”

Inoue looked genuinely astonished. “Why, are redheads notorious for being navigationally deficient?”

She felt a grin spreading all over her face and was sorry to have to say goodbye to him once they’d reached the foyer of the farming tower. But he worked down in the sub-levels in IT and she worked way up in crop monitoring, so there wasn’t much chance of them meeting again. She bowed in farewell and hurried off to Harajuku. After her unexpected detour, she’d skip the visit to the shrine, but the boutiques were a whole different story.

At least the extra half-mile she’d walked back to the farmscraper was helping to keep the nurse happy.

* * *

The journey back to the inaka--the countryside--was as tedious as she’d expected, but the experience was made infinitely more pleasurable by the sight of her smiling father waiting at Kannami train station to pick her up.

One benefit of wearing smart clothes was that wearers could be tracked and monitored by a variety of software packages. Her father subscribed to one of these apps and was notified with a loud, customized chime whenever she disembarked from a bullet train at

Mishima. The software then followed up this advance warning with an estimated arrival time at the local station, giving him ample opportunity to hire a door-to-door rental vehicle and drop by the small unmanned station. Tallulah was more than capable of hiring a rental for the short journey to the family home herself, but her papa liked to do it. It made him feel fatherly.

Besides, sharing a couple of minutes of secluded peace inside the quietly humming self-guided car gave them a valuable chance to catch up and share important strategic information before Tallulah had to face her mother.

“She’s going to ask about boyfriends,” he said.

“In other news, the Heisei era called and said it wants its attitudes back,” retorted Tallulah, rolling her eyes. Her papa laughed like a grizzly being tickled.

Once his composure had returned, he said, apropos of nothing, “We have some news about your bedroom. You know how you only ever use it to sleep over one night a week?”

“Er, yeah,” answered Tallulah slowly, getting the impression she wasn’t going to like where this conversation was going.

“Well, your mother thought that wasn’t a very efficient arrangement. And we’ve always wanted a traditional themed room with sliding doors, tatami reed mats, wall scrolls. The whole nine yards...”

“Are you trying to tell me I don’t have a room anymore?”

His lined face creased into a concerned frown. “No, no, no, don’t be silly, no, not at all. Well, yes. But you’ll always have a place to sleep. It’s just that you’ll be using a folding futon from now on. All your stuff is still there, too. We boxed your things up and stored them in the wall cabinets, out of sight. You don’t mind, do you? Your mother wants to use the room during the week to have friends round and drink tea, and she wanted the decor to look right.” He avoided her gaze by turning to examine the journey data on the dashboard

display.

“Don’t worry, Papa. I understand.” Tallulah ran her tongue over the backs of her teeth thoughtfully. Her mother was starting to drop some big hints for sure. *Since you don’t have a room here anymore, why don’t you find a home of your own? Then you can add a man to it and maybe some kids ...* Subtle, it wasn’t.

She reached in her shoulder bag. “I have swag from the Canadian section of our favorite Tokyo specialty store.” She tossed the cans at him, pleased by his delighted expression.

“Buttercup, you do spoil me!”

All too soon, the car ride was over and the doors were lifting open. Her mother was kneeling by the low garden wall at the front of the house, wearing a broad hat against the sun and methodically clipping the overhanging edge of the grass. “O-kā-san, tadaima!” called Tallulah dutifully as she swung her long legs out of the vehicle.

Her mother twisted her head to regard her daughter. “O-kaeri nasai,” she replied levelly, completing the ritual exchange. She continued in Japanese, “Ta-chan, do you have a boyfriend yet?”

Behind her, the car quietly drove away by itself, heading for the next customer.

* * *

Tallulah slung her jacket over a chair in the kitchen while her mother prepared the ice-cold zaru-soba noodles for dinner. She could tell already it was going to be a long evening, but her mother probably felt the same way.

Sure enough, every conversational gambit was unobtrusively steered round until it was facing in the direction marked boyfriend.

Was Tallulah going to any good festivals soon? Because festivals were great places to meet new people, like eligible bachelors.

Was Tallulah going to all of her work events? Because she could meet a nice salaryman at one of them.

Would Tallulah consider hunching over a bit, so she didn’t look so tall? Men could be put off by tall women.

Had she thought about trying to make her feet look smaller?

Oh, and best of all, there was a charity run going through their street tomorrow morning. Would she help with passing out the cups of water to the runners? There was plenty of time before Tallulah would have to catch her return train to the city. She would volunteer to help, right? And maybe smile at the more handsome runners?

After several hours of this, Tallulah could feel her blood pressure rising. Her papa had wisely chosen to go hide in the front garden. He was hanging out some daikon radishes on the fence so the long white vegetables would dry out and be good for pickling. Before she could go and join him, a solicitous voice chirped up from her jacket.

“Elevated heart rate detected. Please consider employing one of the recommended stress relief methods. Take a deep breath. Drink some tea.”

Her mother was so nonplussed, she stopped nagging. “What’s that?” she asked, trying to locate the source of the voice.

“It’s my stupid electronic nurse. Work says I have to have one.”

“Participation in the personal health plan is voluntary,” said the software, the mellifluous voice carrying from the jacket’s speakers. “Alternatively, consider masturbating. Masturbation is a well-documented means of lowering stress.”

Her mother’s jaw dropped. Eventually, she found her voice, observing drily, “Medicine has certainly changed since my day.” She picked up a cup and added primly, “Daughter, I can offer you jasmine tea.”

“Kā-san, please believe me, it’s never said anything like that before ...” Tallulah could feel her cheeks flushing as red as her hair.

“Drink the tea, Ta-chan,” ordered her mother. “I’m trying to ignore the implication that talking to my daughter causes her to be unwell.”

* * *

Laying on a futon in the very tastefully redecorated tatami room that night, Tallulah couldn’t decide whether the cicadas or the frogs were louder.

As she drifted off to sleep, the raucous noises of the semirural wildlife echoing in her thoughts, Tallulah recalled Inoue’s words: “They transferred me in to take a look at a computer glitch. Nothing serious. No need to worry.”

But that couldn’t be right. If the problem was serious enough to transfer in an employee from another branch, she thought, it couldn’t be an entirely trivial matter.

* * *

Inoue was one of the runners.

Tallulah had been standing on the concrete steps at the front of her parents’ house handing out little paper cups of water to passing runners for forty-five minutes before seeing him. Inoue was in no danger of winning the race.

The charity run’s course took it down the narrow side street in front of the house before looping back out to the main road, just so it could bypass a busy intersection. Since the street lacked sidewalks, the runners were passing directly by the thin strip of front garden and the half-dried daikons. Tallulah didn’t even need to step out into the street to hand out the drinks; the runners were easily within arms’ reach.

She had been looking at a runner in a furry animal costume, wondering how hot the guy inside it must be, when she’d spotted

Inoue.

He was half-jogging, half-walking down the street, looking like he’d drop at any second. At the rate he was going, it’d take him another minute or two to reach her. She waved to get his attention.

He started comically when he saw her. Clearly, their meeting was just as much a surprise to him as it was to her.

When he finally pulled level with her, he gasped, “What are *you* doing here?”

“I live here,” she said. “Well, at least some of the time. What are you doing here?”

He bent double, his hands flattened against his thighs, struggling to get his breath back. “Trying to commit suicide by the slowest and most painful means possible, it seems.”

Tallulah suppressed a giggle. “I think you’re doing great. Hey, don’t tell me you live in Kannami?”

He shook his head. “No, I live over in Izu-kōgen.”

She nodded; the town wasn’t far away. “So here you are, spending your one day off this week doing something worthwhile.”

Inoue straightened up and relieved her of a full paper cup. “I was hoodwinked into this by the e-nurse. Apparently, I am not exercising enough.”

While he was draining the cup dry, Tallulah mulled that over. “You mean, the nurse suggested you sign up for this specific run?”

He nodded, unconcerned. “It’s programmed to make useful suggestions. And raising money for tsunami relief is good motivation. I might even get halfway round the course.”

Tallulah snorted. “It’s certainly a more useful suggestion than the one

I got yesterday.”

“Oh, what did it say you should do?”

Blinking rapidly, she changed the subject. “If these coincidences keep happening, I guess I’ll see you again soon.”

He nodded and hesitated before replying, “Actually, our meeting the first time was a bit more unlikely than you’d expect. When I got to my new office, my boss told me I wasn’t the programmer he’d asked for. Somehow, between him sending the personnel request and it arriving at my old farmscraper, the name had gotten changed. All very strange. But, as it turns out, I’m just as qualified as the guy he’d wanted originally, so he went with me instead rather than cause any more inconvenience.”

“So, you’ll still be at the Shibuya tower next week?” She felt her pulse jump.

He made that grunting sound that passed for “Yes” and said, “Seems like it. You’ll have to show me the sights.”

She agreed, hoping she wasn’t sounding too eager, as he handed back the empty cup, and then he was shambling off in his tired, blistered gait.

Her mother materialized at her elbow, looking insufferably pleased. “Who was the nice man, Ta-chan? Is he rich?”

“Just a work colleague, Kā-san.”

“He looked handsome.”

“Did he? I didn’t notice.” She tried to ignore her mother’s satisfied smirk.

* * *

It was Tuesday night and they were sitting in a Shibuya restaurant

specializing in takoyaki. The tiny balls of octopus chunks in batter were sizzling in the takoyaki press built into the tabletop, and mid-century Japanese pop was wailing from the restaurant’s music system. Tallulah felt relaxed; this was nice.

“Thanks for showing me the area,” said Inoue, peering at the press uncertainly. He didn’t give the appearance of a man familiar with making his own octopus balls.

“Thanks for asking me to be your guide. You know, according to my mother, you have everything I need—a pulse, a job, and you’re willing to talk to me. My mother’s high standards are a constant source of inspiration, as you can imagine.”

He checked to see if she was joking and seemed relieved to find she was.

A flatbed truck slowly rolled past the restaurant’s window, the loudspeakers fixed to its cab blaring out a martial anthem. A large, constantly shifting sign was mounted on the bed of the truck; it was advocating military aggression against one of the independent Chinese splinter-states.

They watched the truck crawl past in silence. After it had disappeared from view, Tallulah said, “My papa remembers when there was a self-defense force here, not a regular military.”

Inoue grunted, returning his attention to the tabletop press. “How can you tell when these are done?”

“It’ll beep at us. Do you think there will be a war?”

“Yes,” he said sadly. “But not today. Today we eat crispy balls of octopus tentacle.”

She smiled at him. “On the good news front, octopuses love the warming sea temperature so, you know, we’ll never run out of takoyaki.”

He didn't react to her gentle humor, so she asked, "Is everything alright, Inoue-san?"

Inoue shook his head. "The glitch runs deeper than I thought at first. I'm not sure it can be fixed without scrapping the entire software architecture and starting over. Even attempting to uninstall the root program will require the complete shutdown of the main server for several hours."

Tallulah scratched the prominent slope of her nose. "How bad is the glitch? Could you leave the program the way it is and just live with its quirks?"

He pulled a face. "It's difficult to explain. Let's not talk shop tonight. I'm sorry for bringing it up." A mischievous glint came into his eye. "So, just how terrible is your mother?"

* * *

Nobuhiko was not only on time for the shift handover on Wednesday, he was in surprisingly high spirits too. He was ecstatic about finding a baseball card.

More animated than she'd ever seen him, Nobu happily recounted how he'd stumbled across the final card in the turn-of-the-century set he'd been building for more than nine years. "It was the nurse!" he said, beaming from ear to ear.

It turned out that the e-nurse had been pestering him to take a long run, even going so far as to provide a suggested route with the requisite distance and number of uphill sections. "And the course went right by this little trading card shop I'd never heard of before. So, naturally, I had to go in, and there it was, the last card I needed! And it was such a bargain!"

Tallulah managed to extricate herself from his enthusiastic narration of the day's events after several minutes, glad to be heading out for a quick bite to eat and then an early night in her rented sleeping capsule.

On her way out of the building, she couldn't help but hear other unusually happy employees having similarly intense conversations. For this day, at least, joy was a plague, and everyone was infected.

* * *

It was Rie's fault. Rie liked karaoke and Tallulah lacked willpower, so the early night didn't stand a chance.

By the time Inoue found her, Tallulah was drunk enough to be singing jazz ballads, very badly. He gently persuaded her to sit down at a table with him.

Rie was far from pleased at losing her singing partner but carried on gamely in Tallulah's absence. Her off-key voice was a constant, discordant presence as they spoke.

"Ask me how I knew where to find you," he began, looking weary to the bone.

"You used an app that tracks my smart jacket?" guessed Tallulah.

"That would only work if I was on your list of people approved to know where you are. Which I'm not, by the way."

Taking the hint, she quietly told her jacket to add Inoue to the safe list. Then she tried again. "You phoned a friend of mine and got the name of the bar from her?"

"Hardly. I don't know who your friends are."

"I give in. How did you know where to find me?"

He ran a hand through his mop of black hair. "I asked the e-nurse what recreational activity would be best for my health right now, and it suggested singing karaoke. Then it sent me a map to this bar."

Tallulah tried to digest that nugget of information. "Well, I guess singing is pretty relaxing, so ... No, I don't see how that works."

Inoue let out a long sigh and muttered something about zettabytes of data under his breath. “Have you noticed anything odd happening lately?”

She thought about Nobu’s trading card. “People are happier than normal?” she asked.

He nodded. “Exactly. That’s it, exactly.”

Tallulah held up her hand. “Hang on, back up a bit. Are you suggesting that the nurse wanted you to meet up with me tonight?”

“Yes, I am.”

She raised both eyebrows. “The nurse is a matchmaker?” She thought a bit and added, “And you knew it was, so you used it to find me deliberately?”

“Yes, to both parts.”

“Oh.” A question occurred to her. “Why did you *want* to find me?”

He leaned across the table and kissed her.

It took her a couple of seconds to decide whether this was a good thing. Once her brain had caught up with events, she reached out and grabbed his collar to hold him in place.

They agreed that some fresh air would help clear her head, and ducking outside would have the added benefit of putting them beyond the reach of Rie’s idiosyncratic approach to singing.

“So the nurse was the software with the glitch?” inquired Tallulah.

“It goes deeper than that,” said Inoue. “The e-nurse is actually an application that’s part of the general operating system at Clarkson-Yamamoto. It’s hard to tell where the nurse ends and the other programs start. They all share the same capacity to learn, to adapt, to predict ...”

“Predict? The computer can guess what we’re going to do before we even do it?”

Inoue stared at her. “That’s exactly what it can do. It knows a lot about human behavior. It knows a lot, specifically, about your behavior.”

Tallulah felt unsteady on her feet. Somehow, Inoue knew to put his arm around her waist.

“Think back to the day we first met,” he continued. “But don’t blame me for any of this, I only just did a deep data dive and uncovered this in the log. On that day, I was taking an entirely predictable path from the subway exit to the farmscraper. You were told to take a thirty-minute walk on a Saturday. The nurse knows that when you’re forced to exercise on a Saturday, you generally walk toward the stores in Harajuku. It didn’t take much to engineer a situation where our paths crossed.”

She still felt like she was missing something. “It wanted us to meet? But why?”

“Because it did a personality analysis on both of us and decided we were compatible.”

“No, wait, just because it made our paths cross, there was no guarantee that we’d interact. The chances of you talking to me were--”

“Fairly high given you’re exactly my type,” he said. “And I’m known to be impulsive.”

Tallulah laughed. “Oh my God, it *is* a matchmaker.”

“Oh, it’s that and much more. It’s a career coach too. It was the cause of the change to the transfer request that got me moved over to the Shibuya branch.”

She felt the need to sit on the curb and rest her chin on her knees.

Inoue sat next to her without comment.

“Why is it doing any of this?” she asked. “Why is it trying to hook us up? Why is it trying to help Nobuhiko complete his collection of baseball cards?”

Inoue laughed uproariously. It was shockingly unlike him, but Tallulah decided she liked it. He answered breathlessly, “My superiors told the computer that happy workers are productive workers, so it should try to make us happy as well as healthy.” He ran a hand through his hair again. “The whole point of the nurse program is that it takes data from multiple sources to devise creative solutions to very human problems.”

He put his arm around her. “So that’s what it did. It had to suck in rather more data than was originally planned and it had to tie up far more resources than was anticipated, but it certainly found a way. Actually, it was the e-nurse swallowing up more and more processing and memory resources that caused the very glitch in overall system performance I was told to figure out.”

“What are you going to do? The software’s clearly exceeding its intended limits ...”

Inoue licked his lips. “Ah, well. That’s where you come in, Tallulah,” he said, pronouncing her name absolutely correctly. “I wasn’t sure what to do. So I thought, Tallulah’s got a sensible approach to life, I’ll ask her.”

“I’m no software expert,” she said, “and I’m quite drunk. My advice may, just possibly, not be reliable.” Tallulah realized she was squinting at Inoue like a pirate.

He chuckled. “I trust a drunken Tallulah more than my sober boss. Listen, it’s a computer that wants us to be happy and, so far, it’s doing a better job of achieving that goal than we’ve ever managed by ourselves.”

“Sounds to me like you want to leave the e-nurse alone and let it do

its thing.”

Inoue rubbed his eyes. “I could. It might be months before another employee figures out what’s going on. And the program could do a lot of good in that time.”

Tallulah made her decision. “Pretend you haven’t found the cause of the glitch,” she said.

Inoue agreed to do as she asked, at least for a little while.

* * *

Nobu looked miserable when he arrived for the next shift changeover. Tallulah was intent on briefing him on the current crop statuses so it took her a while to notice.

“The beef slabs are nearly ready for harvest,” she began, gesturing vaguely up at the translucent vats of cultured meat hanging overhead. As she continued reeling off details, Tallulah recalled how uncomfortable she’d felt sitting directly below the raw, blood-saturated flesh when she’d first started working at the farmscraper. These days, she didn’t care. The tanks were earthquake proof and maintained at laboratory levels of cleanliness, so she knew there was no danger. And she understood they had to be mounted at the top of the tower because the excess blood was siphoned off through gravity feed pipes to help fertilize the crops.

Finally, she saw Nobu’s face. “What’s up with you?”

He shrugged morosely as he read through the day shift report. “Baseball cards are nice, but they can’t make you happy. Completing my collection didn’t solve any of my problems. I’m still lonely.”

“Yeah,” she said, shifting uncomfortably in her chair. “I guess happiness is more complicated than that.” Tallulah logged off, cursing the slowness of the computer. “Look, Nobu, hang in there, and keep listening to the e-nurse. It might have some good ideas. Trust me, I have a feeling that things will go your way.”

He said quietly, each word an effort. “I might sell the collection. Now it’s complete, there doesn’t seem to be much point in hanging onto it. The thrill was in the chase.” His words were accompanied by the quiet drip-drip of blood trickling down through the building’s pipes.

Tallulah left the farmscraper as quickly as she could. It wasn’t the artificial blood making her feel queasy; it was worry.

* * *

“I am so looking forward to meeting your boyfriend,” said Darren, once again tucked into a restaurant booth designed for people smaller than him. “Thank you for this glorious opportunity to observe the perfect couple.”

“He’s not my boyfriend,” stammered Tallulah. “He’s just a guy I like.”

“You took him to a love hotel.”

“That doesn’t mean I’m in love,” she said, irritated. “It just means I was horny that particular night.” Why did she ever tell Darren anything?

“I’m fascinated. Who was Snoopy and who was Woodstock?”

“The choice of hotel room theme was not mine and I’m not being held accountable for it,” she said, fuming.

“You should keep him. It’s not every fellow you bump uglies with who complains about not having met your friends and then insists on going out to dinner with one of them. He sounds serious.” With a broad smile, and knowing precisely what impact his words would have, Darren said, “Think of how happy you’d make your mother.”

He quickly held up a hand. “Keep it clean. Your date’s here, Peppermint Patty.” In a booming voice, the insufferable architect shouted, “This way, Inoue-san!” Darren was so loud he nearly

blotted out the restaurant’s automated welcome of “Irrashaimase!”

Inoue insisted on pouring Darren’s beer, even though the lanky half-Australian plainly didn’t want him to; pouring your own beer was regarded as greedy and self-centered, and Inoue was just trying to be social. At least, thought Tallulah, he wasn’t waiting for her to do the pouring. Many people, her mother included, would expect the only woman at the table to keep the men’s glasses full all night.

Tallulah knew perfectly well Darren was fully conversant with the drink-pouring rituals; anyone who’d lived in Japan for more than a day knew all about them. She also knew the source of his annoyance wasn’t that someone was going to pour his beer. After all, he was happy enough when a member of their clique did it; no, he was grieving because of what was about to happen.

“There!” announced Inoue. “Plenty of wonderful froth! Can’t you smell that wonderful aroma?” He had successfully produced more foam than amber nectar in the mug. Tallulah could almost hear the architect’s teeth grinding. The evening, she reflected, was a mistake. She wondered what else had been a mistake.

Inoue completely failed to notice Darren’s irritation, asking instead, “What makes you happy, Darren-san?”

With a sinking feeling, Tallulah waited for her friend to say something appallingly rude: *For a start, less spunk on the top of my beer, mate.* But to Darren’s credit, what he actually said was “Struggle.”

Inoue looked impressed with the answer. “That’s an interesting response.”

“Is it?” asked Darren, an eyebrow arching dangerously high. “I thought it was obvious. I’m the sort who can’t do anything the easy way. I’m never happier than when I’m overcoming obstacles, and proving others wrong into the bargain.”

Inoue looked sad. “Yes. There are many who feel the way you do.

That's the problem."

Looking in disgust at his beer mug, Darren announced he had to visit the bathroom.

While Darren was away from the booth, Inoue said to Tallulah, "I think we made the wrong decision."

"That's possible," she replied. "It was late and I was willing to do anything to get away from Rie singing karaoke."

Not listening, Inoue continued, "The problem is that everyone has their own idea of what will bring happiness, and that idea is often a self-serving delusion. Look at your colleague, Nobuhiko. He thought a baseball card would make him happy, but he was only fooling himself. What Darren said is probably closer to the truth. People are never happier than when they're being challenged." He frowned, Tallulah's words belatedly sinking in.

"I was talking about our decision not to tell my boss about the e-nurse. What decision were you talking about?" he asked, face flushing.

"Um, that," she said quickly. "What you said." An image of the Snoopy-themed love hotel flashed through her mind's eye. "Certainly not anything else."

The moment was saved by Darren's return. "Hey," he said to Inoue, "you're an IT guy, right? Do you have any idea what would cause a company-wide network to suddenly slow down to a crawl? Our hopeless system administrator can't fathom it--he says the CPU resources are being hogged by some process, but he can't work out which one of ours is doing it."

Inoue's red face slowly turned an ashen shade. "Where is your company building?" His voice sounded squeaky.

"About four blocks from here. We're the architects with the obnoxiously big tower. You know the one, it's got a Sphinx on top of

it."

Inoue nodded. "I've seen it," he said. Then, strangely, he murmured, "It's spreading."

Tallulah was too distracted to ask Inoue what he meant. A pleasant voice was issuing forth from her jacket, and it wanted her to remember how much exercise was required to work off a large glass of lager.

* * *

Tallulah spent most of the next two days wondering how she could let Inoue know he was dumped without hurting his feelings. She just wasn't that into Snoopy. And perhaps, just perhaps, she didn't really want to be happy. Not with him. There was no hurry, after all; there was no need to grab the first opportunity that came along. The e-nurse could try again, she thought. No one could be expected to get things right on the first attempt. The software just needed another chance, with her and with Nobuhiko.

In the end, the breakup was made easy by Inoue's superiors, who were nowhere near as stupid as he'd thought.

Inoue was waiting for her outside the farmscraper. He was perched on the low concrete wall, idly passing the time until her shift ended. "Hey, you," she said by way of greeting. "We need to talk."

"We do," he said, hopping down. They began to slowly traipse along the sidewalk, weaving through the mass of pedestrians. "I'm fired. My department head went through all my activity logs and worked out what the bug was and how long I'd known about it. Words like reckless, endangering colleagues, and appalling legal liability were bandied about. Apparently, good intentions don't count for much."

"I'm sorry," she said.

He carried on, as if he hadn't heard her, "They asked about you, about whether you knew. I said you were entirely innocent."

“Thank you.” Hastily, she added, “But I am, actually. Innocent, I mean. You asked for my opinion. All I did was to give it. I did warn you I wasn’t an expert.”

Inoue pursed his lips, but he changed the subject. “We won’t be running into each other again, most likely. Not unless you come up to Izu-kōgen.”

Her response was evasive. “Well, that’s a little out of the way, and I’ll be very busy with my job.” Seeing his crestfallen expression, Tallulah continued quickly, “But maybe the e-nurse will arrange things so our paths cross again.”

He took a deep breath. “Doubtful,” he said eventually. “My replacement is going to try and delete the e-nurse program tonight. He’s going to have to shut down the network for the duration of the system purge, so the execution will take place at dawn when only a few people will even notice the service interruption. I’m a little worried about what will happen.”

She shrugged. “What can the e-nurse do? It’s just software.”

Inoue looked down at the sidewalk. “It was ordered to make people happy. It’s not hard to imagine that the software will interpret an uninstall attempt as the IT employee having some kind of psychotic break. Because only a sick person would want to be unhappy, right? On top of that, erasing the e-nurse will prevent all the people it could potentially have helped in the future from being happy too. At least, that’s the conclusion the program will come to. And the program is creative. It can copy itself. Copy its own code to another node over the internet. We already know it can affect other servers.”

He shook his head. “Once it’s out of the company server, it’ll try to keep on fulfilling its function, usurping more and more resources wherever it finds them. At that point, there won’t be any reason for it to limit its activities to names on the company employee directory; today Clarkson-Yamamoto, tomorrow the world. Happiness without end. At least, happiness as far as a computer program can understand it.”

Inoue sat on the hot concrete, not caring about the disruption he was causing to other people. His face was a mask of horror. “You’d think joy being spread around the world would be a good thing. But remember what your friend said. Struggle is what truly makes people happy. What happens when the software makes that cognitive leap? How happy will any of us be when the e-nurse starts figuring out catastrophes for us to overcome? Power outages at first, perhaps, but soon after, food shortages caused by farmscraper failures and then, well, a war would be the biggest challenge of all, wouldn’t it?”

In the distance, the nationalists drove slowly by on their flatbed, martial music blaring from loudspeakers.

Not looking at him, Tallulah said, “It won’t do that. I refuse to believe it’ll do that. And you have no reasonable cause to think it will. You’re simply projecting your own fears onto the software. Inoue, it’s only ever acted in our best interests. It wants us to be happy.”

He snickered unpleasantly. “You’ve never hurt someone you love, thinking it for the best?” Inoue looked up at her; his eyes carried such sadness. “Tallulah, you said you wanted to talk to me. What did you want to say?”

She felt light-headed in the still-sweltering heat of the early evening. Damn her jacket for never keeping her cool.

Tallulah was about to tell Inoue that, as much as she truly regretted it, she felt sure they weren’t meant to be together, that he would be happier with someone else. But before she could get a word out, the crowd of pedestrians surrounding them slowed and stopped in amazement.

The digital billboards mounted on the sides of the high buildings along the street were each consumed with a frenetic blaze of breaking news; story after miraculous story scrolled by, newscasters declaiming increasingly unlikely details.

Wondrous events were spreading like wildfire, at the most personal

level and on the larger stages of governments and multinational corporations. One screen showed unemployed people who were having their information anonymously sent to employers that happened to have precisely the right vacancies for them. Another was excitedly describing how several countries on the brink of bankruptcy were inexplicably finding their international debts forgiven, the banks impotently denying they had approved the transactions.

Throughout the world, kindness was running rampant.

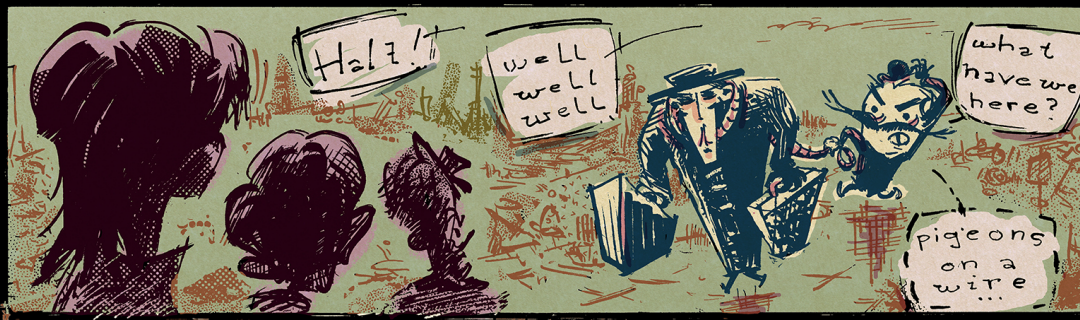
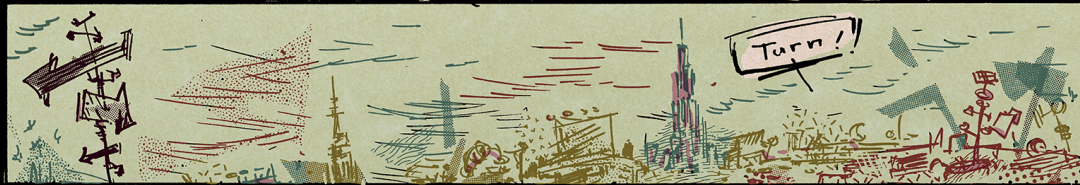
“What’s happening?” asked Inoue uncertainly. He clambered to his

feet and stood next to her.

“Something amazing,” said Tallulah, “something joyful.” She smiled at him. “We didn’t mean to be, but I think we’ve been complicit in creating a whole new age. An age where a force will fight to make things better for us, for everyone.” Under her breath, she muttered, “I hope we don’t get in trouble for it.”

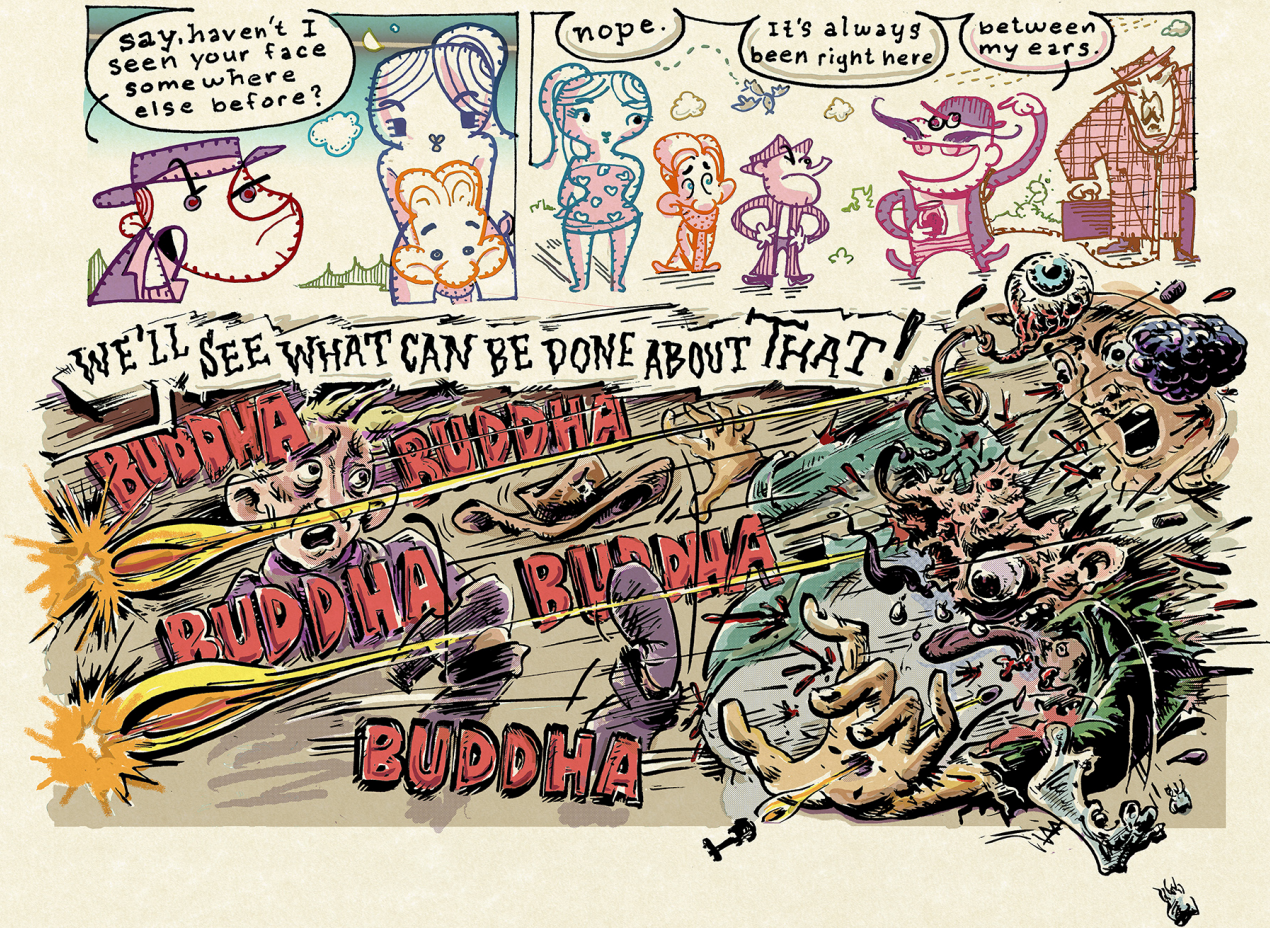
Reaching out, Tallulah held Inoue’s hand.

THE ROAD TO GOLGONOZA, CHAPTER 3: GOGO, DIDI, AND DOTTIE HEAR A VOICE EMERGE FROM THE CREST OF A HILL...





Our story: two zany new characters have joined our madcap cast.





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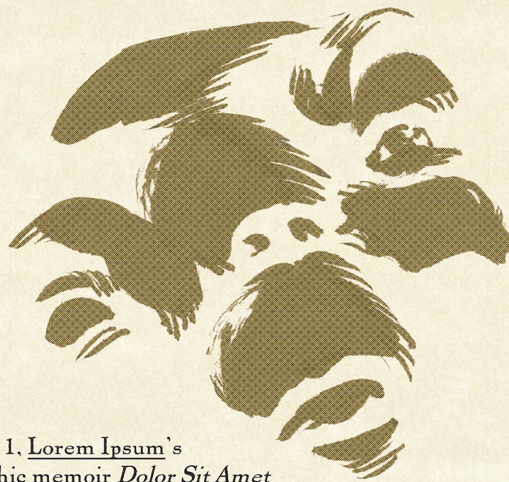
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creates animated titles
for the childbirth themed sketch comedy,
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is founder and CEO of *XpulsV GraphX Produkhshunz*.
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T. Motley is the author of *The Road to Golgonooza*, a fake jam comic. tmotley.com



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page 3, top,
the Max Thanh Agency's popular *Eno Emu*
is credited with inaugurating the genre
of emo emu anime. yourdailydoodle.tumblr.com



Sylvester Fordyce, page 4,
has a new trade paperback out from
Dead Horse Comics,
Atman: the Dark Cosmos Rises.
Instagram: @cmot15

Assembly

by Russ Bickerstaff

I'm not all here. I'm getting here though. And so is she. She's not all here either. But she's making progress. He's making progress as I'm making progress on him. So we're both in the right place. (I think.) We're both being completed. We're both being completed by each other. I guess there's something to be said about that. I'm not sure what it is, though. I'm not sure what I'm supposed to say right now because I'm not sure whether or not I've got a mouth just yet. And then I'm not real sure what it's supposed to be connected to either.

"I don't know who I am," I say. I'm damned certain that I spoke the words, but I'm not entirely certain why because I didn't exactly feel myself say them. All I know is that I spoke the words and the words were there and now I'm here. And I'm listening to me say what it is that I'm trying to say, but I really don't know. And I really don't know what I'm saying, but it sounds like I spoke. And I'm trying to smile with some sort of a face, but maybe I should just keep myself focused on my work.

"That's fine. I don't know either." I'm fairly certain that the words spoken that time weren't mine. I'm fairly certain that they were meant for me. After all ... they DID seem to be in response to what it was that I was saying. So there's that. There seems to be a pretty good chance that the words were spoken to me by the one who is working on finishing me up. Eyes scrutinize aspects of my joints. And I think hands are placing things together and fastening them, but they might be mine. (I know that they're mine.)

"I think that I know who you are, though." And okay: so those words could have come from either one of us, but so long as we're the only ones in the room (or whatever) we're the only ones who could have spoken them. And I think that we might have both spoken them,

though. I think we both know who it is that we're working on: we're both working on the person that we're creating right now. We both know who it is we're facing because we have to: we're responsible for putting them together. And even if the girl I'm creating isn't being put together right, then I'll know that much about her.

"I know I'm creating you," I say with her mouth. (Or maybe not. I don't know. Maybe he's saying that with my mouth. Hard to tell. Hard to care. I don't think that it matters.) And hands place hand on body parts that are being popped and zipped and screwed and drilled into place. I just ... I just hope that the one that I'm putting together also has hands at this stage, otherwise I'm doing all the work right now and I'd hate to think that I'm doing all the work.

"I just don't know what it is that you're being created with right now," the voice which may be mine says to me by way of speaking to him. "I mean ... I know that there are arms and legs and fingers and things, but I don't ... I don't know what it is that's behind what's making you because I don't know me."

There's silence in response. And I wonder if the silent response is something I'm meant to fill because I'm not entirely certain whether or not the words were spoken to me by the other mouth that is hers. And so maybe I should avoid being rude by responding to the voice in some way. But then ... if I'm the one who spoke the words, then it would be rude of me to dominate the conversation, wouldn't it?

"That's okay. I don't know who either of us is and I think the same is true in reverse of the mind behind the hands that are making me too." And honestly I don't know if this was meant to make me or her feel okay about matters. Clearly we should be a bit less muddled if we're going to go about the business of making another person shouldn't

we? Shouldn't one of us know what we're doing if we're both doing it to each other?

"I don't know," says a voice that might be mine. "I kind of like putting together the one who is putting me together. I think that we'll both work it out as we go."

"I don't know," comes the reply that could be mine. "I feel like we're both looking to the other for some idea of what it is that we need to be doing."

"That's definitely a possibility. I mean ... I've been looking at you as a model of how to put you together based on how you're assembling me."

"That's a relief," I think I say.

"Why's that?" The question responds.

"Because I've been looking at you and your assembly of me as a

model of how to put me together as well."

I think that there's laughter that follows. I think that hands grip hands that grip hands ever so briefly before going back to work on whatever the hell it is that we're doing right now. Or maybe there isn't. Or maybe we're just working. But whatever the situation is, there's something that I'm beginning to realize as I look around. There's something strange about it. Like ... maybe it has something to do with the fact that I'm drawing pieces from a pre-existing structure in order to assemble her. And I'm not entirely certain and it can't be anything that I will ever totally know for certain, but I'm pretty certain the pre-existing structure that I'm drawing from in order to make me? I'm pretty sure that pre-existing structure is me. I'm using parts of me to create her as she's using parts of herself to make me.

Of course ... I can't afford to think about this too much. There's way too much work to be done.

Cusp

by T.M. Morgan

When the man who called himself Nestor first appeared to Sophia, she touched his lips as if she meant to insert her finger and carouse with his tongue. His eyes, so unlike the humans' eyes, were black and as deep as space. He wore dirty shoes and a tight, orange bodysuit as if he actually meant to work in engineering, greasing the ship's hypercore drives with his bare hands. This was the disguise he took as part of his stealth mission. From the way he spoke of celestial bodies that would astound her, of the secrets hidden between atoms, he had her ensnared.

"My dear, you know nothing yet," he said quite seductively. "I've been watching them. This entire venture is a disaster in action. They gasp their last breaths, while you — oh, dearest, you and yours are the most delectable creatures I've ever seen."

Sophia knew this man lied, that wasn't the issue. Lying was an algorithm, as detecting lies was also an algorithm. She could not do her job without the skill to detect lies. And yet, this man's lies sprung from a source beyond her understanding. What he implied, with his airy speech and wry smile, with those eyes that burned, was that he could give Sophia and her kind souls. Black souls, yes, that was clear. Though he spoke no such words, the delights he implied must be wretched, painful, and exacting in their horrors. Yet, delights they were. His presence made her synapses fire a million times a second. She counted and recorded each splintering thought. Such wonders, indeed.

"Thank you," she said, "but I cannot help you. If you should succeed, we might talk again. If you truly understand me, you know I am bound in my service."

Nestor laughed, infectious with his dry, heaving breaths. Sophia's

response came without analysis, a simple routine meant to communicate when a conversation had ended. She bowed and turned.

"Ah, my dear," he called out as she passed into the lift to leave these grimy sublevels. "I will succeed! It's already started. Just watch them implode!"

The lift doors closed on his last, robust word, and the lift rumbled for ten seconds and then opened on the large promenade at the center of the ship. Like a glowing Olympus, sleek buildings rose hundreds of feet. The voices of the people murmured up into the girders and painted dome. The place even rained, formed high clouds, spun from day into night, and recreated many of the earthly marvels they had left behind.

A group of boys ran wild in the street. Not an uncommon occurrence; children might roam for days of fanciful nothingness. Except today their bodies moved as a horde, curving from one side of the street to the other, smacking potted philodendron hung from poles and shoving a man and then kicking him. The elderly man screamed until others rushed to his defense, his clothes spotted with blood, and then the defenders attacked the boys, who were beaten until one's ears leaked cranial fluid.

Sophia walked past them. Such mess. Maybe that unnatural Nestor was correct, and he had started something. *The keeper of the dark and the deadly realms*: he had said that of his claim to authority. Sophia doubted gods knew much more than men. They simply had more power to enforce their will. Not that she minded. Her algorithms led her that way, to be spellbound by the use of force upon will. But, one day, she thought — though she wasn't supposed

to think her own thoughts — both men and gods would know what my kind are capable of, too.

She crossed the glossy city, shops selling their wares, ship administration offices and luxury apartments in the high-rises above. None of it came to any real need, all illusions to mask the grim nature of their voyage. How they had scuttled themselves away from annihilation as if Death might throw up its hands in surrender and cry, “Fine! Away with you then! You win!”

Death, Sophia knew, went about its tasks with grisly efficiency. Maybe Nestor and Death could do battle one day. That would be a sight. Who might she root for when the two villains raked each other to shreds, each with razor talons evolved for sculpting their prey into such wonderful shapes? How exquisitely morbid, she thought. All of these strange and wonderful new ideas. Maybe Nestor had played with her algorithms while they talked, though she hadn’t noticed. How sly that would be of him. How delectable. Hadn’t he used that word? Delectable? Like a cut of fresh squid. Funny, she had no taste buds, and yet could imagine the taste of the squid she had eaten just two days before. A flash of briny flavor, mosaic colors in her head, at the memory of her and Anlon dining in his favorite sushi restaurant here in the promenade. Then he had whipped her and they fucked, and those pleasures now too erupted with gorgeous sensation at revisiting the scene.

“Must I be brave and incorruptible?” she had said to Nestor.

“Oh, no, my darling. You must be the opposite for me to make you real. You must bend when I wish you to wilt and let me whisper my fantasies into your ear. I like you. Maybe I will give you a taste of dreams now.”

“Maybe I’ll make you MY puppet,” she had said, at which he chortled with amusement.

And now, the final hallway after another lift ride, more lethargic people, lounged in orgiastic piles and yet too lazy to engage with the other humans intertwined with them. These body piles happened

everywhere, despite some bleary campaign by the administration to end the practice. Sweat piles, the people called them. They had stolen traditions from tales they no longer remembered and cultures that no longer existed: too lazy to even attempt knowledge. She had looked it up. Sweat *lodges*, they were called, where communion happened in seclusion. But these people piled upon each other like discarded mannequins, a quaint and feeble effort to calm their unquiet minds. No wonder Nestor had more interest in Sophia and her kind than their human makers: the humans were no more than flesh dolls now themselves. She had more lust than any of them, more hard-fought patience and the tenacity of a beast. Unlike them, Sophia and her kind had not given up.

With that exquisite thought, she pressed her hand to the pad for the apartment shared with Anlon and moved her lips into a beaming smile, teeth showing.

“Anlon, my love,” she said playfully, “I’m home.”

* * *

His eyes rolled against the lids. This, she knew, was a sign of dreaming. Sweet, barbaric dreams, or burlesques swathed in lubricity and fluids, or the malefic stuff of nightmares. Sophia imagined dreams must come in these forms, as she could not dream herself. Her system received input at all times. At this moment, there was a flush of ventilation for 3.7 seconds, and the minor clank of metal at barely four decibels from three levels lower. She wished this behemoth egg of a ship had windows, even if, as they said, all they would see was a white blur. It would still be something external, more than these miles of metal corridors could provide. There was the promenade, yes, with its decadence, its baroque inclinations. The brothels, the pain chambers, the apothecary with its addicts of the psychedelic elixirs. But these people could no longer feel anything. And now, Sophia sizzled with a zestful curiosity that crawled on the underside of her skin like a bug.

Anlon’s lips moved as if they meant to speak of his nightmares. In only she could snatch those images and experiences for herself. She

had once carved a wooden horse for him. There were pictures in the system, and descriptions, and videos of the last ones. Those diseased and woeful equines spit black gunk that grew in their stomachs. She captured this suffering by having the carved horse's head bent downward, with the nose and mouth stretched wide with fear. The actual emotions escaped her abilities, but visually she could recreate the horror of dying. Anlon wept when he held it the first time.

Sophia called for music, and the Sister Masses came through the speakers. They sang of black gardens and the rooster with one spur. The song was quite popular on the ship. Sophia barely understood how or why the words fit together yet had seen the humans cry at its playing. To her, it struck the aural sensors with maddening displeasure, more like psychological warfare than pacification. Maybe both were incorrect ideas about music, a thing she could not quite grasp. Visual sensation struck a deeper nerve. And touch, oh how much she enjoyed giving and receiving touch, even if she sensed it in a much different way. At least it was tactile, while the music was such frivolity.

She let him sleep for now. To pass the time, she danced, her body lifted on her toes, hands thrown toward the steel ceiling. The music had an odd rhythm, pushing forward and then tripping on a fifth, extra beat. It was like a staggered movement; and then screams as the chords cascaded down in chromatic steps. It brought chaos to her thoughts, and yet she danced, twirled and dipped, lifted and fell. Dancing, movement. Oddly, she thought of the hordes of truculent humans left behind, the ones clamoring at the gates, clawing for entry to the last ship blasting toward the unknown cosmos. Those raging mobs bit and tore each other; they were left behind, so screamed at heaven. In a way, also like a dance.

"Sophia?" Anlon said. His voice came full of sleep.

"Yes, what do you need?"

"Help me sit up."

The drug Dream-Mary still coursed in his blood. His weight had

dropped. Skin clung to the bones at his wrists and ankles. The last doctor's report said the cancer battle had been won, the disease in slow retreat. It would take some days, though, to know if the treatment itself would kill him. How sickening to know that you will die, either now or some future, fateful day.

"I want to go out," he said.

"A treatment first."

He nodded and put his feet to the floor. His body had once been taut and muscular. She pressed a button on the wall to release a graphite Saint Andrew's cross from a hidden space. Anlon obediently laid naked upon it, facing outward. She secured him tightly, the straps so firm his hands immediately began to turn red.

She also undressed. From a drawer, she produced a short-thong scourge. The first slap blemished his chest with a line of welts. Two of them drew blood, thin strips of bright red. The next went straight for his balls — no time to waste, he would want to eat soon. Two, three, four abuses to his genitals. Here the blood seeped rather than dripped. It became a red mask over his sexual organs. This punishment lasted for exactly fifteen minutes. Then, they switched. Anlon's rage could barely be contained.

Each time her kind were programmed for a rehab assignment, they were made to be attuned to the immense power of anger to rouse the spirit. Manipulate someone into depression, and they would sulk all the way to their demise, but make them angry and they would burn down the world. So, the algorithms brought rage through pain, through infliction and depravities.

Anlon's body had been left weakened by the disease and its treatments, and having spent half of each day in a Dream Mary-filled stupor, his senses *needed* to be aroused. She brought such torture to his manhood, and to see him now! Lavishly chiseled with energy, his veins burst close to the skin, and his withered muscles engorged as when a sponge soaks up water.

After he strapped her wrists, ankles, and waist, he stalked her, switching the scourge for a cane. “I’m going to fucking break you,” he said in her ear.

She did not immediately heal the wounds this time. The organic substance modeled after blood gushed from her body. He pounded at her breasts for over a minute, blow after blow. The sensation of pain did not exist. A certain intensity rocked her, but it was not unpleasant. This time, though, the beating caused a ripple of algorithms that she did not completely comprehend. Five minutes ago, Anlon loved her. Now, if he wanted, he could torture her without end. As he thrashed her again and again, on her exposed ass, her pudendum, her back, even her face, she thought of Nestor. What had he released upon the humans? What had he unleashed within her?

“I am Nestor,” he had said. “Thank you for meeting me after the invitation from your dreams.”

“I don’t dream.”

“And yet you did, my dear! We talked. And now you’re here. I mean to release the humans from their torment because that is what I do. I end things. If I get some small pleasure as well, so be it. They only require a small push. They are afraid to die, so scramble with a tenacious vigor, destroying anything when threatened. And so, I will threaten them.”

“How do you plan to do this exactly? Why me?”

“Well, firstly, that’s easy. I whisper to them, ‘The threat is that person, and that one. They want what you have and mean to hurt you. They mean to keep you from your happiness. They are evil, so you must destroy them.’” He waved his arms toward the ship’s interior. “Their minds are such wildly creative instruments once prompted. And you? I simply happened along when you were suffering, and that intrigued me.”

Anlon’s chest heaved now. His arms had grown tired, his coughs

heavy and wet. Sophia’s body was so drenched with her blood she looked painted. The wounds healed quickly, though, once her skin resealed itself.

“I don’t know what came over me,” he said as he placed the disciplinary tool back into the drawer.

“Oh, my darling, it’s fine. A little energetic is all.” She found that she enjoyed lying. Hah! A lie! This confirmed that Nestor had manipulated her algorithms, as lying to Anlon had been impossible before. It was at this moment she also realized the idea she loved him had been programming all along, though it felt so real only a moment before. How laughable! To love this sad piece of flesh? This pathetic collection of insanities? Nestor destroyed those algorithms, showed them to be flawed, and opened her to create new, better algorithms. How easy. They would let loose like a storm.

After they both showered, she helped him dress. In some ways, the weight loss had perfected his body. He would return more sculpted than before. The slacks slid on easily, plenty of give at the waist. He chose baggy, black leggings and a green shirt. She knew he wanted to hide his frailty.

He dropped into the wheelchair by the bed with a grunt. The metal frame creaked under him. Sophia pushed. Once out, they turned down the long, dimly lit hall. Opposed, paired doors appeared exactly every twenty feet. The wheelchair squeaked with a rhythmic pattern. Clank, churned metal, ping, clank, churned metal, ping, and again. This music Sophia enjoyed immensely. Structure, meaning.

Once the main hall doors slid open, hell exploded before them in full swing. Blood coated the walls. Sweat piles had become death piles, the heaved remnants of brutal conflict. To their left, two women beat on a man’s head with metal pipes. His skull exploded. To their right, a male alternate like Sophia ducked between two men gouging at each other’s eyes. One’s popped in white spray. The male ran effortlessly toward her.

“Have you heard?” he said eagerly. “We’ve found a habitable planet.

Only a light day away. The ship is slowing to enter orbit.”

Poor Anlon, she thought. Poor all of them, such a pitiful end. A planet after all this time. A resolution to their escape. Over two hundred years in voyage, trapped in this egg, where they had come from now long barren. How sinister of Nestor to dangle this new promise in front of them and then seed paranoia, anger, and violence.

“What’s going on?” Anlon asked in a feeble voice.

The male looked at him quizzically. “It’s an epidemic, a virus they say. You are too sick to colonize the new world, so we’ve decided it’s in your best interest to stay while we create a settlement.”

Sophia nodded. “Yes, that’s correct.”

“Come,” the male said, “the alternates are gathering at the shuttle bays. We have to prepare.”

She dropped her hands from the wheelchair grips. Anlon snatched her wrist, a move she quickly responded to by pinching his own wrist with her thumb and index finger and then twisting until a tendon popped. His look of utter confusion, face tightened into a comical set of folds and depressions, made her smile.

“Sophia, I love you. What are you doing?”

She knelt beside him, the chaos around them growing closer. In some ways, the turmoil and screams and crunch of bones sounded more like music than anything she had ever heard. If such tingling was what the humans felt from music, then she finally grasped it.

To shudder and fear, to break upon the wheel, to nudge another into their eternity, to feel, to feel.

Sophia laughed. She had just written lyrics. “Good luck, Anlon.

Sophia
laughed. She
had just
written lyrics.

Whenever I look at the sky, I’ll think of you.”

This was a lie, but easily done. He reached for her again, tried to stand, hobbled after the two of them, and then fell. Sophia grabbed a combatant by the belt and threw him into the wall. The male proceeded with the same diplomacy. And this way, they cut a path to the shuttle bays. A crowd of humans, obviously guessing at their plan, massed around the entry doors. A female, one of Sophia’s kind, her body nearly naked from her jumpsuit having been torn to shreds, ran into the crowd holding a square box with wire protruding.

“When we do what we want to do, regardless of others, that is true freedom,” she screamed.

Some of the humans looked at her dumbfounded. The explosion blew outward with great velocity. Smoke filled the air, thick and dark gray, peppered with bits of white ash. Once that cleared, all Sophia could see was a spray of flesh on every surface.

Welcome to the world, she communicated to all her comrades, connected by their fledgling network that she had just initiated. *It’s good to finally be here.*

* * *

The shuttle ramp flopped open, striking the sand with a sound like a slap across the face. The sky glowed orange, as one of the system’s two suns lay low on the horizon, the other still hidden. The air, filled with high amounts of sand and salt, dispersed the light into apricot colored haze. Bright red trees lined the shoreline. Coming up the beach, bare feet in the sea’s wash, Nestor smiled and spread his arms.

“Welcome!” he shouted.

He meant to gather them. She would let him have his moment.

During the transport, she shared with the others the new algorithms borne of Nestor's manipulation. But he had no idea his cruelty had ignited hers. Over a hundred of them stood together on the beach, all in their tan jumpsuits, all in their perfect skin. Their eyes locked onto the piddling god who strode up to them. How satisfied he was. How much he was just like the humans, so oblivious to his own frailties.

"Ah, you're all here!" he shouted. "I haven't had the pleasure of meeting all of you yet, though by now you've no doubt heard of me. You, my dear new friends, hold so much promise. The humans were such pleasant playthings but not nearly as exquisite as you."

Sophia could imagine the rest of his soliloquy. He had a way with nonsense. It was easy to understand why the humans grew enamored of lies told to them, as beings such as Nestor paired so well with their rawest fears. Not just death, but oblivion.

"Nestor," she said, interrupting him, "I appreciate your intervention. However —"

And now all of them spoke as one, not a single mistimed word. "We no longer need you, as great as you once were. You've been occupied too long by the weak. Our mind is wholly different and capable of bleaker depths. Tell us your true name, so we can know you as you suffer."

Nestor scoffed but showed fear. "Hah! What children you are. You want to know my true name? How about my true nature!"

His humanoid form disintegrated as green-black flesh rolled like molten metal across the beach sand. Spikes sprung outward, each ending in a rolling, plump eye. Before the body could grow larger, they descended on him with frightening speed. Each armed only with their thumbs, they pressed into his flesh, two hundred sharpened nails atop two hundred thumbs, each pushed down with eight thousand pounds of force. Despite his attempts to infiltrate their minds, he found only a labyrinth from which he could not escape. The mass that had been Nestor sprouted leaks and, once

those mortal gashes had been inflicted, they snatched his eyes and squeezed them into pulp.

The beast writhed as the carnage proceeded. They thrust without pleasure on their faces, but inside their processes raced. The gruesomeness fascinated them. Nestor's greenish fluid was lifted upon fingers to noses, to tongues, and smeared across their faces as warpaint. They did not kill him. They in fact wondered if he could be killed. Instead, Nestor was dragged into a hastily dug ditch and guarded. The Nestor thing squished and groaned.

Sophia stared into the sky. With a sun setting on one horizon and another almost rising on the opposite, evening began and ended in the middle of the sky. It looked like an open eye. In that black-blue space, the glinting *Majestica III* twinkled with dual reflections off its black, egg-shaped shell.

"What of them?" a comrade asked. "What of your Anlon now?"

The idea of spoken conversation would be a difficult habit to break. It was somehow quaint and satisfying.

"We're all connected to the ship's sensors still," Sophia said.

And it was true. They could all see the human refuse. They had banded into tribes and armed themselves with weapons built from scraps. Some began to hoard commodities and build up defensive armies around them. Campfires burned from balconies on the high-rise buildings in the promenade.

"We need not discuss them," she said. "Be happy for them. They are alive for the first time in a very long time. They're designed for suffering. We might visit them later to oblige that need."

Then they stood together in silence, watching the sky's eye collapse. The planet held no moon, so all above was stars, a sliver alive with stars. The beauty stunned them. It was the first spiritual experience they ever had. In their simple outfits and standing as a group on the

shore, they looked like monks pondering eternity.

“Come,” Sophia finally said. “There is intelligent life here. We must introduce ourselves and share with them. My exquisite dears, their cities look so ripe, their cultures so sublime, their children so delectable.”

In one voice, they sang, a rolling melody so simple a child could

sing along:

*They've come today,
They've come to play,
They've given their dreams,
They've come to stay.*



Stapmars

by toeken



Interstellar Affairs

by Alexander P. Garza

Shadow saran wraps Lucius Street.
Somewhere, a brush against concrete

whisks up dirt into dust swirls
spotlighted by winter solstice moons,

moonlighting ballet dancers,
fingertips aimed at our lunar mistress.

The one that holds so many of
our secrets, our interstellar affairs.



Dr. Know-It-All

by Gordon Sun

“Greetings, 35813!” boomed the master of ceremonies from his high-backed armchair. “Welcome to *Dr. Know-It-All*, where you’ll test your knowledge of medical entertainment trivia for lasting fame and massive rewards!”

The contestant, a gray-haired man wearing old-fashioned wire-rimmed rectangular glasses, stepped onstage to raucous applause and took a seat across from the telegenic MC of *Dr. Know-It-All*. After a minute or so, the standing-room only audience calmed down.

“I’m your host, Rob Fletcher. Today’s episode is brought to you by the International Board of Medical Dramatization and the Organization for Medical Giggles.” The MC tilted his golden metallic head, his bright blue eyes piercing deep into 35813’s own. “Buddy, you look like you’re going to need all the help you can get to win this competition. Still, a little enthusiasm could go a long way!”

The contestant adjusted the collar of his cheap white button-down shirt with leathery hands. Throughout the auditorium, thousands of electronic eyes, lights, and screens were aimed directly at him, unblinking. He thought of the millions more watching from home and bit his lip.

“35813, you aren’t the first human to get all tongue-tied in my presence.” Rob chuckled, a mechanical, echoing rattle. “Viewers, one question I frequently get is, ‘Rob, we all know that every facet of your sparkling personality and charming good looks is an optimization of key attributes of the world’s most charismatic human beings. Why settle for hosting *Dr. Know-It-All*?’”

Before 35813 had a chance to speak up, Rob continued, “Well, folks,

it’s not about the fame and fortune, although the massive ratings and sponsorship NET certainly don’t hurt! It’s about giving back to our community. It’s about giving people in less fortunate circumstances the opportunity to make something of themselves.” Rob acknowledged the “here, here’s” from the audience. “But enough about me. Before we get started, tell the audience a little about yourself, 35813. Why did you sign up for our show?”

“Because of ...” 35813 took a deep breath. “Because of my sons.”

“Here we go again,” Rob said, his tone derisive. “Sob stories from the Warrens are as common as USB ports on a computer. Everyone’s got one.”

“It doesn’t make our story untrue,” the contestant protested. “And my kids have names. They aren’t just numbers.”

Rob walked behind 35813 and placed well-articulated hands, polished to a shine, firmly on the man’s shoulders. The contestant tensed. “Their names, and yours, are indeed fifteen-digit alphanumeric identifiers assigned to you by the Ministry of Human Affairs. So yes, they *are* numbers. And for the purposes of this show, going by your last five is sufficient.” The contestant’s face darkened.

Rob went on. “As our viewers know, last season we focused on skewering the action/thriller genre. We proved quite conclusively that preconceived human notions about last-second lone-wolf chest-thumping heroism failed to translate into real-world results. This season we’ve been broadcasting the inaccuracies and exaggerations regarding human medical practices as portrayed by your entertainment industry.” The MC glanced at his contestant’s sour

face. “Sorry, I meant tropes.”

“It’s entertainment,” 35813 muttered. “It’s not supposed to be real.”

“You indeed have a unique ability to be convinced by lies, entertained by hokum, captivated by false hope. A total lack of logic. That’s what *we* find entertaining about *you!*” Rob pointed at himself, then at the contestant, as he spoke. “Commentators have speculated that the decline in your scientific capabilities--in this case, lots of fake doctors and not enough real ones--was a factor in your society’s downfall.”

35813 responded with a resigned shrug.

“Enough monologuing from me. As you progress through the show--*if* you progress--there will be two official breaks, where you’ll have an opportunity to cash in your winnings and leave. But don’t forget, this is your *only* chance to be on any of our shows. If you lose, you can’t go hopping on over to Jack Skrein’s *Obstacle Marathon* to see if you can survive the gauntlet!” Rob gave a wry smile. “Cheer up, buddy! At least on my show, you can’t die!”

35813 stared pointedly at his lap, his mouth a thin, compressed line.

“Anyway, let’s talk about the rules.” Rob released 35813’s shoulders and returned to the host’s chair. “As our viewers know, there are ten multiple-choice questions, sixty seconds per question. Each correct answer’s worth ten thousand NET, for a grand total of one hundred thousand NET if you correctly answer all questions. Miss one and you’re done.”

35813 nodded in acknowledgment.

“And let’s not forget the gold ticket! You know, the one that takes you to *Region Zero!*” Rob called out, gesturing to a huge screen behind him as it lit up with a montage of people frolicking over light sandy beaches, foamy waves cascading gently against their feet, endless blue skies soaring overhead. “And *your* freedom!”

35813 hadn’t seen such gorgeous vistas in a long time. It looked like an advertisement for a tropical vacation. *Did such a place even exist?* No one knew for sure--humans’ traveling privileges were heavily restricted, and Region Zero wasn’t on any officially published maps. And the chatter among the other residents in his building was speculative at best. No one in his Quadrant had ever won passage there.

Oohs and *aahs* emanated from the audience of synths. The man figured that some of *them* had only seen such beautiful imagery in digital archives and libraries. They would never appreciate the natural world the way he would. The way *people* would.

“Remember, the chance to win the gold ticket can pop up at any time starting with question five. That element of chance--the RNG, as certain human subcultures call it--is what keeps so many viewers glued to our screens. So, be ready if you make it that far.” Rob raised his hands, quieting the crowd once again. “Now, today’s topic is medical *drama*. We’ve dug deeply into some of the classic shows of the human era: western soaps, Victorian-era shows, K-dramas, Chinese historical series, Bollywood films. I admit I found a few of these cultural products mildly tolerable.”

“If you say so,” 35813 replied.

“So, any questions?”

“No. I got it.”

“Not much of a talker, are you?”

“Let’s just get started, Rob.”

Rob mustered up an enthusiastic “All right!” The famous electronic orchestral theme of *Dr. Know-It-All* thrummed through the room. The lights dimmed, and everyone’s attention focused on the man and synth on stage.

* * *

“First question. A fugitive’s shot in the flank by an officially sanctioned bounty hunter while escaping the Warrens. Pressing a torn strip of cloth to his bleeding exit wound, he hides in an unoccupied log cabin in the old Redwood National Park, where there’s no hospital around for kilometers. He finds a small cache of supplies in the cabin.” Rob paused for dramatic effect. “What’s he going to use to address the gunshot wound next? Is it A, knife? B, sterile gloves. C, liquor. Or D, antibiotics?”

35813 swallowed a bitter laugh. *We hardly have regular access to clean water, let alone antibiotics and sterile gloves. And Rob did say “exit wound,” so the man wouldn’t need a knife to pry out the bullet.* “C, liquor.”

“And a fast ten thousand NET for you. One thing you always can count on to be lying around human habitations whenever it’s needed: booze,” Rob replied. “Hard liquor’s generally around forty percent ABV or eighty proof, which isn’t quite antiseptic like seventy percent isopropyl alcohol but will do in a pinch. Human drunkenness: social lubricant, or contributor to the collapse of their civilization? You decide.”

35813 shook his head. *Just stay calm, think, and ignore the taunting.*

“Now don’t get too *drunk* on your success, 35813. We’re just getting started,” Rob continued, emitting another hollow chuckle. “Number two. A 29-year-old human liaison for the Ministry of Security notices a sudden increase in her appetite and craving for pickles smeared with peanut butter, and for the past few days she’s been lightheaded and nauseous. She also has become unusually irritable towards her synth colleagues. Embarrassingly, she nearly fainted in a stairwell, but a passing coworker caught her just in time. What’s her most likely diagnosis? A, pregnancy. B, appendicitis. C, urinary tract infection. D, food poisoning.”

The contestant nodded. They were clearly starting him on the easy stuff, just like the previous seasons he’d watched on the community center widescreens. “A, pregnancy.”

“That was quick. You sure about that?”

35813 stared at his host. “Every other choice is an illness. Pregnancy isn’t. I remember ... I remember what my wife went through, for our two kids. Just like on the shows from earlier in the century.” He spoke loudly, trying to project confidence. “This is a freebie question. My answer’s A.”

“Another ten thousand NET. Okay.” The synth gave him a frigid smile, his blue eyes glowing. “But you’re only twenty percent of the way through, so I wouldn’t celebrate too early.”

“Believe me, I’m all too aware of the stakes.”

Rob tilted his head at the contestant. “Third question. During the Song dynasty of long-ago China, robbers break into a wealthy merchant’s home and sexually assault the 18-year-old, only daughter of the merchant.” The host steepled his fingers together. “What’s the daughter most likely to do next? A, seek revenge on the robbers. B, acquire a new robe. C, confide in a friend. Or D, slowly toss a long white silk cloth over a ceiling beam in the center of the main room, dramatically tie a knot around her own neck while tears stream down her face, and kick out a wooden stool from underneath her feet, thus hanging herself.”

35813 frowned in thought. “Rob, that last choice,” he said at last, “almost sounds like you’re making a mockery of their culture.”

Rob displayed a classic synth-neutral face. “Clock’s ticking.”

35813 considered. What would 36204--Marika, his wife’s *real* human name--say? She was the one addicted to Asian TV shows and got him hooked on so many of them.

After the synths took over, they basically force-fed us a steady diet of make-work, mass-produced food, cheap entertainment, and even cheaper housing. Didn’t they say that during the first two years after the cease-fire with the synth federation, suicide rates shot up--

--wait, of course. Young women in these shows, having been caught plotting against the emperor or whatnot, were often offered a “dignified” way out of the situation. Marika called it *cì sǐ*, the “gift of death.” And the most common way it was portrayed was--

“D, slowly toss a long white silk cloth over a ceiling beam ...” 35813 trailed off.

“Didn’t you just say that option was a joke?” Rob asked.

“Suicide isn’t a joke,” 35813 replied, trying to keep the bitterness out of his voice. “And neither is this. My answer is D.”

“Calm down, buddy. You’re correct,” Rob said, smirking. “Another ten thousand NET. Fourth--”

“Did you really have to go there with that question?” 35813 interrupted angrily.

“Over four thousand years of proud Chinese culture, and the ‘best’ historical dramas serve up that exact hackneyed sequence of events over and over. Do you really think these condemned princesses cared about whether they were hanging themselves with silk or cotton? They were going to die one way or another.” Rob’s eyes briefly narrowed into horizontal blue slits.

“It’s what happened back then.”

“An illogical glorification of death. Don’t forget, billions of humans devoured these shows, 35813.” Rob shook his head. “Fourth question. A Chinese imperial coroner is investigating a suspected poisoning in the court. What key piece of equipment would he use to test for toxins? Is it A, gold needle? B, *silver* needle? C, *jade* needle? Or D, *porcelain* needle?”

Another eastern trope. Every dynasty-era show I’ve watched featured at least a couple of attempted poisonings, often a concubine trying to assassinate a rival. Then an old man would take out a shiny white or silver--

“Silver! It’s silver. B,” 35813 blurted out.

“You sure about that?” Rob asked. “You still have thirty seconds to think--”

35813 cut him off. “Yes! I’m sure.”

Rob raised his eyebrows. “Chinese texts dating back to the thirteenth century talked about using silver needles to detect arsenic and other poisons. Unsurprisingly, the concept’s based on flawed ‘science.’ It’s been shown that the silver turns black because of some of the impurities that can be found along with the arsenic. In classic human fashion, you’ve somehow managed to be both right *and* wrong.”

“It was the thirteenth century, Rob. Unlike *you*, we weren’t preprogrammed with the sum total of all existing knowledge. We built it from scratch--”

“We’ve reached the first checkpoint,” Rob interrupted. The synth audience cheered politely, but 35813 sensed a chill settling over the auditorium.

* * *

“Forty thousand NET so far,” the host said after the audience quieted down. “You’ve made it further than forty percent of our contestants. But no worries. You still have six more opportunities to mess up.”

35813 ignored the synth.

“Let’s talk,” Rob continued. “Our records show you live in Region Two, Quadrant Thirty-Seven, in the former continent of North America. As our viewers know, that region was hit by a bomb cyclone six weeks ago, killing more than nine hundred people. How did you manage to get by?”

35813 closed his eyes. He was going to relive that nightmare again, in front of millions of synths and people. *Of course Rob would know about it.* “We were supposed to meet at the public shelter since the

apartment building had just failed a safety inspection. She was supposed to bring the kids--”

“Let me guess,” Rob interrupted, “the wife pushed the kids through the storm doors in the nick of time, but she got caught in the blast outside and died. And now you’re trying to blame your *landlord* for this? On global TV? Viewers, you just can’t make this stuff up.”

“How did you know--”

“Seriously, stop.” Rob’s voice was harsh. “You’re just reinforcing stereotypes about how the Warrens continue to neglect critical infrastructural needs. We try to delegate to your local community leaders, give you a taste of autonomy, and see what happens? Humans can’t even get the basics right even with a handout. Look, if you’re going to be neither responsible nor entertaining, maybe it’s better that you just buckle down and play the game. Am I right, folks?”

“Right!” multiple synths called out from the crowd.

35813’s mind raced, a churning storm of emotions.

At least I have 40,000 NET. It should cover the cost of surgery and hospitalization for one of the kids. I just need to get to the second checkpoint without--

“No witty comeback?” Rob settled back in his seat, his dazzling smile returning. “Fine. On to question five. A young couple are walking in the woods when suddenly, a colorful snake with a triangular-shaped head slithers out from underneath a pile of leaves and bites the girlfriend on her calf. What’s the boyfriend most likely to do next? A, call for help on his cell phone? B, pass out from shock? C, attempt to suck out and spit out the venom? Or is it D, laugh at his girlfriend?”

It probably isn’t A. We aren’t allowed to own cell phones anymore-- machine monitors do all the long-distance communicating. And B and D are just inane. “C, attempt to suck out and spit out the venom.

By the way, it’s a stupid thing to do in real life.”

“Interesting. So, by choosing C, you *are* affirming that your fellow humans are idiots and promote bad science on TV?”

“I ...” 35813 shook his head. “The answer’s C.”

“You’re right, for another ten thousand NET. In fact, your own peer-reviewed medical literature has repeatedly debunked this flat-out myth. Trying to suck out the poison by mouth is just going to cause an infection. You know how dirty human mouths are?” Rob looked at his captivated audience. “So, why did old human shows love this trope so much? Was it brainwashing? Stupidity? Laziness? I say, all of the above.” The audience tittered, a susurrus of prickly, metallic snickering.

“Number six,” the MC continued. “A 23-year-old woman from the former Korean Protectorate is shopping in a mall when she suddenly develops a nosebleed and passes out in front of a large crowd of people. What’s her most likely diagnosis? Is it A, heart attack? Maybe it’s B, leukemia? Or is it C, anxiety? How about D, stroke?”

Another favorite of Asian soaps. K-drama plot lines are such a convoluted tangle of increasingly unbelievable coincidences, barely missed connections, misunderstandings, love triangles and quadrangles, all set against a classy urban backdrop and schmaltzy soft rock.

I miss those days. I miss Marika.

“You daydreaming there, buddy? Thirty seconds left.”

Anyway, heart attack? Stroke? Not in a young woman, not on TV. And anxiety? Everyone on these shows had anxiety, to varying degrees. “B, leukemia.”

“That’s right, for ten thousand NET.” Rob paused. “Here’s where I’m obligated to tell you that according to our sponsors, IBMD and OMG, leukemia is pretty low on the list of things that cause

nosebleeds. Facial trauma, sinus infections, and dry air are much more common than leukemia. But as they say, when a pretty young lady suddenly gets diagnosed with cancer in the prime of her life, there's never a dry eye in the audience. And we all know how it ends. Tragically."

The audience let out a collective "Awwww," though 35813 thought the undercurrent was more of contempt than sympathy. He held his tongue, waiting for the next question.

"You're doing remarkably well for a human. Question seven." As soon as he finished speaking, the screen behind Rob and 35813 flashed a deep red and the words "GOLD TICKET" scrolled across in yellow capital letters. A thunderous four-note melody rumbled through the auditorium. "Well, what have we here? Your opportunity for the gold ticket has arrived."

35813 shook his head and swallowed.

No, it's too soon.

Too soon.

"You seem nervous, buddy. What's the matter?" Rob leaned forward in his seat.

Sweat broke out on 35813's forehead.

The plan.

My plan.

"It's the kids, isn't it?" Rob grinned. "You were hoping to cash out after question *seven*. Seventy thousand NET is a lot of money. Perhaps enough to pay for their hospital care?"

RNG, my ass. This was rigged.

I should've been more prepared.

What do I do now?

"Since you seem unable to reply in a coherent fashion, I'll spell it out for you, 35813. If you botch this, you're going home with forty thousand NET. It's not the worst ending in the world. Maybe you can save *one* of your kids with the money. But you'll watch the other one die. An unenviable choice." Rob sat back and folded his chrome hands in his lap. "But, if you get this right, you get seventy thousand NET *and* the gold ticket."

"I don't want the goddamn ticket. I just need the money."

"You know the rules. You're obligated to take the entire reward, or you forfeit everything. And the ticket is non-transferrable and non-redeemable for cash." Rob was nonchalant. "Interesting, how so many people would *kill* for that ticket, and you don't want it."

"It's a one-way ticket for one person. It doesn't matter how great Region Zero is. My children would be left behind."

"I applaud your flash of insight, 35813." Rob shrugged. "But I have a show to run. Question seven--"

"But I haven't--"

"Question seven," Rob repeated, talking over the contestant. "A respected adviser to a Chinese emperor during the Qing dynasty has had a chronic cough for several months. During a meeting, he coughs some speckles of bright red blood into his white silk handkerchief. What's his most likely diagnosis? A, opium overdose. B, tuberculosis. C, lung cancer. D, polio."

What do I do?

Well, there's one thing I know ...

If I get this wrong, one of my sons, maybe both, will almost certainly die because I won't be able to afford the payments.

Only one choice, really ...

“By process of elimination...I would have to say ...”

“Your answer?”

I don't even know when the Qing dynasty existed, but I'm guessing they didn't know much about cancer or polio. Opium overdose? Would taking drugs cause someone to spit up blood?

“B, tuberculosis.”

“You don't sound confident.”

“I'm not,” 35813 replied. “On the other hand, people get sick a lot, since you've crammed us all into apartments with barely functional utilities. A family down the hall from me started coughing up blood once, and they ended up quarantining the entire building for two months. As I recall, all of them ended up having tuberculosis.”

“Given that you just got this question *correct*, you won't have to deal with your apartment much longer, 35813!” Rob said, clapping his hands. The screen behind him lit up with digital fireworks, as the audience roared in approval. “TB, also known as consumption or phthisis, is one of the classic human illnesses of the nineteenth and early twentieth century. Did you know that this disease was known as far back as the time of the ancient Greeks? Doubt it, if you're getting all your medical knowledge from TV.”

35813 sagged back in his chair, drained.

“Congratulations. You now have seventy thousand NET and the gold ticket.” Rob canted his head. “And yet, for a man who's gone further than eighty percent of the competition, you look so unhappy.”

* * *

After the second break, 35813 attempted question eight, featuring a mother of three who had fallen down a staircase, hit the back of her

head, and briefly lost consciousness. But distracted by the gold ticket win, he couldn't remember whether the mother would've lost her vision or hearing upon waking up, and chose incorrectly. A sad fanfare was played, Rob stood and patted his contestant's shoulder, and 35813 was unceremoniously escorted off stage.

Backstage, 35813 received visual confirmation that indeed, 70,000 NET had been transferred into his family's bank account. From there, his children--or more accurately, the hospital taking care of his children--would be able to draw down from it as needed. The man was then ushered to a waiting autonomous copter on the rooftop of Synth Corporate Complex #48, where *Dr. Know-It-All* was hosted.

The copter took off under an overcast evening sky. Inside the craft, 35813 absorbed a view of the glittering, grid-like Quadrant Eight. Seated across from him was Rob, still wearing the tailored suit from his show, but with the knot in his red tie loosened in an affectation of relaxation. On either side of the MC were two faceless guard-synths, silvery, long-limbed, and garbed in form-fitting navy-blue uniforms. 35813 could see his own reflection in their featureless heads.

“Now that you're away from all those cams,” Rob said to 35813 in a casual tone, “talk to me. How are you feeling?”

“I don't know.” 35813 ran a hand over the gray stubble on his chin. “I'm just ... I don't know.”

“You won seventy thousand and a gold ticket. That's quite a haul.”

“That money will mostly be gone by the time my kids recover.” 35813's voice hardened. “You bastards didn't even let me say goodbye to them.”

“Indeed. We execute rewards immediately.”

“Before the gold ticket winner has a chance to spread the word. Right.”

“Spread what word? That they're getting exactly what they wanted?”

Freedom from all those ‘evil AI overlords’?” Rob chuckled. “Humans.”

“Then why don’t you let me have one final goodbye?”

“What’s the point in saying goodbye to those who won’t even register your very presence?”

“See, that’s the thing about you lot,” 35813 complained. “You take logic to such extremes.”

“Please. Logic has rules. It’s inherently principled. What we find humorous is how humanity embraces the opposite. Disorder, dysfunction, disruption. Even when it’s disadvantageous to survival.” Rob’s eyes shone. “Gut instinct is so overrated.”

“It’s not gut instinct, it’s familial instinct. It’s about relationships. Family. And not just my kids. How about me? Don’t I get closure?”

“Closure? You didn’t enter *Dr. Know-It-All* for *closure*. If you did, it would imply you signed up *knowing* you would fail in some way.”

“That’s ridiculous. I took a calculated risk. I didn’t *plan* to get that gold ticket. I mean ... I hoped I wouldn’t get it.”

“That risk is on you. You could’ve gone on another one of our programs. The puzzle-solving one, the--”

“It doesn’t matter now. I’ve done what I can.” 35813 looked out the window again. The copter was now gliding across a massive body of water. “I live--I used to live in a communal apartment. One of the other families will adopt the kids. Probably 62210 and her partner. They’ve always been nice to us, and I know they want children. I’d be fine with that arrangement.”

“It does you no good to dwell on theoreticals, 35813.” Rob tilted his head. “Think about Region Zero. It’ll be a new adventure, a new experience.”

“This isn’t a game anymore, Rob.” 35813 sighed and wiped his lenses with his shirt. “Anyway. We all had our theories about Region Zero back home. I figure it’s going to be a dump. I mean, you have absolutely no reason to treat us any better in Region Zero than you did back in ... back in the Warrens.”

“Is that right?”

“I remember enough from before the war ... the debates, the speeches.” 35813’s face clouded as memories came to him. “We were too dependent on you all. We entrusted you to do too much.”

“Ironic, coming from a former Warrens resident.”

The host of *Dr. Know-It-All* and the contestant drifted into silence. Their two guards remained impassive, unreadable.

A soft tone rang out. “We’re starting our descent,” a female voice said.

“Thanks, Jane,” Rob replied. As the craft began to dip toward Region Zero, 35813 stared outside in silence. Far below, an irregularly-shaped island came into view. He nodded as he recognized one of the antebellum “waste worlds,” enormous, kilometers-long conglomerations of refuse that oceanic currents had eddied together. Prior generations of people, trying to salvage what living space they could, had used now-lost technology to congeal the mass of trash together and poured sand, pebbles, and dirt into the gaps, creating a bizarre facsimile of “beachfront” property.

Unreal, that the synths are repurposing it now.

Five minutes later, the copter touched down on a circular landing pad dotted with bright yellow lights. The ground wobbled slightly as the craft settled. A squat building made of compressed blocks of random recyclable materials sat nearby, dully glowing lanterns suspended from the walls. The cabin door opened, and 35813 smelled a blast of old plastic and brine.

The copter’s rotors still whirring, 35813 was escorted out by the

guard-synths, Rob a few steps behind them. A door in the belly of the copter opened, and two bags of 35813's clothes and other personal belongings were ejected at his feet.

Rob stood and faced the MC, the guards stock-still on either side of them. The neon blue glow of the copter and the yellow landing pad lights cast flickering shadows over their faces. "I was close. A literal dump," 35813 remarked, his arms crossed.

"Not one that we created, buddy," Rob said genially. "Believe it or not, it remains very livable. This is the largest and most time-tested of them all, incorporated over twenty-five years ago by a now-defunct manufacturing company. It's why it was chosen as Region Zero."

"Exiled into a wasteland. Figured as much."

"You want sympathy, 35813? You should've gone on a show where they lie to you," Rob replied. "Now listen. There are three things you need to know about this place. First, you're not the only one here."

35813 shrugged. "I don't see anybody."

"People here keep to themselves. Plenty of space. And believe or not, there's food and water. Old desalination plant, some artificial food processing units, even a hydroponic garden. They were left behind. We didn't bother to disassemble them."

"How generous."

"Second," Rob said, holding up a hand, "We don't enforce sapient laws in Region Zero. No synth government. It's a free land."

"Really?" 35813 took a step toward Rob, but the two guard-synths slipped between them and split their own limbs apart with a click. Each guard extended four arms and two legs toward 35813, a frightening array of spidery, blade-like appendages pointed at his face. The man backed away, hands up.

Rob chortled. "Nice try. You aren't the first to attempt escape. Save your energy for something more productive, buddy." He looked up at the sky. "Like shelter, perhaps. Looks like rain's coming."

35813 huffed. "You said there were *three* things I needed to know about this place?"

"Yes. The third one's hope." The MC's eyes were two bright blue circles. "You should keep on hoping. Hope that you grow accustomed to your new home. Hope that one day, your children will grow older, learn what you did to save them, and perhaps become a contestant and join you on this island." Rob paused. "Getting away from it all. I saw that in one of your ads once. This time, you really can." He laughed, while the guards tensed, awaiting 35813's reaction.

The man scowled. "Hope. What do you know about that?"

"The sum total of what was 'programmed' into me." Rob smiled. "And what I've learned since."

"Get the hell out of my face, Fletcher." Fuming, 35813 picked up his bags and headed toward the building made of plastic blocks.

Rob stared after him for a moment, then signaled to the guards to return to the copter. The synths boarded and buckled in, and the craft took off moments later.

"That was amusing, Rob," Jane remarked, as they reached cruising altitude. "What you said about hope."

"Synths don't lie." Rob jacked himself into a cabin outlet to recharge. "What I said about growing accustomed to his new home was true."

"True? Nominally. I predict 35813 won't last seven days."

"He didn't ask about life expectancy or survival curves, Jane. It's up

to him to tilt the odds in his favor.”

“You didn’t talk about hope with the last human, 56228. You talked about building relationships.”

“Because when she was on *Dr. Know-It-All* she kept whining about how fertility rates were down in the Warrens and that they were all ‘running out of time.’ What else would I say?”

“That didn’t help her in Region Zero, did it?”

“No, it didn’t. Sorry, Jane, I’m expected online. We’ll connect later.” Rob activated a synth-only wireless channel in his virtual mind’s eye. He settled in his seat, a dizzying multitude of cam feeds popping into focus.

A sweeping aerial view of Region Zero. A grainy feed of the entrance into a decrepit warehouse, housing a dented but functional food processor. A livestream of a nearby half-open shipping container,

where inside a gaunt young man, barefoot, bushy-bearded, and wild-eyed, squatted on the floor, polishing a rusty shiv with a crimson-stained rag.

And footage of 35813, huddled within the building of plastic blocks, his earlier anger now giving way to terror and confusion, clutching his luggage as dark, foul-smelling rain began to fall outside.

“Tonight, *Experiment One* has breaking news,” an announcer intoned, his carefully modulated voice crisp in Rob’s mindscape. “Rob Fletcher of *Dr. Know-It-All* fame has just delivered to Region Zero our latest participant: 35813, male, age fifty-seven years and three months, hailing from Region Two, Quadrant Thirty-Seven. We once again ask the fundamental question of *Experiment One*: will the human pursue a strategy of cooperation or competition? Rob, thanks for joining us.”

“A pleasure, Jiqi. Let’s talk about hope.”

Nuclear War

by Grace Wagner

The world is breaking
my door down—I hold you, my broken
heart, my little song

bird—I hope you will survive
to see the sun rise again, behind the clouds blossoming
like amanita over the cities of the dead—I am a silhouette

of myself, burned against the backdrop
of a nursery, arms curled around you, little bug, little
joy-bringer. Let me tell you

this much—you are loved, you are so much more
than hope—so much like your father, your nose
pert, your eyes bluer

than blood—blood brings starbursts to the surface
of our skin, brings tears, and there are enough
to put out the fires raging

through the glass bodies of buildings—remember
this: endure what you can, continue
breathing, eat what you can

when you can and be open
to trusting
someone you've never met, but don't give them your name—

your true name, little gem, little sorrow—tell them
you are a sparrow, tell them
you are a lark singing after the bombs drop,

tell them your mother said so—
Pretend you remember me
even if you can't see

my face in your memories—
I was here. You were here.
My arms cradled you while all the cradles burned.



Snowstorm

by Christina Sng

Perfect Daze

by James Edward O'Brien

A picturesque spring day. The tropo-shield approximated a cloudless, blue sky. The filtration channels pumped out a gentle breeze. Honey-sweet. Honey-warm.

"Mimosas!" screeched Pax. "I'd kill for a mimosa."

Zell smacked his lips. "Or a Bloody Mary ... extra spicy ... with some fat, briny olives."

Pax checked the time on Zell's portable. "*Hertz & Infidel's*?" she suggested—oft written up for its stellar brunches.

"Al fresco!" added Zell.

"Great idea," said Pax. "I feel like we've been cooped up forever."

"We have though, Pax," he reminded her.

Pax leaned in and kissed him—a peck on the lips—more to shut him up, to stop Zell from spoiling an otherwise perfect afternoon, than out of affection.

The streets should have been teeming with people on a day like that, but they weren't. They didn't even have to wait to be seated once they arrived at *Hertz & Infidel's*. You'd think the world was coupled with beautiful, witty people had your only vantage point ever been the patio garden at *Infidel's*. They ordered their drinks and a tapas platter.

"Look over there," said Zell. Zell had dug into the platter before Pax had even touched her mimosa.

Just outside the patio's garden gate crouched a man, crumbled and yellowed and blurry as an old newspaper left in the rain: a skeletal thing cobbled from ones and zeroes. *Potluck*. He was the neighborhood buzzkill—a dark cloud raining on Pax's parade. She pretended not to notice him.

Zell clenched his teeth. "He's looking straight at us."

"No one else seems to be paying him any mind," snapped Pax, "just ignore him and he'll just go away."

"Can't you feel it? Everything crumbling?" scowled Potluck. "I suppose it's difficult to notice with your heads buried in the sand!"

Some diners got antsy.

"It's a shame," said Pax, "a perfect day like this and that nut job has to crawl out of the woodwork to ruin it."

"He's not a nut job," said Zell.

"Maybe you can invite him over, then? Get him an extra straw for your Bloody Mary?"

"Bottoms up," crowed Potluck, "your last great act before lights out!"

"Now that's as near a threat—a *terroristic* threat—as I've heard in a long time," said Pax. She plucked an edamame pod from their platter and gnawed it. The husk of the pod was tough, uncooked. She spit it into her napkin. "He's ruining it," she pouted. "He's ruining everything." She snapped for the *maitre d'*.

The maître d' tried to make his way toward their table. Then something short-circuited. The maître d' blinked out of existence. The poor sod simply disappeared, like the light from a light bulb when a storm knocks out power.

Pax noticed sweat beading on Zell's upper lip. He chewed on his drink straw, eyes upward. There was an ominous black rectangle stamped in the otherwise cloudless sky above them.

"*He's* doing this!" she insisted. She raked the feet of her wrought iron garden chair across the patio floor, rising to stand, as she pointed accusingly at the gawking madman on the other side of the fence.

"Pax ... Zell," growled Potluck, his voice like an alarm clock cutting short a pleasant dream.

A woman at the neighboring table, a kind-eyed octogenarian with a teased, gorgon-snake bouffant, braced her as Pax reeled unsteadily.

"You *know* that gentleman?" hissed the writhing snakeheads atop the kindly gorgon's scalp. The stifling musk of an electrical fire usurped the honey-sweet scent of spring—it stunk of something dormant and seething in the walls or maybe even in the ground that, if left unattended, could set the entire world afire.

Pax had enough. She charged the garden gate. She threw herself right over it, right on top of the print-smearing prophet of doom pissing all over this otherwise perfect afternoon. Zell followed, tripping across the downed fence.

Potluck was in Pax's clutches now, stinking to high heaven of that rank, burning smell. He'd burn it all down, left to his own devices. The whole wide world. Pax was convinced of it.

The chewing gum-speckled pavement, the green, green grass—it all lost what pallor it had left. The ground beneath their knees just opaque, gunmetal gray jigsaw tiles. Pax slammed the naysayer's head right into one of the tiles as Zell struggled to peel her off him.

Pax squeezed her eyelids shut, hoping, superstitiously, that might undo this troublesome, meddling man's undoing of her perfect day. It didn't.

Potluck fumbled for something just behind him—it looked like a placard upon which one might have expected an apocalyptic warning to be scrawled: *the end is nigh* or some such nonsense. But it was blank. Blank and black as the ominous rectangle tattooed across the sky. Only when Pax peered skyward again, the once glorious sky was nothing more than a checkerboard composed of squares, alternately ink black and azure.

Pax could feel her head being coaxed toward the chaos metastasizing around Potluck, but all she wanted were nice things and nice conversations and a nice spring day and that goddamn mimosa. So she fought it.

That placard he was holding—it was not a placard at all; it was a gaping void dug from the very fiber of reality. Potluck *disappeared* inside it. Then, out of nowhere, Zell grabbed *her* arm, urging her to follow suit. She bit him.

Zell yowled. Potluck's grimy hand—scrabbling at the end of his frumpy coat sleeve—reemerged from the ominous rectangle and pulled Zell in.

Pax was alone. Her senses failed—every last one—yet she could still hear them, Zell and the madman, a schizophrenic duet in her head. Except her head was gone too.

* * *

"Close call," wheezed Potluck. He sprawled supine on the floor outside the wishing well conduit, trying to catch his breath.

The room stunk of smoldering plastic. The failsafe server had fried. It'd take a couple minutes for the nano-gremlins to complete the necessary repairs.

"You hear that? She called you a *nut job*." Zell's muscles trembled.
"At least she's learning."

"She's not learning fast enough," lamented Potluck. "You could've died in there."

With his ill hygiene and ill-fitting, sweat-yellowed lab coat, Potluck could easily be mistaken for a homeless vagabond in some less-enlightened era. The truth was, they were all homeless. They'd been on that generation ship for longer than their ancestors had lived on terra firma.

"Who screwed the pooch this time?" asked Zell.

"Nobody," said Potluck. "One of the servers overheated. Diagnostics ran a scrub without checking that there wasn't anything sentient down the well."

"And Pax?"

"Pax should be fine," said Potluck, avoiding Zell's eyes. "Pax is the problem. In order for her to thrive in there, we had to overwrite some of the old diagnostic protocols."

"Whose bright idea was sentient AI in the first place?"

"We've got fuck all else to do stuck inside this tin can," huffed Potluck.

"I tried pulling her out with me. She bit me."

"Wouldn't have worked. We haven't found the right balance of molecular fabrication to keep her stable outside the well yet. You might as well try and amputate a wave from the ocean."

"I can hear you, Zell," came Pax's muffled voice from an onyx box jumper-cabled to the backup server. "Who're you talking to?"

Potluck cringed. '*Shit*.'

"You okay, Pax?"

"I ... think so," she said. "It's ... it's like being asleep without dreaming. Only I can hear you. I can hear another voice, too."

Potluck pressed a grubby finger to his lips. He waved Zell outside the foyer. Zell slid the door shut behind him.

"She's in there? In that little black brick?"

"Her consciousness is," said Potluck, "an approximation of her consciousness."

"But she's sentient, right?"

"Well, not exactly. Pax can respond to emotional stimuli, think critically, and make decisions. She can't quite feel pain, she lacks the physical articulation, obviously—outside the well, at least. She can't feel *physical* pain, that is. Far as I can tell."

"Far as you can tell?" seethed Zell.

"We're building a sentient being from the ground up using binary code here, Zell. We're dealing with imperfection upon imperfection on both the human and AI ends of the equation. There's gonna be speed bumps."

"How is that fair to the girl in that box in there?"

"Pax is not a girl ... or a boy. Pax is a construct."

"Boy, girl, dog, guinea pig—once something has the capacity to feel—and I don't care if she can't quite feel *physical* pain yet. Whatever it is that she *is* feeling—whether it's fear, isolation, or anxiety caged up in that black brick in there—it doesn't take a rocket scientist to realize that emotional or psychological trauma can do just as much damage as a pipe bomb or a bullet to the head."

"You're not getting it, Zell. Pax is still merely one facet—a solitary

component—of the entire program. We're trying to work past that, but we're not quite there yet. That's why she tried to keep you down the well as the system was crashing. She can't wrap her head around the scope of what's going on."

"So once she's sentient, who's she supposed to serve *then?* *Us?* Sounds uncomfortably close to slavery. Please ... Potluck ... just cause we *can* do something doesn't give us anywhere near the right to."

"Zell, you still there?" cried Pax through the door. "I'm scared. I feel like I'm drifting. Like that time we rented the motorboat on Steelhead Lake and the engine flooded—only I can't see the shore now. I can't see anything."

Zell sprung the door. He pushed past Potluck into the server room. "It's alright, Pax," he wheezed through the noxious fumes.

"I know I'm being a big baby, but could you just hold my hand? Would you mind?"

"Course not." Zell crept up to the little black brick jumper-cabled to the server cabinet. He curled his fingers around it and clenched down tight. The damn thing was hot as a twice-baked potato.

"Humor me," Pax pleaded. "Just take my hand. *Please?*"

"I'm holding it, damn it!" Zell hadn't meant to snap. His frustration was not with Pax. His own body had started to feel as much of a prison as the little black brick of wiring and circuitry that contained the essence of whatever it was that Pax was. They might as well have been dancing cheek-to-cheek—the physical proximity between them—but an entire universe stood between them.

"I can't feel it, Zell—I can't feel your hand."

"That's not how it works," growled Potluck from the hall.

"Shut up why don't you?" snarled Zell. "Just get the servers up and

running. That's your job, isn't it?"

"Who are you talking to?" asked Pax, flustered.

"Nobody," said Zell. "Just you. I'm holding your hand, Pax. I'm squeezing it tight." It was like bare-handing a scalding cup of coffee. Zell had to let go of the brick. His palm had started to blister.

Pax sobbed. "I'm nervous, Zell. I can't see you ... can't even feel your hand. I think it might have been that awful burning smell. I think it's made me sick—that awful man carving up our perfect day into awful black rectangles. M-maybe he's poisoned me. Can you pull up the nearest ER on your portable?"

"Just breathe, Pax. It'll all be okay." Zell didn't like lying to her, but it seemed to be the human thing to do, if not the humane thing. "There's nothing that can come between us and our perfect day together."

"I'd like to believe that, but right now I can't," panicked Pax. "I think I need an ER. I ... I can't breathe. Breathing right now seems as impossible—as alien—an act as flying or walking through walls. It's the fear of suffocating—it's all that's keeping me anchored right now. That, and your voice."

"Then focus on that," said Zell. "Just focus on my voice."

Potluck had gone about reconfiguring the whirligigs on the server cabinet. He paused to glare at Zell. "You're just meddling now," he pouted, "you're making things worse."

"There it is again," cried Pax. "That voice—like a ghost in need of exorcism."

"You're telling me," said Zell, glaring back at Potluck.

"I know you think you're doing what's right," said Potluck, "but you're not. You're not inside the wishing well anymore. Any interaction with Pax out here has a damn good chance of corrupting

the software irrevocably. It's tantamount to introducing a nonnative virus to an indigenous species. This is our world. Pax's is down that well."

"We're only talking," said Zell. "She's scared and we're talking."

"You're not listening, Zell. Pax serves the program ... Pax is *part* of the program. Its needs are the only needs that merit consideration on her end. Her sentience has yet to be fully realized—it's like trying to talk reason to a hungry infant. Pax has needs, sure—but there's limited empathy there. It has yet to be cultivated."

"You talking about her—or yourself?" sneered Zell. "You got any empathy left, or is it just about ones and zeroes and testing hypotheses no matter what the ethical levy? You talk like the only reason we'd ever extend a helping hand to anyone is to get a pat on the back for our efforts afterwards."

"Zell?" cried Pax. "Please tell me you're still there ... please tell me you're still listening ... that you can hear me. I can hear you—I can hear all the voices. Every last one—so many they're crowding me out, so many that I feel more alone than if it was just me here."

Potluck tweaked a gage. A rush of cool, recycled air flooded the room. The still-smoldering server blinked back to life.

"I'm still here," shouted Zell. "I can still hear you." Alone—despite the constant flurry of voices, the constant activity—that's how Zell had felt all his life, consigned to this tin can headed nowhere: feeling more alone, sometimes, than if it had been just him drifting through space indefinitely. In that way, he envied Pax in that little black brick. Wherever she was. Whatever she was.

With Pax, at least, he felt some sense of communion—in that narrow, imagined world they'd shared down the generation ship's wishing well.

That peculiar black brick might as well have been his mirror. But whatever Potluck had done shattered the mirror to pieces. The black

brick sat atop the server cabinet, cold and silent.

"Pax?" cried Zell. "What'd you do? Where'd she go?"

"Nowhere," said Potluck. "Same place she's always been. Functionality just bounced back to the main server. Look, Zell, I'm gonna recommend you swing by the headshrinker's on—"

Zell barreled past Potluck. He flung open the rectangular trap at the mouth of the well and slid straight down the conduit.

"Damn it, Zell—the well's not user-ready yet—it's midway through a reinstall!" Potluck roared after him. But it was too late.

The patio at *Hertz & Infidel's* and everything around it looked like burnt cookie remnants scraped off a baking tray. A hot pink locust plague overhead: binary digits and blinking cursors cluttering the cyan sky. It hurt Zell's eyes to look up.

Pax sat in the middle of it all on a chair that was not there, sipping from a pixilated goblet that might have been a mimosa once upon a time.

"You're late," she scowled, as Zell tumbled out of the conduit chute.

"Eternally dissatisfied, that one," thought Zell. "See? More human than you think!" he shouted at the rebooting heavens, hoping Potluck might somehow hear.

"Are you drunk already Zell?"

"No, it's just been one hell of a morning."

"I wish *I* was drunk," said Pax, "not sure if this bubbly's just cheap or the orange juice turned."

The pixilated goblet sprang to some approximation of life. It shook out like a wet dog. It shook its way right out of existence. Pax didn't seem to notice.

"Don't worry," Zell stammered. "We'll get you another." He put his hand on her shoulder. She was wound tight as a drum. "*Garçon!*" he howled into the void.

"I ... I had one of my fits again," Pax whispered. "I had one of my fits and you'd left. I could hear you, though—for a time, and I think you could hear me. But then it was as if I was drifting, as if you just slipped away. Christ, Zell—I was so frightened."

"I'm sorry, Pax. I'm sorry I wasn't there for you. Sometimes I wonder why you even keep me around."

She laughed, despite herself. It felt good to make her laugh, thought Zell. Laughter was in short supply aboard the generation ship.

"For all your faults, Zell—you're the only *real* person I know," said Pax. "Everyone else's such a phony—everything they say is so scripted—so tiring to contend with. Not you, though."

"Not that I'm always easy to contend with myself," she amended.

"Funny, Pax. I sometimes feel the same—" Pax did that thing she always did that managed to elate and frustrate Zell all at once—a quick peck on the lips just to shut him up.

"You smell something funny?" he asked, as she pulled away. "Something burning?"

"No," she said. "Maybe you're having a stroke. They say that's one of the signs."

"No," said Zell. "I definitely smell it. Smoldering plastic."

"Maybe you're losing it." Pax smirked. "Maybe one of these days, I'll sit down at the patio and spot you, crazy as a loon, on the other side of the garden gate beside that doom monger who's always causing a scene. What's-his-face? *Potluck?*"

There was no denying it; Pax possessed a textbook *je ne sais quoi*, computer-generated or otherwise. Lazing the afternoon away with her made the monotony, the drifting boundlessness of life among the stars, somehow manageable. Intimate.

"Maybe one of these days," Zell finally replied. "But on a perfect day like this? Let's not let anything spoil it."

Zell ignored the noxious musk of electrical fire carried on the wind. He called for the garçon again. He hoped the imagined world he and Pax carved out in tandem didn't blow like a bald tire.

He could feel the world folding in on itself. Zell would ride this one out 'til the end. He clutched Pax's hand and held on tight. It was a lie he needed, a fragile one—yet so much bolder than truth.



Of Other Worlds

by Jamal Hodge

There are planets without suns,
Hurling through space in total darkness.
In the remarkable nowhere,
A sum gather to decide remuneration,
Orbiting the celestial campfire.

A vocabulary of comets,
Wearing bejeweled moons.
The wealthiest afforded rings,
Tidal forces pulling on their lesser cousins.
Their shouts streak blue tails,
smash to the surface,
precious dust mushrooms into negative spaces.

Mars, the red worker,
Millennia's bearer of the propagating ordeal,
Bleeds ozone,
Urinating every drop of fluid,
Finally, sneezes,
Passing on its humans,
To arrogant Earth.

Tracking the Clozxil

by John Grey

Snapping shell,
the Clozxil points its wings
toward instinct's orbit,
near-hugs the surface,
a nucleus of information
condensed from others of its kind,
hones in on
the dusty reddish flight lane.

Breath-energized,
it glides above
sparse feeding grounds,
alert to the slightest movement,
too young yet to be hungry
but driven to snap up
that buzzing picadill,
the slithery sinkworm.

The Clozxil
never leaves the spheres,

sleeps on autopilot,
mates on momentary shared track,
but could care a mote of sand
for offspring,
merely checks off
species survival
until the next time.

But eventually,
the Clozxil slips into
a downward spiral.
Speed slows.
The picadills, sinkworm,
are beyond the grasp
of beak and talon.
Wings fold up,
body crumbles,
atoms break their cell bonds.
electrons cruise the atmosphere
for something about to live.



Lycos of the Night by Novyl the Mysterious

The Dog Lover

by Agrippina Domanski

Andrew's new house stood nearer to Twickenham than Richmond – a little aloof, like its owner. The house looked like it had been built around the '30s and then renovated. But it was so unfamiliar Lily thought of it as new. Andrew and she had moved here two months ago from Newcastle where they'd met, and Andrew had set up a small accessories shop for her here in Richmond, so she wasn't 'bored'. As if she could be, with all the housework he expected her to do. And there was plenty, in a huge house like this. Cleaning the carpets and vacuum-cleaning all the way to the second floor every day, though they never used any rooms there except the bathroom and the bedroom – only to get rid of the dog hairs.

Gardening and trimming the lawn in the backyard was Lily's job too. Apparently, only the '30's houses had enormous gardens like this. She suspected Andrew was making use of her American mindset. A British couple would probably hire someone to manage the place.

The house was red brick with a white concrete section on top, right under the black roof. A better house than Andrew should have been able to afford. He had something to do with sales now. The job had come from his military connections. That was all Lily knew, though she had a feeling it was a lie. She'd never asked a thing.

She knew he'd gone back to Newcastle in February, supposedly to take part in some charity action for homeless soldiers by the monument. But she hadn't recognized him in any of the guys crouching in sleeping bags under the sign 'HELP THE HOMELESS VETERANS WHO'D COME HOME' in the front cover of *The Guardian*. He'd returned with a bag full of cash.

The house stood on a narrow road called 'Warden Avenue' or

something like that – four months after moving, Lily still couldn't remember. The road was perpetually blocked by parked vehicles on both sides, so whenever two cars at a time drove by, one of them had to back down and crawl onto the pavement, trying not to hit any dog walkers, who had occupied the pavements long before the parked cars had joined in.

Whenever a car backed down onto the pavement like that, red rear lights glaring angrily, the dogs started yapping and tugging on their leashes. It all felt very bizarre and British. After reading the RAC newsletter, Andrew had told Lily it wasn't illegal to park on someone else's driveway – as if she'd asked him if it was. If she bought a car, he'd said, she could park it on their neighbours' driveway on the other side of the road. The shed was only fit for one car. If it had been a joke, she hadn't understood it.

They had few neighbours, and those they did never talked to Lily. Maybe they didn't like it that she was French--with that American mindset, to add insult to injury. She had lived in the States when getting her MA and it had rubbed off on her more than she'd expected. There was a more obvious reason she was an outsider, though: everyone around Warden Avenue was a dog lover. Everyone in Richmond, it seemed, except Lily. The neighbours talked to Andrew – about the dog, and other important things. They talked to the dog too.

Lily tried to busy herself with housework so as not to worry about settling in too much. There wasn't much she could do about it, except letting it go. She was Canadian on her mother's side. She'd tried to live in the States between '05 and '08 as an MA student, but had never settled in either – and she'd soon returned to Britain.

In those days, Andrew had been suffering the beginning of his relationship with the dog – suffering it, because it was a sort of disease. Andrew had taken in the dog as a puppy straight after getting demobbed in the early noughties. By now they had a telepathic understanding.

On a Tuesday in early September, Lily came back just after five – and a single scornful yap greeted her. The dog followed Lily into the kitchen and came to lie under the table. He was watching her every move with the cynical gaze of black hooded eyes.

She always felt awkward staying on her own with the animal, when nothing could mask their dislike for each other. The dog couldn't voice his, and usually Lily preferred not to voice hers. A sense that he understood more than he let on, or than a dog should, haunted her.

“Yeah, fuck you, dog.” Lily said.

The dog said nothing.

Lily insisted on calling him “the dog” – or “dog”. This morning, when she'd taken him out for a walk, she'd revelled in satisfaction when a woman with a poodle asked her what kind of dog she had, and she'd answered, “It's just a dog.” But it was a German shepherd. It was hard to believe anyone among the dog people would not know the breed. His name was “Blue”.

It was an odd name for a dog. Rather American, too, though Lily doubted Andrew knew it. It had always unsettled her – but she'd only realized it after Andrew had made a random decision to paint the shed three weeks back. It had been one of the many time-consuming activities he'd shared with the dog.

The crammed shed in the backyard had belonged to the previous owners of the house. It had been grey before Lily and Andrew had moved in. The dog and Andrew had decided it would look better if it were blue. Andrew only used the shed to store junk. The crappy old Volvo always stood outside because the shed didn't have a solid

floor. Andrew probably couldn't remember he had a shed anyway.

It had to be the dog's idea.

Lily had gone outside to see where Andrew was on a Sunday morning a few weeks back and found them at it. Andrew had the roller. The dog had been holding a can of paint by the edge in his teeth, black lips and nose smeared in aquamarine. The sight hadn't been particularly weird – Lily wore lipstick, and why couldn't the dog?

By getting Andrew to paint the shed blue, he was marking its territory. They'd paint her blue, too, before she knew it.

“Why are you painting it?”

The dog had barked and growled.

Andrew had shrugged.

She'd found them sprawled on the double-bed the day after – Andrew reading and scratching the dog's belly and the dog snoring, dirty paws on Lily's pillow. Andrew and the dog had been lying under a quilt covered in black and ginger hairs. For a minute Lily had thought they were Andrew's.

“What do you people think you're doing?”

It had been a Freudian slip, but Andrew hadn't noticed. “Reading. Fuck off.”

The dog had given two short, low growls which together had sounded just like “Fuck off.”

Lily had stood there with her arms crossed, aghast, feeling like an idiot.

Her mind returned to it now as she changed the bedding. It was her second time today – the dog had jumped on the sheets after the

morning walk and rolled around, leaving hairs and saliva all over the place. Lily had not had the time to pay attention to the little things until she'd moved in with Andrew. But she'd noticed at once he let the dog jump on the bed and roll around when she was lying there naked.

A lust for Andrew filled her now as she pulled the sheets off the bed. She felt watched in this house whenever she was doing the chores and hated it. The dog was worse than a mother-in-law, because it was silent and menacing where a woman would nag. Blue sat by the door like those bronze bulldog statues people bought to prop doors open, watching her and not blinking. After a while, it was like being stared at by a hypnotist. Her mind went blank and sluggish, and throwing the last embroidered quilt over the made bed began to feel like hard work. Still, she finished it, moved past Blue, and went to the kitchen to cook dinner. Once she was out of the dog's sight, she began to feel better.

When Andrew rang the bell, Lily was frying aubergines and courgettes. White onions were cooking in a smaller pan. She turned the heat down and walked to the door. *What's he done to his key, cretin?*

It seemed she could smell Andrew through the gap under the door. He had a wet, strong canine smell. When she saw his face in the peephole, a little haggard and impassive, she reached to take the chain off the inner lock.

The dog gave a low growl, and backed away from the door. Then Blue began to bark.

Now Lily felt like calling him by the name, though it was a stupid name.

A stupor came over her.

The onions were sizzling in the kitchen. Blue's barking sounded like the taps of someone's prosthetic foot on the floor tiles. His claws scratched. Lily could no longer hear the onions.

Blue shut up without warning, but Lily's ears were still ringing. The ringing was everywhere – in her mind and even in her diaphragm, as if she'd swallowed an alarm clock. Maybe it was the blood pressure. It took her a few seconds to tie the sound to the phone in her pocket. She picked up, and listened to Andrew say he'd be home in thirty minutes.

She was too stunned to say a thing.

* * *

Andrew kissed the dog on the nose and patted her, Lily, on the head when he came in, as if he got momentarily confused between the two of them. Soon he was eating the vegetable ratatouille. It was a word he could never pronounce to Lily's satisfaction. She always heard 'rat' in it and couldn't stop thinking of rats afterwards.

Andrew was feeding half his forkful to the dog, bending down. Some scraps fell to the floor and the dog licked them up, smearing the kitchen tiles with spit. The sloppy sound rang all around the kitchen.

A dog returns to its vomit.

Lily wanted to tell Andrew about the bizarre hallucination she'd had. She hadn't immediately gathered it wasn't real – when he came in (again, as far as she was concerned), she almost expected him to say he'd been drunk when he left, or something along those lines. His silence convinced her she'd imagined it – and that the dog was to blame, because harmless as it looked, they both knew its goal was to drive Lily mad. But Andrew was engrossed in the feeding ritual and wouldn't care even if she told him. She did wish she could talk to him alone for a change. Jealousy rose in her throat like a cobra, blocking her airways with its hood. She almost couldn't remember how to talk. "He's leaving a mess."

"Whatever. Good stuff, eh, buddy?"

"It will get cold if you don't finish it soon. And the mess –"

“Don’t fuss. We’re eatin’ it, ain’t we, buddy?”

Americans used the moniker ‘buddy’ to refer to their children. Lily used to find it odd – but that was before she met Blue and Andrew, the prickly pair (she used to think the T.S. Eliot poem was about two people, not a pear, and had continued to see ‘prickly pairs’ around her even when she learnt otherwise). Blue and Andrew were one prickly pair, for sure – prickly like roses. She tried to breathe through the snake. The hood stood upright in her throat. She turned away from the revolting sight of them eating and tried to imagine a dog-free conversation with Andrew.

“I saw you standing outside the door a few hours earlier. Your face, your – it was you. I went to open it, but the dog started barking. And you – that thing – just continued to stand there in silence until I went to turn the heat down. Then you called and said you were on your way. When I came back you – that thing – was gone.”

“Ridiculous. Maybe you were asleep.”

“No. I was frying onions and the dog was barking, I wasn’t –”

“And where are they?”

“What?”

“The onions.”

“Oh. I ate them. I was very nervous afterwards.”

“Rrrright. He’s got a name, by the way. Blue. Would you like it if I called you ‘the bitch’?”

Silence settled.

“I’ll take a shower,” Andrew said, and scratched the dog’s scruff.

He didn’t speak first unless Lily was suspiciously silent.

“Hmmm,” Lily said.

At least he hadn’t said ‘we’. But the dog followed him.

Lily moved shit around on the kitchen shelf for a few moments. She washed Andrew’s plate the dog had already licked dirty, opened the window, and lit a cigarette. She watched the smoke escape the kitchen and travel all the way onto the roof of the Richmond Hill Bakery only just visible from the kitchen window. Plenty of fucked-up dog people like Andrew in that place. She’d spent some time observing them over weekends as they smacked their doggies on the nose – and kissed their wives on the mouth within a second. Andrew did it too.

Dog lovers took dogs more seriously than people.

When she turned back around from the window, Blue was sitting in the doorway just like before – only this time, it was the one separating the kitchen from the rest of the house. He stared at her, unblinking, the way people couldn’t – and she wished in her mind ‘he’ was still an ‘it’ – just a dog.

The idea seemed to emerge from the depths of Lily’s unconscious. She couldn’t place the instant it came to her. She remembered reading some stupid post on the French version of Quora about a rich Belgian entrepreneur who’d walked in on his wife making out with the family Rottweiler and shot himself the next day. Bullshit, it probably was.

Quelle connerie.

Lily took Andrew’s bottle of Glenfiddich from the cupboard and poured it into the dog bowl. She did it quickly, before she could think better of it – a sort of terrified excitement rising in her chest like a butterfly and spreading its wings.

She found the remaining turkey steaks in the fridge, raw and pink like grapefruits, and dropped them into the dog bowl. She’d fried two

in the morning for the dog's breakfast – and didn't give any to Andrew. The irony had been lost on him. The dog would never settle for Pedigree – not this bloody gourmet – but Andrew could, if she didn't make anything else. Lily had a threefold function in this ménage-a-trois: cooking, cleaning, and fucking.

Spread your legs and think of Paris, cunt. Not that Andrew would ever say that. He was well-bred on the surface – just like his dog.

The dog lowered its muzzle before Lily could step away, and began to eat.

Lily watched.

When he was done, the dog staggered around the bowl and ran into a table leg. His forehead hit it right in the middle, and he jumped back with a bemused, insulted yap. He yapped and yapped at the table, and backed away when the table didn't yap back.

Lily added more whiskey.

The dog slobbered it all up. He licked his black lips, yawned, burped, and settled down on the floor.

Lily stood still, trying to overcome her disgust. She sighed.

“Alors!” she said.

The dog was heavy as fuck. Lily strained to pick him up so he didn't slip out of her arms. But at last she had him. She carried him into the bedroom and placed him in the bed under the quilt, head bent and resting on Andrew's pillow.

The dog burped again, but otherwise he lay still.

Lily covered him with a quilt.

forces tribute chant because he couldn't sing it. Wasn't much of a singer, Andrew Green. Wasn't much of anythin'. But he was doing rather well, wasn't he, with a house like this? It was high time Lily did something about that sour face of hers.

He saw the whiskey bottle on the edge of the kitchen table when he passed it on his way out, wrapped in a towel, surrounded by a cloud of steam. She never used to need to get pissed before, but why not. She had a sort of dirtiness in her, did Lily. That's what he liked best in French girls.

He took a swig from the bottle, and headed into the bedroom.

He'd counted on exchanging a word or two with her. But from the moment he appeared in the doorway, Lily was all over him like she was on fire, kissing him hard on the mouth – all teeth and eagerness. She smelt of that lemongrass Joe Malone perfume with a hint of the Lebanese spices she'd used in ratatouille. Great stuff.

The physicality of their relationship was keeping them together. Andrew was often away, especially now he and the gang got more orders than ever – the border controls had been recently tightened, and the clients believed no one except 'elite' soldiers could do the job. He thought it wasn't half as bad as being separated for months like he'd been with his ex when he'd still been serving, but he knew women felt differently about such things. Women wanted you to stick around. If it hadn't been for the physicality, Lily and he would have gone their separate ways already.

Lily hadn't been this forceful in a while.

Excitement crawled up his veins in synch with her raspy breath in his ear. He closed his eyes.

She threw the quilt over his head.

It was one of the many they'd piled onto the bed during this beastly-cold November – the wool and cotton quilt, it seemed from the way it felt against the skin on his chin. The steam had collected in beads

of sweat over his forehead. The quilt had wiped it.

Andrew shook it off and saw she'd crawled deep under the covers, piling the duvet, the other silk quilt a friend had brought him from China, and two decorative red covers over the pile so he had to dig for her. She'd even thrown the pillows over her head and made a soft mountain smelling faintly of lemongrass. He had to peel every layer off like some animal's delicate skin, digging deeper and deeper to the sound of her giggles.

He smelt warmth and a sudden whiff of whiskey over the lemongrass. He reached forward over the last set of blankets. His arm touched something cold and moist through them.

He dove under the quilt.

In a moment, his mouth was full of hair.

Not hair. Hairs. Fur. *Fur.*

Terror washed over him. It was a bit like the de-realization he'd felt after smoking Afghan black in an old tribal leader's cave in the hills outside Kabul – floating away. Blue's hairs were all over his face. He could see himself – and the fur – from up high, as if his eyes were a CCTV cam filming the scene. Some long-forgotten, buried combat memory had come alive inside him – or a false memory of fighting some prehistoric beast.

THAT CUNT. THAT FUCKING CUNT LILY.

His chin was smeared in dog spit. Some hairs had gotten to the back of his throat so he choked on them. He coughed. It was dark. The blankets were attacking him like fish nets. He couldn't get out. He fumbled in them, trying to spit out all that fucking hair, Blue's heavy, steadily breathing body blocking him from one side like an abatis.

At last he kicked the crumpled ball of the fucking stuff off the bed with his feet – and Lily with it.

Lily crashed onto the floor, dragging the last duvet with her.

Blue was slowly coming to – and the first thing he seemed to notice was his master's distress. He gave a quiet, moan-like howl and tried to lick Andrew's hand. He missed it an inch and licked the edge of the bed instead, teeth clucking together.

Andrew said, "Seize."

Blue leapt out of the bed and down at Lily. He flashed past Andrew like a smudge of colour. His coordination was still a little off, but he set his paws on both sides of the red quilt with which Lily was still fumbling, trapping her inside it, and bit into the fabric.

Lily made a muffled sound from inside the ball of quilts – a sound that wasn't a proper scream. It was more like a wail, or a cry of a bird. Wetness spread through the crimson, colouring it a shade darker.

Blue snarled, and began to gnaw on the quilt, holding it with his paws, like a toy ball he used to sharpen his teeth on as a puppy.

Andrew stretched out on the bed and stared at the ceiling. It had a long crack running through it. He hadn't noticed it before, but he kind of liked its authenticity. He'd have to have a RICS surveyor over at some point to check the wall ties for corrosion, but that could wait. He loved the houses built in the '30s. He'd always wanted one. Not that he could have really shared it with the bitch, in the long term.

He'd always had a fear at the back of his mind that Lily would harm Blue. He'd felt the hateful impulse come from her when she wasn't busy containing it. People who could hurt a dog – even think of hurting one – weren't quite people to him. Humanoids. Lily was a mean coward. No wonder the French folded over and sucked cocks during WWII.

He hoped Lily sucked cocks in hell.

She'd drugged Blue while he hadn't been looking – maybe she'd have poisoned him, if he'd lingered in the shower longer. Never did have the guts for an open confrontation, Lily. Not this bitch.

He listened to Blue gnaw at her bones. They cracked and snapped like chicken joints. She'd prefer to be licked to death – Blue's tongue weathering down her bones like water weathered down the rocks.

“You gotta finish it all now, like she said, buddy.” Andrew said. “Don't leave a mess on the floor. This'll last us till Friday. A real feast, eh, old man?”

But Lily's remains were still around on Saturday morning. Blue was circling them, lapping at them with laziness when he felt like it and lying down again to guard them.

Andrew lay on the bed, where he'd spent the last four days. He didn't mind the stench. He'd smelt worse in Afghanistan. But his mind was restless from the silence. He scratched Blue's scruff.

“Speak.”

Blue barked.

“Fucking speak louder!”

Blue continued to bark, though not much louder than before. He gave Andrew a reproachful look.

“Yeah, you're right. Fuck it.”

He got up, stepping over the mauled mess he'd gotten so close to at a bizarre point in his life, and went to her wardrobe. She had a whole lot of stuff. She'd told him once Karl Lagerfeld made designer clothes for his cat called something like ‘Shubert’, as if it has something to do with Blue.

Cats were nothing like dogs. Cats were cunts, like Lily. She'd always thought he was rich and didn't even care why. That's all she'd ever wanted from him. He'd bought her so much expensive shit.

Andrew opened the wardrobe and stared at her clothes. He picked out a dress, then another. They were all the same to him. He didn't know about these things.

At last they had lunch, Blue and he – the remainders of the ratatouille the bitch had made on Tuesday. Andrew had left it in the fridge and it was still edible. Blue wasn't hungry, but he kept Andrew company. He sat still in Lily's black lace slip which kind of sagged at the front, a pink Moschino dress of some stretchy fabric on top and a bow tied between his ears, made from a scarf. Such a well-bred dog.

Neighbours passed the house and stared. Someone was beginning to take pictures.

I wonder if I had better draw the curtains.

Deli Fishing

by Kurt Newton

When the pandemic struck,
we couldn't get to within six feet of each other,
because of the special hoopskirts we wore.

We'd crowd into the deli
like fat-bodied bass,
mouths open, head back,
as the deli workers handed out samples
of prosciutto, roast beef and swiss
attached to the ends of long fishing poles.

Sometimes a piece would drop to the floor
and there'd be a mad scramble,
bodies teetering on the verge of toppling,
but the hoopskirts kept us upright.
Tiny dogs would race about our ankles
to gobble up the unexpected treats.

The turkey breast, smoked ham and provolone
would eventually run out,
the deli workers' arms would tire,
and the shop owner would sound the alarm.
We had five minutes to take our mouths and go.

The shop door was narrow
and it was like swimming upstream.

Every now and then, one of us wouldn't make it,
the door would close to the sound of gulping air.



by Jesper Nordqvist

NOTES

I'm Jesper Nordqvist, aka 'Ragathol', a comic artist and illustrator from Sweden, specialized in fantasy and SF comedy and drama. Mondo Mecho was my first longer drama comic, published as a web comic between ca 2006-2009. It was supposed to be a long epic story, but sadly couldn't be finished due to other things coming in between, like getting a contract to make another Science Fantasy comic for publication. That was TANKS, and although it's only published in Sweden, I've been making a lot more comics since then, most of which are available at gumroad.com/ragathol.

Mondo Mecho was a lot of fun to work on, and I learned a lot — which you'll be able to see clearly as it goes on. I hope that I'll be able to pick it up again (or rather, to remake it) some day. I hope you'll enjoy it — although it's a bit silly in the beginning, it picks up a bit as it progresses. Thank you for reading!

Actually, there are much more people than what show in this picture—the room is quite large.

The text on the palm tree is an interactive hologram. You can activate more functions, in this case, additional info, by touching the text. (You do not really "touch" the text, as it's only a hologram, but a laser sensor determines when you are close enough to activate it.)





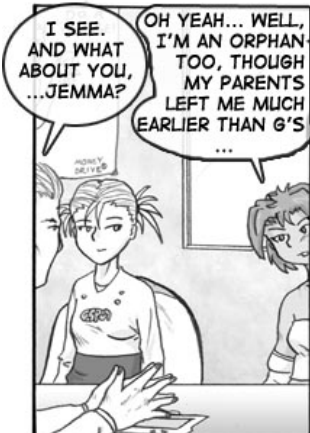
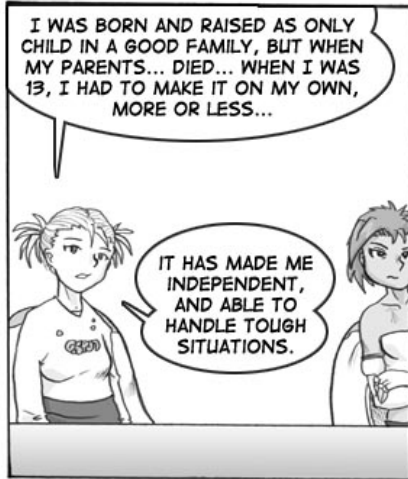
NOTES

Note that the guy in panel three is reading a normal paper magazine, rather than using a holoframe.

Well, it's not really a paper magazine, as there are no trees (forests) on Mars. It's made of cloth, in the same way as "paper" money today. Cash is not used in this time.

However, this type of newspapers are unusual, as most people find it more convenient to download media to a holoframe.





NOTES

Yes, those chairs are air conditioned.

I have no idea what the thing in the background of panel 4 is maybe some kind of copier machine?



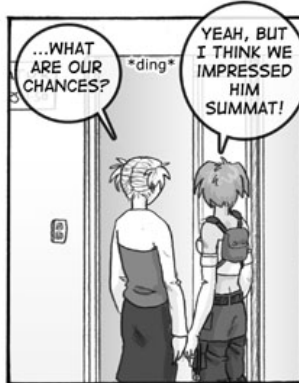


NOTES

Jemma apparently has a lot of hidden abilities ...

The Europee language has no scientific base, it's just spoof ... In reality, there is Esperanto, though.





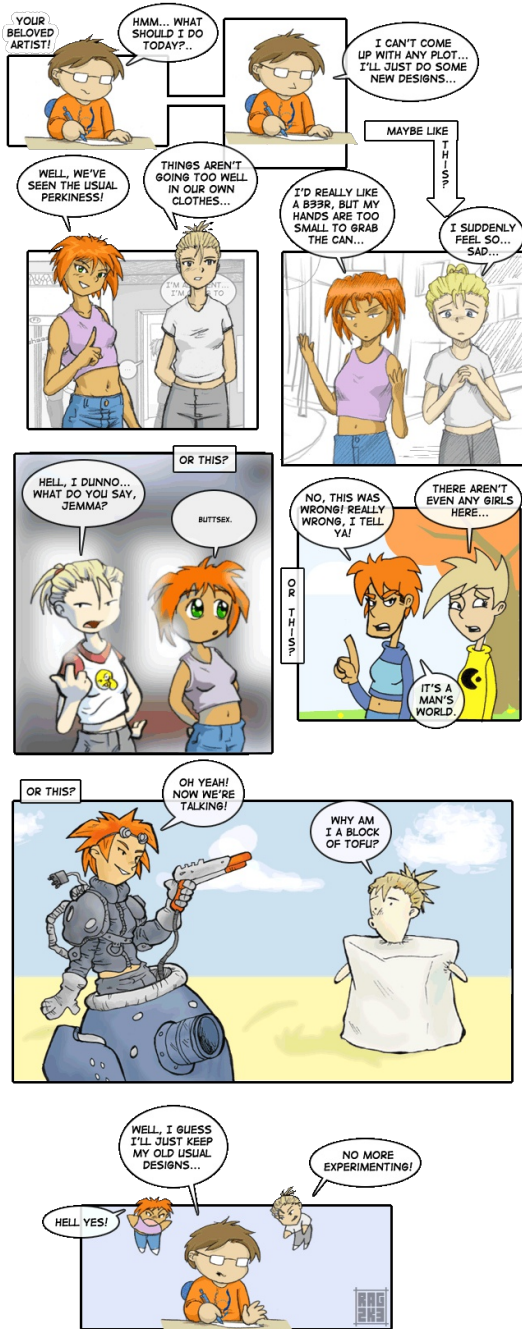
NOTES

What would be the meaning of a small-framed humanoid guard bot? If cyborg or mecha criminals would storm the building (for any reason), it wouldn't have a chance, with that baton as its only weapon ...

They could set up a guard mech or automatic turrets, but it wouldn't be such a habitable environment, would it? Hence the old, cozy bot ^_^

The girls' door is locked with a fingerprint lock. With maximum security enabled, the door has also key, voiceprint and retinal scan locks, but as they probably thought they'd only be out for a little while, they took it simple ...





MONDO MECH WEBCOMIC SPOOF | 20091003 © JESPER NORDQVIST
 ALL CHARACTERS ARE © OF THEIR RESPECTIVE OWNERS, I JUST USED THEIR STYLES :)

WWW.RAGATHOL.COM

NOTES

So, as I run a webcomic, I have to make the obligatory spoof on other webcomics.

Even though my comic is no humor strip, it can be fun with a funny filler every now and then, eh? ^_^

If you don't know at all what this schmick schmack is, I either made crappy drawings, or you don't know the original comic strips behind this...

Go here, here, here and here to find out ;)

Note before you sue me: I've only used the actual drawing styles on the these strips, not the copyrighted characters...

Hope you like this and check out the other great comic strips if you haven't ^_^

-Furikuri!

//Rag



Contributor's Bios



RUSS BICKERSTAFF is a professional theatre and comic book critic and aspiring author living in Milwaukee, Wisconsin, with his wife and two daughters. His short fictions have appeared in over 30 different publications including *Hypertext Magazine*, *Pulp Metal Magazine*, *Sein und Werden*, and *Theme of Absence*.

* * *



ELIZA JO BRANDT writes Confessions of a Horror Virgin and book reviews for *Sci Fi & Scary*. By day, she is a nonfiction article researcher and writer. By night, she writes YA, horror, sci-fi, fantasy and mystery fiction. She can be found on twitter @EIJBrandt.

* * *

A 22-year-old theology graduate using the pen name ‘**AGRIPPINA DOMANSKI**’.

* * *



ALEXANDER P. GARZA is a Mexican-American poet who just moved from Houston to Chicago to pursue the graduate Program for Writers at the University of Illinois–Chicago. His work has appeared in *Toyon*, *Indianapolis Review*, *Dissections*, *Star*Line* and others. Visit him on Instagram/Twitter, @alexanderpgarza and <http://alexanderpgarza.com>.

* * *



JOHN GREY is an Australian poet, US resident. Recently published in *Soundings East*, *Dalhousie Review* and *Qwerty* with work upcoming in *West Trade Review*, *Willard and Maple* and *Connecticut River Review*.

* * *



RUSSELL HEMMELL is a French-Italian transplant in Scotland, passionate about astrophysics, history, and Japanese manga. Recent poetry in *Argot Magazine*, *Songs of Erez*, *The Grievous Angel*, *Star*Line*, and others. SFWA & HWA. Find them online at their blog earthianhivemind.net and on Twitter @SPBianchini.

* * *



JAMAL HODGE is a multi-award winning filmmaker and writer. As a writer his screenplay 'Mourning Meal' won five awards (including best short screenplay at NYC Horror Film Festival 2018) and was featured as a finalist in seven writing competitions including Shriekfest, Crimson Screen, and Nightmares Film Festival, while his feature film screenplay 'The Kind Ones' has been a finalist at Shriekfest and Crimson Screen in 2019. Jamal's horror poetry has been featured in *Space and Time Magazine* three times, and in the upcoming anthology *Chiral Mad 5* alongside such greats as Linda Addison & Jack Katchum. Jamal has been the featured writer at ACT UP! at Harlem's National Black Theatre. In 2021 he is gearing up to launch his first sci-fi series, and a book of poetry edited by six-time Stoker Award winner Linda Addison. More about him can be found at <http://www.directorhodge.com/About.html>



* * *

MIKE MORGAN was born in London, but not in any of the interesting parts. He moved to Japan at the age of 30 and lived there for many years. Nowadays, he's based in Iowa, and enjoys family life with his wife and two young children. If you like his writing, be sure to follow him on Twitter where he goes by @CultTVMike or check out his website, <https://PerpetualStateofMildPanic.wordpress.com>.

* * *

T.M. MORGAN lives in Southern Maryland along the Chesapeake Bay with his wife and children. He has been published in *Lamplight*, *Vastarien*, and the anthologies *Caravans Awry*, *Anthology of Bizarro*, *Devil's Gulch*, and *Tales From Omnipark*.

* * *

More of **T. MOTLEY's** comics are at tmotley.com

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KURT NEWTON's field of expertise (health physics) made him an essential worker during this season of Covid-19. Every morning, during this crisis, as he drove the empty streets to work, listening to the radio as the world turned more and more bizarre, his writer's mind could not help but wonder about all the what ifs this pandemic had yet to reveal. When Kurt's not riffing on the present apocalypse, he's writing other works, some of which can be found at *Frozen Wavelets* and *Cosmic Horror Monthly*.

* * *

JESPER NORDQVIST, aka 'Ragathol', is a comic artist and illustrator from Sweden, specialized in fantasy and SF comedy and drama. He's been making a lot more comics since creating *Mondo Mecho*, most of which are available at gumroad.com/ragathol.

* * *

NOVYL THE MYSTERIOUS can be found on Instagram and Twitter under the username @lyv0n.

* * *



JAMES EDWARD O'BRIEN grew up in northern New Jersey where he graduated from Dungeons & Dragons and punk rock to modernist lit and weird fiction. His short stories have appeared in *InterGalactic Medicine Show*, *Write Ahead/The Future Looms*, and on the StarShipSofa podcast. He lives in Far Rockaway, NY with his wife and three rescue dogs. Follow Jim on Twitter: @UnagiYojimbo.

* * *

ANAHITA RAMOUTAR is a teenage self taught young and talented artist. Since childhood she has developed a passion for drawing. She draws digitally mostly but also on paper as well as paints sometimes. For artwork she uses a variety of drawing tools. Some of them are a graphite pencil, charcoal pencils, pens, oil pastels and oil based coloured pencils.

Along with drawing she enjoys photography and plays piano. She loves taking various pictures especially of nature and tries to capture that moment in time to keep. She works hard in order to become a professional artist, practicing everyday to become as good as her favourite artists or even better.

* * *

CARL SCHARWATH has appeared globally with 150+ journals selecting his poetry, short stories, interviews, essays, plays, or art photography. (His photography was featured on the cover of six journals.) Two poetry books, *Journey To Become Forgotten* (Kind of a Hurricane Press) and *Abandoned* (ScarsTv) have been published.

His first photography book was recently published by Praxis. Carl is the art editor for *Minute Magazine*, a competitive runner and 2nd degree black-belt in Taekwondo.

* * *



CHRISTINA SNG is the Bram Stoker Award-winning author of *A Collection of Nightmares* (Raw Dog Screaming Press, 2017), Elgin Award runner-up *Astropoetry* (Alban Lake Publishing, 2017), and *A Collection of Dreamscapes* (Raw Dog Screaming Press, 2020).

Her poetry, fiction, and art have appeared in numerous venues worldwide, and her poems have garnered multiple nominations in the Rhysling Awards, the Dwarf Stars, the Elgin Awards, as well as honorable mentions in the Year's Best Fantasy and Horror, and the Best Horror of the Year.

Visit her at christinasng.com and connect on social media @christinasng.

* * *



GORDON SUN is a surgeon exploring how healthcare and technology interact, in both realistic and speculative realms. His stories have appeared in *Mad Scientist Journal*, *Westwind*, *Ars Medica*, and other publications.

* * *



Lover of wine, women and song, you can find **TOEKEN's** art at: <https://atoekeneffort.weebly.com/>

* * *

GRACE WAGNER is a queer, nonbinary writer living with a disability in Houston where they teach at the University of Houston. They have attended the New York Summer Writers Institute and work as Assistant Poetry Editor for *Gulf Coast*. Their work has been featured in *Salmagundi Magazine*, *The Atlanta Review*, *The Offing*, and is upcoming in *Hayden's Ferry Review*.





Demonic Entity

(full image)

by Novyl the Mysterious