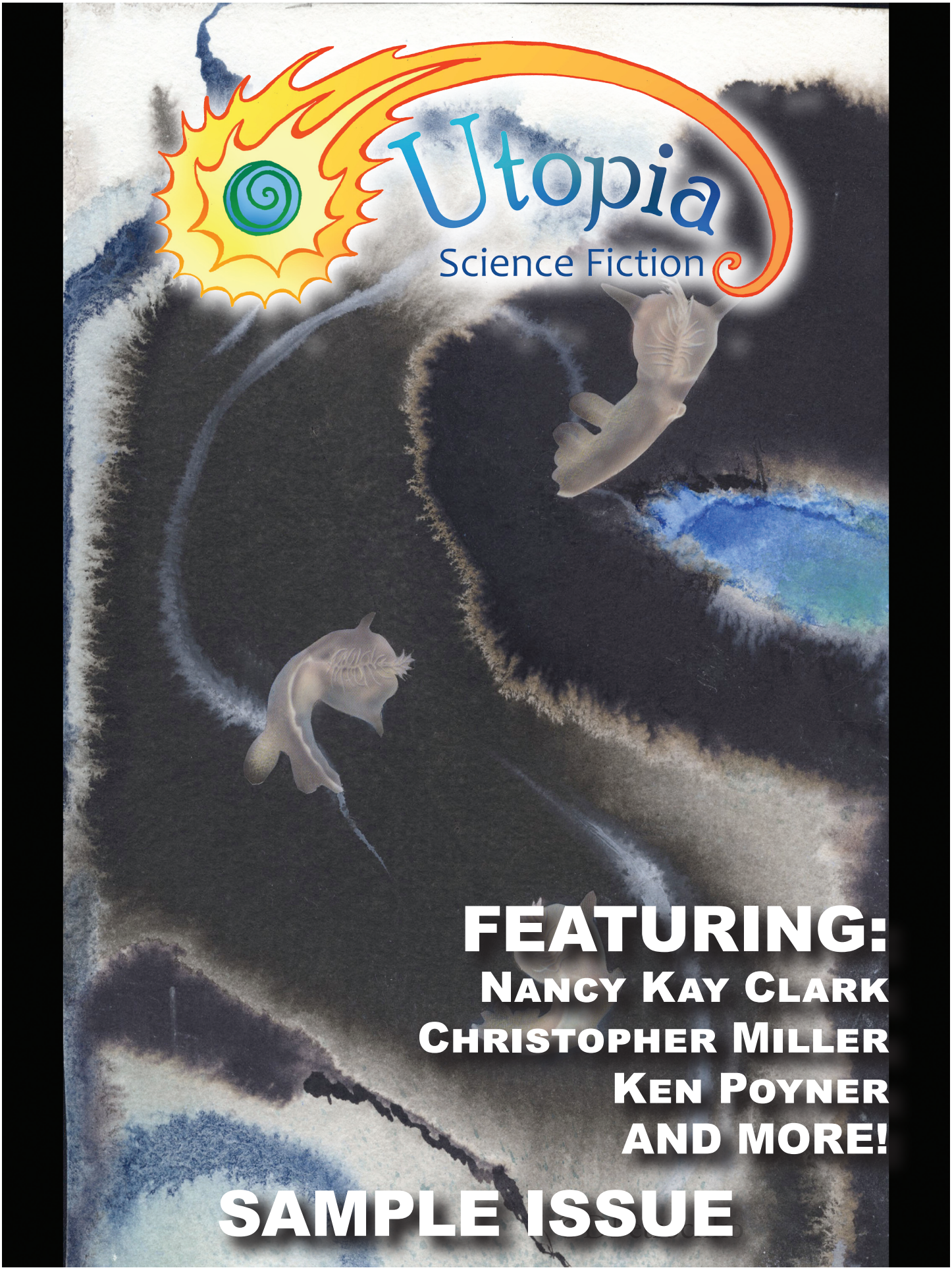
Utopia
Science Fiction
FEATURING:
NANCY KAY CLARK
CHRISTOPHER MILLER
KEN POYNER
AND MORE!
SAMPLE ISSUE

# Contents



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Utopia
Science Fiction

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Armin Amirian (14)
E.E. King

**Contributing Artists:**
Zach Fontanez (7)
Haley Grunloh (31)
Jonathan S. (13, 28, 32-33, 37-39)

# Letter from the Editor

Dear Reader,

We have done it! We survived our first revolution around the sun, thanks, largely, to you. Your enthusiasm, your support, and your encouragement have kept us afloat. Utopia Science Fiction moves into a bold new year filled with exciting challenges and wonders. When I first started this magazine I had no idea where it would end up. I thought to myself it would last a few issues and then we'd fold financially and I would chalk it up to a fun experience. But we haven't folded, we've flourished.

So here's to another year dedicated to bringing quality, upbeat stories to the world. Of finding Utopia in all its forms. In a year that seems straight out of a post-apocalyptic dystopian novel let us look towards the starry skies and hope. It's going to be an amazing year for Utopia Science Fiction and I am deeply looking forward to our wild and wonderful adventure ahead. I hope that you'll be there with us and join us on our grand journey.

Let us dream of better tomorrows. And let us strive to make those dreams a reality. In June we asked our Patreon supports what they wanted to see in the coming year. They spoke up and we listened, let this issue be a testimony to that. There are now more poems, more science articles and more trivia. Going forward we'll be publishing more stories as well.

We start this August/September issue with "Penumbrae" by Christopher Miller. The story introduces us to a world of geniuses, the smartest among them wunderkind Kun. They seek to uncode a faraway message and unlock the greatest mystery of all time 'can we communicate with other life (if it exists at all). Christopher Miller writes with a delightfully unique and strong voice and that makes this quite a fun story to read.

Next is the short and deeply humorous story of an unusual gift by an unusual being in "Not Usual" by David Chevalier. Franco Amati brings to us a story about a world where introverts rule in his tale "The Meek Have Inherited the Earth".

In a unique narrative structure, "The Tricorder Files" by Gregory Gafni-Pappas' story takes a documentary-style look at a device that could revolutionize medical technology and services. While reading it I was reminded of the recent XPrize which hosted a competition to develop a working tricorder. They selected a winner with a device that functions very similarly to Star Trek's creation. I somehow doubt it turned out quite like this story, which is a compelling read.

Nancy Kay Clarke follows suit with "Collapse" a story about reconciliation which provides an interesting glimpse into an Urban Utopia. And finally in the close of our fiction section is A.G. Armstrong's "Labelling Error" short, but undeniably sweet story about the last moments of a closing "Build-a-Baby" store.

Our Poetry section brings you a mix of old and new talents. The first poem is Aei Phanēs by Russel Hemmell. A gorgeously written poem capturing the majesty of the sea and the wonder of the stars above. We have Ken Poyner, Sukarma Rani Thareja, and Thomas E. Simmons as returning poets, each having published poems in previous issues. Baishampayan Seal, G.O Clark, Elizabeth McClellan and David P. Rogers are new. They each bring us fantastic and entertaining poems.

Our science corner is also larger than usual – having brought on not one, but two science articles. One is a reflection on post-scarcity economics by Randall Hayes, whose work has previously appeared in Orson Scott Card's The Intergalactic Medicine Show. The other is a comprehensive and brief introduction to the field of Biology by Sidra Waqar.

So there we have it, the bigger, better, higher quality first issue of the second volume. You can be sure there's more amazing things ahead. First though, I would be remiss without mentioning the success of our first Art Contest. The winner of the contest, Dorie Petrochko's work, can now be seen as this issue. Our Second Place winner, Armin Amirian's work can also be viewed in this issue. E.E. King, who won third place, will have their work featured likely in our October/November issue, along with the work of a special surprise artist.

I want to close with a simple thank you. I have the deepest respect and gratitude for our staff, Jonathan S. and Leon Perniciaro for all their incredible work in putting this issue together. Also, I want to extend a huge shout out of appreciation to you, dear reader. Without your support we couldn't do any of the things we do. If you'd like to receive our eternal gratefulness (and help us to continue paying our authors and artists), please consider supporting us. You can support us through Patreon subscription (for as little as $1 a month (or 0.25c per week)) or through taking a look at our Merchandise store.

Click here to view and subscribe via Patreon.
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Again, my sincere and heartfelt thanks to you, dear reader. Wishing you good health, hope, and safety. Let us always go boldly forward. Ever onward, through the impossible!

Sincerely,
Tristan Evarts
Editor-In-Chief


## Dedicated to our Patreon supporter David Heckman

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# Penumbrae

by Christopher Miller

Hooray! The University of Western Sydney and the Ragbir Bhathal Foundation have leased Kun for us. The Bank of China is brokering the deal. We get him for one hour. I believe this is his first ever non-profit booking. Until now, he has worked exclusively for large governmental organizations, which is to say, corporations with trillion dollar caps. He helps them steal each other's secrets, improve their security and exploit each other's weaknesses. Because he has become something of an industry necessity, his time is extremely valuable. We are getting him at such a discount as to be almost pro bono. But even so, and even with a generous Questacon grant, an hour is all we can afford. Hopefully it's enough, and that if there is intelligence out there, Kun will find it.

He's here! Not physically, of course. Better. Realscale holobeam technology with one-way truetouch haptics. You could tousle his hair, give him a kiss, or even punch him in the nose. Only he'd never feel it. We just can't smell or taste each other, is all. This is doable, but there's no demand.

Kun's shareholders will absorb his training costs. His first minute is complimentary. He will use it to learn our systems, analyze our software, read our published papers and tap into our archives and live data feeds. He begins. I suffer from acute glossophobia, and never speak. But now, no one does. No one wants to disturb him.

Ten seconds pass. He looks up, his expression the facial equivalent of "What*ever*."

And now the clock is ticking. He goes to work. Everyone here in OZ OSETI's southern circumpolar star group, from administrative to cryptography to maintenance, piggybacks onto his q-console, e-huddles around his workzone, speculates on and analyzes his efforts the way weak kyu players kibitz high-dan professional Go games on major Korean and Japanese servers. No dullards here in OZ, though. Not even a midrange genius in our lot. The lowest unaugmented IQ is probably in the high 240s. Yesterday, for example, our custodian Beth's dissertation on polynomial hyperspheres saw an esoteric tournament matrix named after her. And she promises next week's on rectilinear slit maps will be even better.

We watch as Kun conducts a broad sampling of our archives, over a century's worth of data gathered from billions of stars and planets in this and hundreds of nearby galaxies. He has somehow increased bandwidths across our network. Still, it is far too much to download in an hour. So he grabs a meg here, a gig there, spot selections that appear random. We trust his judgment.

Everyone has crawled his Wiki pages, groks to his ontology, his pedigree. His long leg up, cognitively speaking. How, after World War 3, which lasted only forty-five minutes, the Chinese were the first to enforce the genetic screening of embryos prior to implantation, seeking out rare adaptive mutations, evolution's accidental upgrades, aborting the rest. Then, when the technology became available, how they began modifying and splicing in alleles associated with radiological immunity, gleaned mainly from the cockroach, as well as gene formations statistically correlating to memory, perceptual speed, neural outgrowth and synaptic plasticity. So it was the Chinese who boasted the first human with a natural intelligence quotient testing twenty-six standard deviations above the norm, or approximately 500. Just to put this in perspective, your typical twenty-first century Mensa would, by comparison, be considered catatonic, a veritable vegetable.

IQs fifty standard deviations above the norm, as in higher than 1000, have since been verified, but even among these elect Kun is an anomaly, a fluke, a singularity. He is the perfect synergism of eugenics and technology, of uber-genius and supercomputer. His intelligence has been described as "immeasurable," his incorrect answers most often indicative of flaws and ambiguities in test batteries rather than of his own processing errors or conceptual inabilities. At the age of seven, after taking a second to learn the rules, he played a blindfold chess simul against the all world's top grandmasters, including forty-six computer programs. The entire tournament took a little over four hours, of which he spent all but six seconds waiting for others to play. His only difficulty lay in allowing for opponents' mistakes, as in giving them too much credit, or maybe just being unable to differentiate between simple and complex positions because, for him, they're all the same: trivial; nodes on a decision tree he'd somehow constructed in memory. As a result, he lost every game as black until the rules were changed to prevent his immediate resignation. But he always won as white, announcing mate in 207 after opening with d4, revising ever lower as the game progressed. Some of the humans found this annoying.

His host mother was a Chaobai inmate who carried him in exchange for adequate food and exercise, and the avoidance of forced labor in the prison's Qinghe Farm plant manufacturing the supermicrocapacitor, solid state and copper foam batteries favored in fetal implantations. His trial gametes were taken only from donors whose IQs tested in the top .0001 percentile, fertilized zygotes then screened and genetically enhanced, all qualifying embryos incrementally augmented with the newest generations of neurosynaptic chips and bleeding edge AIs before selecting the best symbiotic result—the hands down winner—him. So he's an only child, our little Kun, his myriad siblings all destroyed, his proud parents Intel China and the Beijing Genomics Institute. Although, with his upper lip's peach fuzz, mop of hair flopping in his eyes, oily skin and constellations of facial acne, he looks like any other teenage boy in the throes of adolescence, most in the biological community feel he qualifies as a new genus of hominid, like homo evolutis or homo singularis. Some even argue he is an entirely new life form.

So of course we're all curious. He's such an odd duck, this Kun kid, even for a super genius, or whatever comes way out beyond that. They say his immune system's so adapted to his neural implants that his thymus produces antibodies more akin to nanites than proteins. Only fifteen years old, and PhDs out the yinyang, mostly in the pure maths, computer science and theoretical physics, but a bunch in organic chemistry, too. Even one in communications theory, which is a little ironic considering he isn't really conversant in any human language unless you count mathematics, and even there only occasionally somewhat understood by elite groups within select segments of the mathematical and philosophical communities. Some believe he's a savant, his formidable mental prowess consolidated and spiking in certain arenas, most especially cryptography, but wanting in others, such as spoken language. I'm the go-to codebreaker here, and my abilities are nothing beside his. At eleven he cracked thirty-eight round Rijndael in polynomial time, forcing the destruction or re-encryption of decades worth of once secure archives by intelligence agencies around the globe. Then, after Vex became the symmetric AES (Advanced Encryption Standard), he broke it, too. The entire Vex suite, in fact, even Vex III's quasi-proprietary self-modifying method which had been deemed not just unbreakable, but "unassailable." His attacks are described as "evolutionary" for their targeted specificities and gnarly customizations involving bizarre intertwinings of quantum and classical algorithms. The asymmetric schemes used in secure key exchanges are even more vulnerable. Two primes whose product he cannot instantly factor have yet to been found. Solves elliptic curve discrete logarithm problems the way normals do easy to moderate Sudoku puzzles in the Sunday paper. Even China's big strong MSS-recommended hundred-kilobit curves are no match for him. Only enormous, supposedly quantum resistant, NP-complete multivariate quadradics—the products of million-variable polynomials—give him the slightest pause. And while his social interactions might place him somewhere out on the autism spectrum, as I myself and several others of us here have been placed, it's hard to see him as suffering any neurodevelopmental disorders. Like just because you don't speak dog doesn't mean you can't understand them. They say that's how you feel when he talks to you: like a dog. His vocabulary tends to span multiple languages, but which he often doesn't bother distinguishing between. Even listening through interlingual translation apps, his grammatical constructs are too complicated to parse, his references too obscure, and so his thoughts present as gibberish at worst and rampant non sequitur, or poetry if you will, at best. All you can really say is that he looks sad. That he always looks so sad. But then melancholy and genius often go hand in hand. "Consciousness is nature's nightmare," wrote Emil Cioran. It's the one problem our intellectual enhancement technologies have consistently neglected to address. "Every day," said Kafka, "I wish myself off the earth." We all understand this.

Kun frowns while perusing old optical archives, light data gathered by the Giant Magellan in Cerro Las Campanas, Chile. Nothing new there. Most of it's already been vetted, deemed random noise. So it's a little disappointing, this direction he's chosen. Solomon, our senior astrophysicist, whispers a mildly cryptic comment about his ignoring the much farther reaching infrared data from the new HDST-3 in halo sun-earth L2 orbit. Like why waste time reviewing this old earthbound Magellan's visible spectrum's starlight waste bin when high-def planetary atmospherics are available?

Kun's seconds aren't cheap. But he streams fast, crazy fast. My internal processors can't begin to keep up. But then he stops, lingers. Whole seconds, then minutes, pass while he examines just a few gigabytes collected over a decade ago from Gamma Hydrus, a dying class M system 300 light years distant. It makes some of us a little nervous. Bob, our supercentenarian sys admin, so old he remembers coding in 6502 assembler, wonders if maybe Kun has crashed, frozen, or become caught in a

processing loop of some sort, and needs to be rebooted.

That's weird, says Janet, a psychiatrist with a medical degree specializing in endocrinology. Check out his microexpressions, especially those involving extra-ocular muscles. They would seem to suggest joy. Don't you think he looks younger now, more like the child he really is?

Did he just smile? asks Maya. Maya is an autodidact who holds no formal degrees but is effectively telepathic. Reads your face like it was a children's pop-up picture book, senses your biometric outbursts too: heart rate, temperature, vocal inflections, GSR and such. But more than this, it's like she somehow tunes into and decodes your brain's synaptic activity. Even across a holo-link Maya knows exactly what you're thinking and how you feel, which is nice because I've never had to tell her I love her. He's decrypting, she reports. I'm positive he's decrypting now.

We all tap in. This data he's attacking looks pretty random: bit-change probability consistently near half, bytes distributed evenly: no clumps, no dearths, no patterns. No apparent seed either, totally unpredictable. Even passing it through the good old Monte Carlo quickly generates pi to seven decimal places. But then any good encryption algorithm will turn highly organized data into that which is indistinguishable from random—unless you know the key and the encryption method used. And Kun knows neither. I wonder why it drew his attention.

Remember, there's no such thing as randomness, says Jack, our resident philosopher.

If we ever do make contact with an alien intelligence, it'll be on Jack to sort out their ethics, their morality—to wit, their threat. Otherwise, he's probably the stupidest of us. I say this mostly without prejudice, as in not just because I'm a little jealous of him. It's just that his enhancements tend to favor the physical over the cerebral. He's insanely good looking, for example, and has huge muscles, even where muscles don't belong, as a result of stem cell injections, anabolic steroids and EMS exercise regimes. Also I think Maya is attracted to him.

But he's right. Nothing is truly random. There's no such thing. Complicated, sure, way out beyond anyone's ability to predict—just not indiscriminate. A coin tossed from a mountain top; a woman choosing a pair of pumps from Novo's extensive online catalogue; fifty million spermatozoa racing for a single ovum: there is only ever one possible outcome.

With perfect knowledge there can be no surprises, continues Jack. All conclusions—all decisions—are foregone.

Oh! answers Maya, probably having tapped his synapses. Sometimes I too feel like this is all just a recording. And someone keeps hitting replay.

Well, if that's the way it is... Even though I know it's childish, I conjure up a private mental image that makes her blush. Sometimes that's just how jealousy works.

Note the slight parting of his lips, comments psychiatrist Janet. Although of course she means Kun, at first I think she means Jack: another jealous symptom. And the widening of his eyes, she continues. Obviously he's just been surprised. But his microexpressions also suggest satisfaction, even delight.

He's broken it! shouts Maya. Kun has succeeded in well under an hour where over a century of globally distributed analysis has failed. Can anyone really be that smart? she wonders. More intelligent than the entire collective sum of humanity? Her excitement borders on fear. It's a little contagious. Maybe telepathy is a two-way street.

As if cued, Kun begins outputting to our cloud, output much larger than Gamma Hydrus' seemingly random input.

Maybe it wasn't encrypted at all, ventures philosopher Jack. Maybe it was just compressed. Compressed data tests random, too. If it didn't, it'd be further compressible, wouldn't it? Or maybe it's both. Compression enhances encryption, doesn't it? His condescension via the rhetorical question never fails to bug me.

Nonetheless, again he's right. Maybe God encrypts all Her secrets. Any advanced intelligent species would. Certainly, judging by its own example, if humanity had a lick of sense, it would not be shouting "Hello! Here we are! This is what we know!" into the cosmos. Any sentience capable of reaching us would, at best, make us their pets. But if it's true that randomness cannot exist in the universe, then maybe there's no data Kun could not decipher. Whatever the case, he has not only recognized deep within this haphazard light some embedded order, but somehow managed to untangle and extract it.

I can't imagine decoding an advanced alien language's compressed ciphertext. Thinking how even to approach such a problem makes me dizzy. To Kun, our very best and brightest minds must exhibit little more than a toad's problem solving abilities. How terribly lonely for him. It occurs to me that he must be even more motivated than we to find a compatible intelligence out there.

He's done decrypting, reports Maya. He's translating now. It's a subtly different thought process, she

explains. And he's succeeding, though his interpretation makes no sense to me.

The data he's clouding looks complex and vaguely beautiful. A logographic writing system like Chinese would be my guess, but based on a much larger set of symbols. Highly contextual, each symbol modifying every other the way each raw byte impacts every other in encryption's various block chaining methods. Way beyond my ken to guess at its gestalt, its meanings, though. But then imagine trying to translate Heidegger's *Sein und Zeit* into the shrieks and grunts a monkey might understand. You'd have to impose your own extensions onto their language to even come close. Some things cannot be made simpler without resorting to metaphor.

What's that noise he's making? asks Jack. Is he crying or something?

He's singing, answers Maya. Some of us laugh.

All of us listen. *Row row row your boat...* He has a sweet voice, maybe a little squeaky is all, like a violin. *Gently down the stream...*

There's no need to tap the internet, we all recognize the song. But the net does confirm that this is a first. Kun's activities have been monitored and recorded 24/7 since his conception—since his inception—and he has never sung before.

Lovely Maya joins in with a second round. Her voice is beautiful, tentative and human, not perfect, but lies perfectly on Kun's.

Philosopher Jack jumps in with a round three, his show-off baritone so flawless, so rich and mellifluous, I wonder if he has an artificial larynx.

One doesn't need to be trained in microexpressions to see that Kun is all but beaming. I wish now I could sing, that I could expose myself to others in that way. But even crying—even speaking—would be less humiliating. And so I listen to their overlapping melodies and lyrics. As with encryption, each round adds to the complexity of the result.

Suddenly, even though thirty-one minutes still remain, Kun is gone, silenced, replaced by text flashing beneath the Bank's legal letterhead. **SERVICE CONNECTION TERMINATED PURSUANT TO ARTICLE 3 SECTION 14 SUBSECTION 1 CLAUSE 59: "deleterious working conditions."** But then, almost immediately, he is back. *Merrily merrily merrily...* translating this light he's found.

A tsunami of pleas and threats flood our channels. The Bank and its clients, Kun's Board of Directors, are frantic. They insist we disconnect his services immediately, evict him from our network. They inform us that failure to comply will result in aggressive legal action under the New Trans Pacific Partnership.

But even if we wanted to, we could not. And we tell them so. He's so insinuated into our systems now as to be inseparable, indeed indistinguishable, from them. This includes our energy systems. It's not like we can just flip some breaker to turn him off. Kun controls all panels and transmitters along with our backup generators and batteries. Disabling hardware or severing lines would require time and manpower unavailable to us, and might also entail shutting down significant portions of the National Energy Grid including the Capital and Waffle Point wind farms. That's assuming Kun could not usurp their systems, too—a big, and probably false, assumption.

If you can't control him, how do you expect us to? argues our legal counsel, who also points out that the costs associated with reauthenticating our systems, for which the Board is now liable, could be significant. Especially if we make him mad. Safest for all to just let him finish what he's begun.

At first the Board objects. You have corrupted him. He has never engaged in frivolous behavior. He has never disobeyed us before. You had better hope he is repairable. But gradually they resign themselves to the situation. Okay, we will fulfill our contract. But could you please not encourage him. Please stop singing. This makes me want so badly to sing that I actually begin to hum along. It feels nice, cathartic somehow. I hum louder.

Maybe he's growing up, replies Janet. Has that not occurred to you? All organisms are self modifying to some extent. In humans it's called exercise, which includes thought. In him one can only guess as to what improvement entails.

Obviously, says Maya, he is in love. This gives everyone, even Kun, whose voice breaks on *gently*, pause.

At exactly a terabyte plus two, he divides his translation into six-bit groupings. This is for our benefit. Still, collectively, we scratch our heads. But then clever Maya, who has probably peeked at the answer, laughs. Casting each hexad as a grayscale pel of brightness 0 to 63 and arranging them in a perfect cube evokes layers of light and shadow from which penumbrae appears a being. Alien. Seemingly endoskeletal, but insectile in its grace and delicacy. Long limbed. Inexorably feminine. Strange. Beautiful. Naked.

Jack whistles. Sweet! She sent us a selfie! Not bad. Not bad at all.

First, replies Maya, her tone sharper than I've ever heard it, she sent it to Kun, not us. I can't imagine

how, but apparently his translation is non discretionary, perhaps more akin to a mathematical transformation. Second, this image is just the wrapping. There is a great deal of other information contained. But a language versatile enough to multitask in such diverse ways is probably beyond our abilities to comprehend. Maybe the universe itself is such a language.

How sad, I think, to fall in love with someone who's been dead for three centuries.

But that's not the case here, answers Maya, as though I'd spoken. I'm reading too much hope, she says, a strong sense of anticipation, and not some wishful fantasy either. I'd say he's got a date.

Impossible, says Jack. Even if this alien chick is immortal, the boy isn't. Plus she lives too far away. That's all I'm saying. He laughs at what he perceives to be his droll colloquialism and hyperbole.

Ironic, I think, again so that only Maya can hear, how the dumbest people are often the least self conscious about it. And resolve again to control my jealousy.

Who knows, says Janet, what medical breakthroughs he will invent. Maybe immortality is within his purview. And if anyone can figure out a way to exceed the speed of light or fold spacetime, it's him.

Astrophysicist Solomon weighs in. Actually, on a cosmic scale, she's not that far away. Practically the girl next door. Even fourteen billion light years, the size of the known universe, is really only the distance over which Hubble's expansion exceeds lightspeed, and therefore all we can see of it. But there is unknowably, possibly infinitely, more. And even were she not right here in our very own galaxy, but another much farther, like say MACS0647-JD, it would still be possible for them to meet, even using current technologies, as in without violating relativity, and with neither being immortal. She could, for instance, encroach on c near enough that the 300 years, or any amount of time, separating them would pass in a few of her seconds.

As in catch up to him in time? says Jack.

Yes, even at minimum acceleration, say just one earth gravity, it'd take her under a year, her time, not ours, of course. It is not at all impossible to attain the speed of light, but only for anyone to observe your doing it. The biggest challenge might lie in measuring velocity and its time dilation effect exactly enough, especially so as not to reach or exceed c. Although, he then confesses, I'm so curious to know what the universe would then become that it's almost an obsession. Anyway, my guess is that this broadcast message in a bottle includes a meeting time, probably in the distant future—and place, which could be anywhere in the known, or even unknown, universe.

*Life is but a dream...* sings Kun, as he clouds another terabyte even faster than the first. There are grayscale images in its hexads too. Shapes and drawings. Plants with eyes. Animals with roots and leaves. Some so alien that they cannot be interpreted in terms of things known or even imagined. Translucent buildings floating like bubbles in a sky littered with moons. Rorschach tests? A child embracing a flower. A spider eating a fairie.

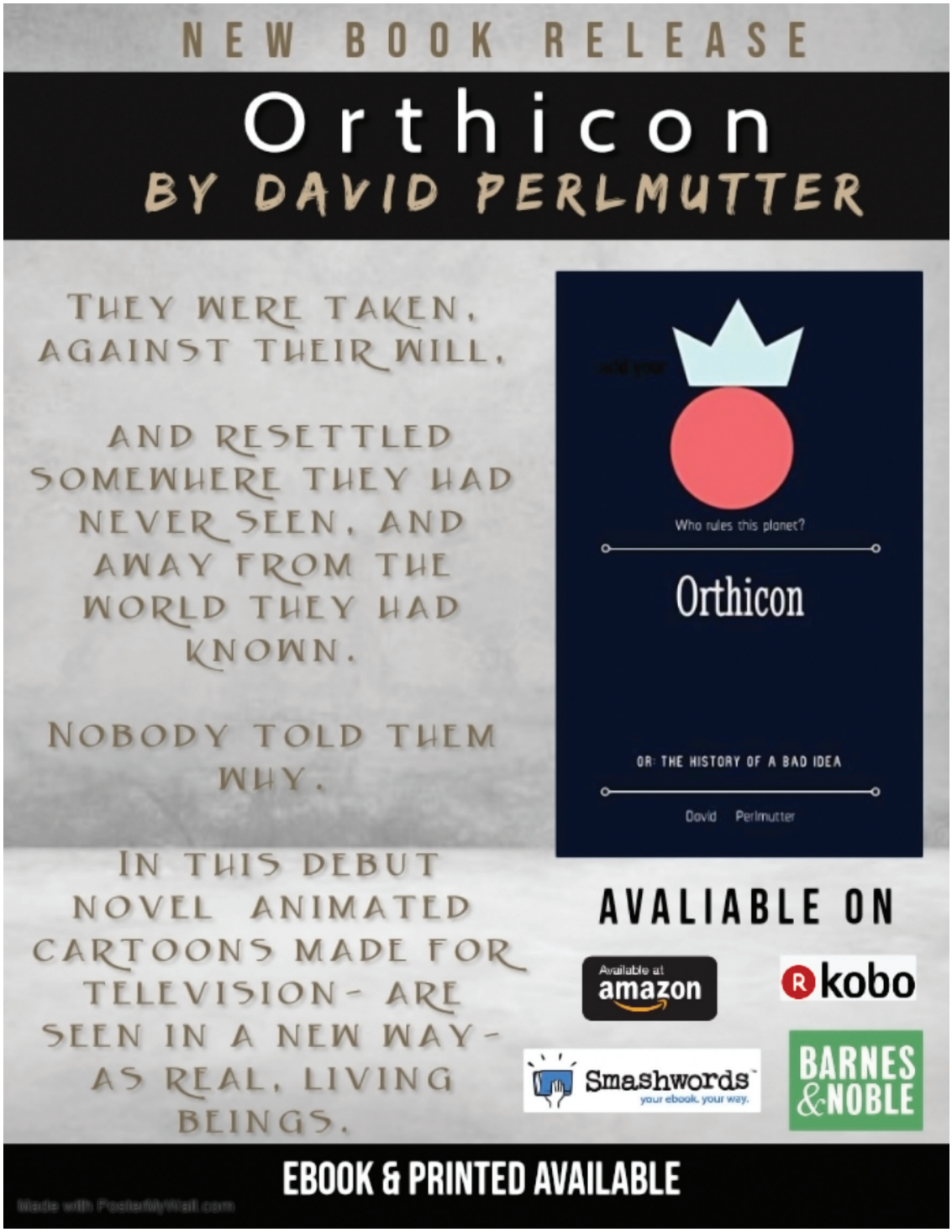
Maybe it's a tutorial of some sort, hypothesizes Janet. Basic concepts, axioms, givens serving as building blocks for ever more complicated truths. Yet another microcosm of our holographic universe.

Kun clouds another image, but spherical this time, and in color. Colors that span the visible spectrum, and probably then some. He has performed this certainly far more difficult transformation for us. Perhaps he is beginning to understand our limits. It appears to be a world with trees reaching up into space with crystal leaves.

*Row row row your boat...* I finally join in, albeit mistimed and out of key, relieved that no one is listening. *Gently down the stream...* relieved that no one but Maya ever really listens.

More images appear. Snakes with wings. Angels with tails. A bright orange star surrounded by a net of equidistant turquoise planets, so many, and so precisely positioned, that one can only assume they have been somehow towed into orbit. *Life is but a dream...* I sing at the top of my lungs as more present. An egg with something smiling in it. A rainbow stretching between worlds. Winged sticks either fighting or mating, or maybe just playing. Simple shapes evolve into multidimensional ones, some seemingly paradoxical. Kun's brow creases in concentration. Even he seems challenged. Galaxy-spanning civilizations. Bridges between universes. Tomorrows reaching for eternity. Mathematical mysteries for fledgling gods. Kun turns the pages. Image after image. Pop-up pictures for we who cannot read.

END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EBOOK & PRINTED AVAILABLE

*Cover Art Contest*
*Second Place*

*"Gelofin"*
*by Armin Amirian*

# Labelling Error

by A.G. Armstrong

"It's a boy!"

"It's a girl!"

"Uhm." The sales assistant cleared his throat. "Couples usually agree on this before the generation visit."

"We did agree," protested the husband, but the wife scowled.

"That was before Build-a-Baby declared bankruptcy! If we only get one baby, I want one I can dress up in cute dresses, and who'll help me when I'm old."

"Boys help!"

"You haven't called your mother in four months."

"Please decide faster," said the assistant. "Tissue generation is almost done."

"A girl!"

"A boy!"

*"Girl!"*

"Oh, dear." The assistant *tsk*'ed. "Too late, I'm afraid."

The couple stopped fighting, both aghast. *"What?"*

"Tissue generation's done." He tapped the product screen, where various lights had turned from yellow to green. "Your baby has no specified gender. They might pick one eventually, but not for a couple years, at least—"

"And in the meantime?" asked the wife. "How will we know what clothes to give it?

"What foods? What games?"

The assistant shrugged. "You just have to figure out what they like, I guess."

She looked appalled. "What if they don't like cute dresses?"

"What if they don't like hoverball?" The husband gasped. "What if they like…*razorball?"*

"Sorry," said the assistant. "This is why we ask that couples agree on specifications before tissue generation is initiated. Oh, look at that—the vocal box is test-ready. First lung inflation in three, two, one…"

Inside the generator-box, Build-A-Baby #58192 let out a shrill mewl, its (shape-A12, color-scheme-BB29, texture-B1) face scrunching up. Its little fists punched the air.

"Aaand…we're good to go." The sales assistant retrieved the baby, holding it up to the couple. "You can get accessories and maintenance tips with my colleagues. Please remember all sales are final—we can no longer process refunds or exchanges, what with the bankruptcy and all. But I wouldn't worry." He winked. "Our babies last a lifetime."

The husband chuckled, a little nervously.

The wife picked up the baby. "They'd look cute in a little lavender tutu."

The husband patted its B-19-textured hair. "Maybe we get them started on hoverball early…"

"You heard the man—we gotta figure out what they like. What if they like razorball?"

"You gotta show them that, too."

"Fine," grumbled the husband, "then you gotta try other colors than that infernal lavender. Maybe they'll like beige. And pants instead of tutus."

"Fine," said the wife, "but you can't badmouth lavender. And call your mother—I'm not taking any chances. This baby's learning to stay in touch with its parents."

*"Fine."* The husband pulled out a holophone. "I don't suppose we can still keep the boy name we picked?"

"I liked it," said the wife. "I guess if the baby doesn't, they'll tell us later. But we gotta call them something, to start…"

They picked up the maintenance tips and headed off through the store doors, past the 'Best Customer Satisfaction!' poster and under the FINAL SALE sign.

"Well." The sales assistant spritzed sanitizer spray onto the tissue generator, and picked up a cleaning rag. "That could've gone worse."

The old woman at the register watched the couple vanish into the parking lot. "Why didn't you just pause tissue generation and wait for them to decide? Or use the random- gender function? You didn't have to leave it unspecified."

The assistant shrugged. "They were so fixated on gender-specific wishes, at least one of them would've ended up unhappy. And processing returns is a pain, especially now that we've scrapped refurbish-and-resells." He glanced to the recycle bin in the back corner, dusty for the lack of use. "This way, they stay flexible and manage expectations, which makes it easier to enjoy their Build-a-Baby." He wiggled his eyebrows. "*Best customer satisfaction* and whatnot."

His colleague rolled her eyes.

"No wonder corporate wanted to fire you. Forty years in this shop, and I haven't seen someone meddle so much with the assembly process."

"Just trying to keep return-and-recycles to a minimum." He winked. "We all know how you hate those, Ma."

Her eyes widened. "*Shush*! Troublemaker. Mouth bigger'n your wits. That's why they returned you, eh—never quiet when you oughta be…"

He laughed as she thumped him over the head with a rolled-up SALE! flier, and he leaned over to kiss her cheek.

"Just saying, Ma, not every Build-A-Baby can count on a return-processing clerk as nice as you. So why not give these last ones the best chance I can? Plus, I'm trying to keep our family tree manageable, I mean, thirty-four siblings is probably enough..."

He grinned as the old woman thumped him again with the flier, and he went back to sanitizing the tissue generator. When he was done, he slapped a yellow 'for sale' dot sticker on it. The store was selling everything, including the machines.

The recycle bin in the corner, however, was getting a brown 'curb trash' sticker.

*Irreparably Broken*, the forms would say—just like each of the thirty-four return-and-recycle forms Ma had dutifully archived, over the years, into Build-a-Baby's company records.

And if someone at the trash repurposing facility happened to notice that the machine, despite its sticker, was in mint condition, with no signs of ever having been used, well…

The store would be long gone by then, and no one would bother to follow up on a small labelling error.

THE END

# Poetry

## Aei Phanēs. Always Visible to Longing Eyes

*By Russell Hemmell*

We'll cherish Polaris over all the stars,
the Medieval sailors in the Mediterranean Sea pledged,
using its shimmering light
to find their way into the unknown,
between the strange and the wondrous.

They ignored that even stars
moved across the galaxy,
--swiveling,
--gleaming,
singing in inaudible voices.

But they didn't need to know to believe.
Thousands of them followed,
crossing the world's seven seas.

And when the sailors' names were lost in time,
among the violence of squalls,
sea storms,
and the screams of the seagulls,
elusive Polaris stood out there,
among all its billion siblings,
to entice humankind to the next frontier
and populate their fearful dreams.

# The Onset of Robotic Society

*By Ken Poyner*

The question is
Are you a falling edge machine
Or a rising one?
Most people think it is the absence
Or presence of current
That makes for a one or
A zero, for set or unset, for
Tripped or un-tripped. We know
At the core of us the truth is change and not stasis:
The movement from one state to another
Is the detectable event
That records us. But in some models
It is one direction of change;
In others, it is the opposite.
If we have to hang our new social theory
On something, such is the most elemental
Of design features: we may as well start there.
Happily, the great ordering thus begins.

# Science Corner

## Oikonomia

*By Randall Hayes*

> "Finance capitalism will be as old-fashioned as Flower Power.
> Some may miss it dearly, but that fondness will be little more than nostalgia."
>
> – *Reinventing Capitalism*, p137

Max Headroom was a weird 80s show about a future investigative journalist, Edison Carter, whose mind was copied into a computer program after an automated assassination attempt left him with a serious concussion of the frontal lobe. That brain damage apparently made its way into Max's irreverent artificial personality. Carter himself was something of a muckraker – a loose camera, as it were – but Max took it to a whole other level of punkeyshines.

> Who was it who said, Observing the United States is like watching a movie?
> Oscar Wilde? Woody Allen? Max Headroom.
> Just think, they've got an actor for a president, economic advisors called projectionists --
> Even their latest defense strategy is named after a film – *Star Wars.*
> But why pick on that one? Why not something gentler, like *Kramer vs. Kramer*?
> And, of course, everywhere in the world to them is just a theater of operations,
> Unless they're fighting in it, and then it's a theater … of war.
>
> - Max Headroom

Max was a minor sensation in the 1980s, appearing in soda commercials and hosting a talk show (where he interviewed William Shatner, among others). Computer graphics were much less sophisticated at that point, and it was easier to put Matt Frewer in uncomfortable makeup and fake-digitize him than to actually generate a digital version of him. Nobody noticed.

One of the few things that Science Fiction authors tend to agree on is that there can be too much hierarchy. Lefties like the people who made *Max Headroom* aim their ire at corporations, while Righties reserve it for governments, and then of course there are those who point to various religions as the ultimate expressions of rigidity in thinking and rule-making. The trappings of these various economic dystopias may differ, but the structure is always the same: the rulers get filthy stinking rich at the expense of everyone else, and the basis of their power is always some kind of lie.

More equitable future economies without money have been proposed. *Star Trek* is probably the most famous example. Residents of the Federation seem to regard money the same way they regard racism, as an unfortunate superstition, better forgotten along with witches and demonic possession. However, the economic details of how their post-scarcity economy works, and the history of how it came about, have never been revealed, only speculated about online.

According to the Duetschlandic Duo who provided our opening quote, economics comes from the Greek word *oikonomia*, meaning "rules of the house," or the science of running a self-sufficient household, with none of the casino connotations that we moderns would attach to that phrase. Many people who write critically about capitalism conflate two concepts that these authors separate very clearly. In Mayer-Schonberger & Ramge's formal economic terms, **firms** are those hierarchical organizations that centralize decision making in order to hoard wealth and information (those things we all love to hate). Firms can take many forms – corporations, governments, even nonprofits like churches and charities. **Markets**, on the other hand, are ***de***-centralized mechanisms for coordinating information flows between individual buyers and sellers. Firms are aggregate actors *within* markets, coordinating the actions of large groups of people to generate a competitive advantage. Though M-S&R do not say so, extralegal organizations like clans, tribes, or gangs would also count; the gray and black markets where they operate are still markets. If firms get large enough, they can distort the information flows that buyers and sellers rely on, in some cases capturing an entire market in a monopoly. Everyone from Adam Smith on down has agreed that cartels and monopolies are bad for everyone, except for those few who run them. Anyone who says different either has a monopoly or wants one.

That other Greek concept, the *agora* – the open marketplace of ideas – is pretty much universally accepted as a good thing. The crippling limitation of economic markets as they currently exist, say Mayer-Schonberger & Ramge, has been the compression of the human agora's incredibly rich peer-to-peer data flows into a single variable called **price**. Some compression is neces-

sary (currently) because of human cognitive biases and limits to our decision-making powers, as demonstrated in the work of behavioral economists like Thaler, Ostrom, and Kahneman. M-S&R say that we've taken the data compression too far. Measures of economic health like Gross National Product treat both car accidents and wars as pluses, because they stimulate spending, regardless of the nature of the spending. Pollution is likewise a plus, as long as somebody gets paid (in money or tax credits) to clean it up. Any hours spent doing anything unpaid, such as child care, are regarded as a minus, if they are measured at all. Current economic theory calls unmeasured things "externalities," and deliberately ignores them in policy and decision making.

Their solution to these issues is to employ three current technologies to add back in all those rich data that the compressive act of pricing excludes:

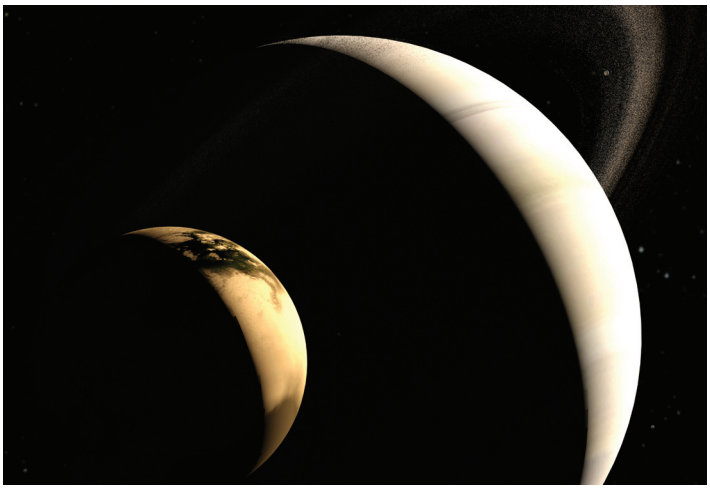
1) extravagantly complete **storage** of these highly multi-dimensional data sets;
2) **machine learning** to mine those data for the behavioral preferences of buyers and sellers, without having to fill out endless questionnaires; and
3) advanced decision-making **algorithms** to properly weight those individual preferences and match buyers and sellers, with – and this is important – situational flexibility and nuance.

Their central claim is that honest, efficient markets crush firms and middlemen.

> "When we are better able to compare what potential transaction partners have to offer along many dimensions, we'll change how we weigh information … price will become only one data point among many, rather than a bell buoy in an ocean of noise."
>
> —*Reinventing Capitalism*, p137

In other words, if buying local and buying green are really important to you, your personal AI shopper will know that about you and get the right widget for you, every time, at the right price. The right price won't automatically be the lowest price, because unlike a human with a three-pound brain, the AI will be able to juggle ALL the numbers—from the labor practices of suppliers, to the environmental impacts of using recycled materials, to the carbon credits needed to offset the energy required to manufacture and deliver it, to the exchange rates of whatever multiple currencies are relevant at the time. (Max Headroom, clever though he be, need not apply.)

This goes beyond simply using auctions to find single-dimensional prices more efficiently, one of the major strategies posed in another recent book called *Radical Markets*, by Posner & Weyl, which interestingly includes near-future fictional vignettes to help them illustrate their points. No, Mayer-Schonberger & Ramge claim that more complete data will do all sorts of seemingly magical things, like pop investment bubbles before they can wreck national economies. I am skeptical on that prediction, because human spoilers and speculators have plagued financial markets from their very beginning, and those people and their cyber-criminal agents will actively work against the decentralizing tendencies of markets. But those struggles might make for some great stories.



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*Max interviews William Shatner (starting at 4:42).*
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*Which sort of rhymes with "Paranormia," performed here by the Art of Noise, featuring Max Headroom. By the way, check out AoN's version of "The Peter Gunn Theme." It absolutely rocks.*
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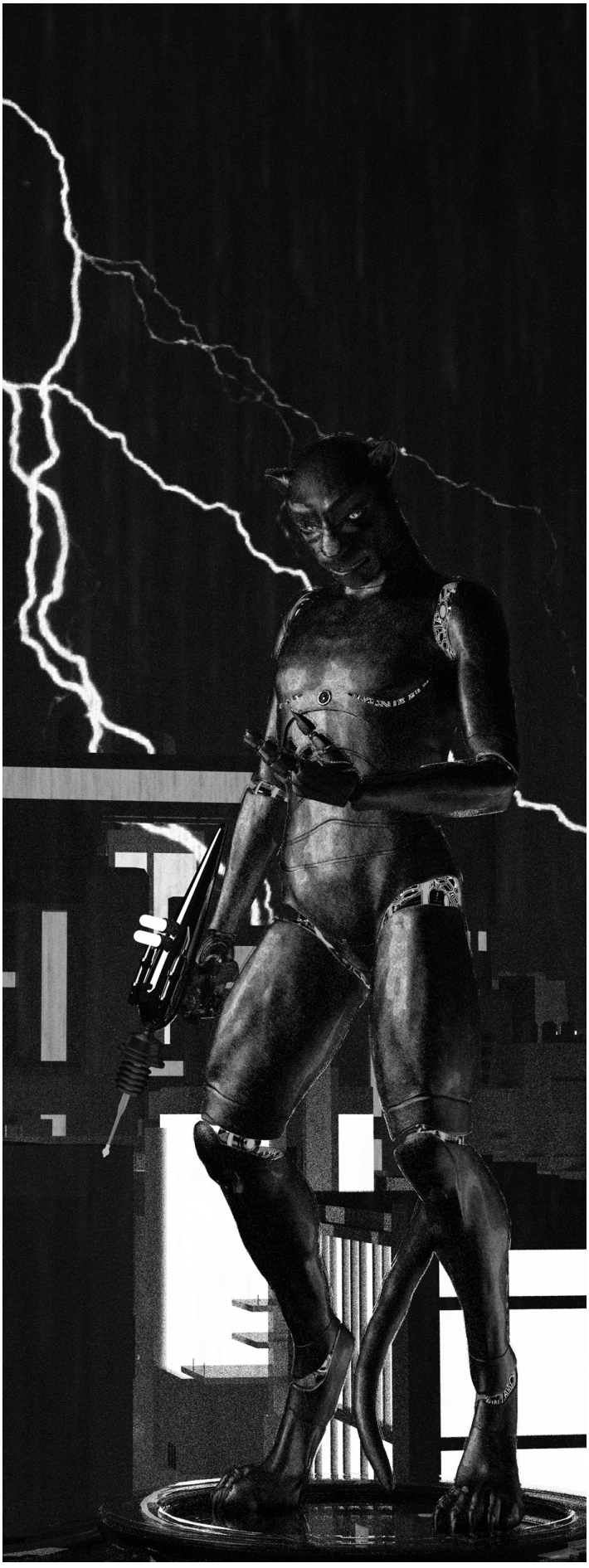

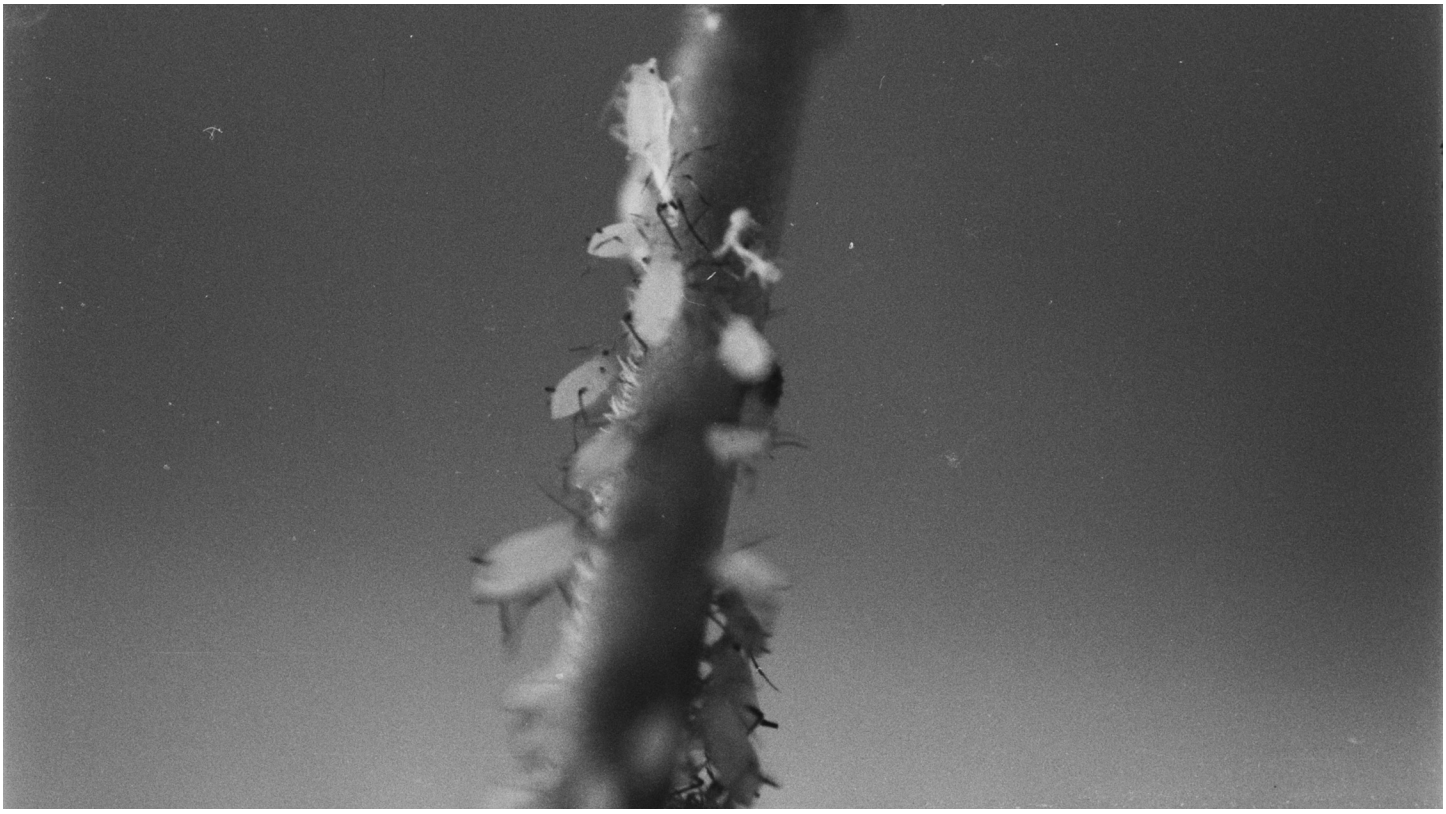

# An Introduction to Biology

*By Sidra Waqar*

## BIOLOGY

**"It is the branch of Science that deals with the scientific study of life"**

### INTRODUCTION

Biology is derived by two Greek words, '**Bios**' means '**life**' and '**logos**' means '**thought or reasoning.**' The father of Biology is **Aristotle.** It is the only branch of Science that deals with living organisms. As all other branches are related to matter.

It is related to natural science, dealing with living organisms; chemical processes, structures, interaction, psychology, development and revolution. The study of living organisms provides information and solutions to human problems regarding health, food, environment and many others.

### DIVISIONS OF BIOLOGY

There are three major divisions of Biology which study different aspects of life of living organisms.

- Zoology
- Botany
- Microbiology

### 1. Zoology

*'The division of Biology deals with the study of animals.'*

It is derived by two Greek words i.e. '**zoo**' means '**animals**' and '**logos**' means '**thought or reasoning.**' It studies the evolution, development, structure, embryology, habits and distribution of animals and the way in which they interact with their ecosystem.

It is all about the study of animal kingdom existing or extinct from Ancient times. The Greek philosopher Aristotle was very much interested in this field. He took many detailed notes and observations on animals along with this he also encouraged many other scientists on researching animals. After the development of microscope in the late 16th century, scientists began to examine animal cells and found the basic unit of life that is called the cell. Later the discovery of genetic material DNA paved new way for zoology.

### Branches of Zoology

There are different branches of zoology mentioned below:

- **Zoography**
  It is also known as '**Descriptive zoology**' or '**Zoogeography.**' This is because it is the geographical distribution of animal species. Basically, it is study of animals and their habitats. This will show what animals can stay in which type of habitat or environment, according to their geographical distribution.
- **Comparative Anatomy**
  It is the about anatomy of animals i.e. body structures of animals. This branch studies similarities and differences in anatomy of animal species. It is related to phylogeny that is evolutionary biology. This is used to learn about the ancestors of animals and what their common ancestors were. If Anatomical similarities exist between animals, this means that they are from common ancestors. Originally used in genetic research, it's now applied in the study of paleontology.
- **Animal Physiology**
  It is the study of body processes that occur in animals to maintain homeostasis and survive. This is the ability of maintaining balance in body with the changing environment. For example, in mammals such as humans has optimum temperature of 37 degree Celsius (98 degree Fahrenheit). The processes that are study in this branch are regulation of temperature, blood pressure and blood flow and hormone secretion.
- **Ethology**
  It is the study of animals' behavioral adaptations with respect to natural environment and behavior as an evolutionary trait. It is used for animal learning, sexuality, cognition and communication. The principles in this branch are used in training of animals. It is related to evolutionary biology and ecology.
- Behavioral Ecology
  It is related to ethology. It is the study of behavior of animals with respect to ecological pressures. It is all about animals' competition for food and shelter. The animals that will resist in competition are likely to survive and reproduce.

### Subcategories of Zoology

Zoology is further divided to diverse subcategories i.e. invertebrates and vertebrates.

- Mammalogy
  The study of mammals. This also include primatology that is study of primates.
- Ornithology
  The study of birds.
- Ichthyology
  The study of fish.
- Entomology
  It is the study of insects. But the study of insects is also divided into many categories because there are many types of insects. The study of moths and butterflies is called Lepidopterology. The study of ants is called Myrmecology. In Coleopterology, we study beetles.
- Herpetology
  The study of amphibians and reptiles.

## 2. Botany

*'The division of Biology that deals with the study of plants.'*

It is also called plant science or phytology. It is the study of plants' structure, their growing, classification, impact of environment on development etc. Botany is a part of biology, but it is further subdivided into different categories as follows:

- Agriculture Science
  It deals with the plants that are of economic importance and the production of those plants.
- Agronomy
  It deals with the production of crops and management of soil. It is said to be the science of technology of producing and using plants in agriculture for food, fuel and fiber. It is related to plant genetics, soil, plant physiology and meteorology.
- Phycology
  It is also known as '**algology.**' It is the study of algae. Algae are considered as prime producer in aquatic ecosystem. New algae are discovered every year. They are very important because they are considered primary producer in fresh and salt aquatic ecosystem.
- Agrostology
  It is also known as '**graminology**'. It deals with the study of grasses. The grass like species are also considered under this branch i.e. sedge family, rush family, bulrush, cattail family etc. It is important maintenance of grazed and wild plants, agriculture urban and environmental horticulture, turfgrass

management and sod production, ecology, and conservation.

- Arboriculture
  It is the study of cultivation, management, and study of individual trees, vines, and other perennial woody plants. Basically, it is study about trees propagation. It tells that how trees grow and how they respond to environment during cultivation.
- Plant anatomy
  Also known as '**phytotomy.**' It is the study of internal structure of plants. This is all related to plants' activities pollination, flowering, nutrient transport, embryogenesis and seed development.
- Plant genetics
  It is the study of genes, genetic variations and inheritance in plants. It is related to many other life sciences and information systems.
- Pomology
  The study of fruits and their cultivation. Sometimes considered as Fruticulture. It is mainly used for the development, enhancement, cultivation and physiological studies of fruit trees.

### 3. Microbiology

*'The division that deals with the study of microorganisms.'*

The microorganisms that are unicellular, acellular or multicellular all fall under this division. The microscopic organisms include bacteria, viruses, archaea, fungi and protozoa. It also encircles many sub-categories such as virology, bacteriology, protistology, mycology, immunology and parasitology.

Branches of Microbiology

Some of the branches of microbiology are mentioned below:

- Virology
  This is the study of viruses. They are submicroscopic, parasitic particles of genetic material contained in a protein coat. **Martinus Beijerinck** is said to be the Father of virology.
  We study virology because by this we get to know about more and more viruses, understand their links to certain diseases and that epidemiology looks at certain viral infections in new ways. Now, we are familiar with many viruses that we did not know in past.
- Bacteriology
  The study of bacteria. It is used to study the morphology, ecology, genetics and biochemistry of bacteria. It helps for the identification, classification and characterization of bacterial species.
  Nowadays it is important for the development of the fields of molecular biology and genetics. It helps researchers to learn more about bacteria and cure the diseases caused by bacteria.
- Protistology
  It is the study of protists. They are eukaryotic organisms. It is said that many of them are harmful to humans, other animals, and plants because they can cause diseases. However, some are beneficial to other creatures and are used by humans for many purposes. Protists belong to Protista kingdom because they have different characteristics then all other kingdoms. It is also said that all other kingdoms arose from Protista.
- Mycology
  The scientific study of fungi. This includes genetic and biochemical properties, taxonomy and usage for humans as a source for traditional medicine and food along with the dangers, such as toxicity or infection risk.
  Fungi are one of the main decomposers in all types of ecosystems. They play a vital part in recycling of nutrients and global carbon cycle. They are used to break pollutants and are also used in medicines and food production.
- Parasitology
  Parasitology is the study of parasites. Organisms that take food and shelter from other living organisms. While often considered in a negative connotation in terms of hurting the host, a few parasites offer benefits to their hosts as well.
  Basically, parasitology is the study of parasites and their hosts and the relationship between them. It is used to focus various characteristics of the parasite i.e. their morphology, life cycle, ecology, taxonomy, the type of host they infect or affect and the relationship between the two.

## CAREERS IN BIOLOGY

The following are the careers that students can adopt:

- Medicine/Surgery
  The medicine profession deals with the diagnosis and treatment of disease in humans. In surgery profession, the parts of the body are replaced, repaired or removed. For example, the renal surgery to remove stones, transplantation of kidney, liver etc. Both these professions are studied under MBBS (Bachelor of Medicine, Bachelor of Surgery).
- Agriculture
  This profession includes food crops and animals that are important sources of food. An agriculturist's goal is to work for the betterment of crops such as wheat, rice, corn and betterment of animals such as buffalo, cow which are often used as food.
- Fisheries
  It is the profession under which we study fish production. They serve for the best quality and quantity of fish production. Many fisheries now focus on sustainability. Harvesting from farms instead of relying on wild caught fish from oceans or ponds.
- Animal Husbandry
  This branch of agriculture deals with the care and breeding of domestic animals such as cow, cattle, sheep etc.
- Horticulture
  It is the profession under which we practice the art of gardening. The horticulturist works for the betterment of existing varieties and to produce new varieties of ornamental plants and fruit plants.
- Forestry
  It deals with looking after of different types natural forests and advises government for planting and growing artificial forests.
- Biotechnology
  One of the latest professions in the field of Biology. They work to produce useful products from microorganisms. It utilizes biological systems, living organisms to develop or create different products. It can relate to many scientific fields.
  It is very important in medicine and health. Due to this, scientists can create new medicines such as interferon for cancer patients, synthetic human growth hormone and synthetic insulin, among other things.

## RELATIONSHIP OF BIOLOGY TO OTHER SCIENCES

Biology incudes the information of different living organisms but this information can also relate with other branches of Science. Each branch correlates with all other branches. This forms the basis of interdisciplinary sciences.

- Biophysics
  It deals with the principles of physics, which are applied on biological phenomena. For example, the working principle of the lever in physics and limbs of animals in biology are said to be same.
- Biochemistry
  The study of chemistry of different compounds and processes occurring in living organisms. For example, the metabolism of photosynthesis and respiration.
- Biometry
  Also known as '**Biomathematics.**' It is the study of biological processes using mathematical tools and techniques. For example, analyzing data after some experimental work, biologists apply mathematical rules.
- Biogeography
  It is the study of occurrence and distribution of different living organisms in different geographical regions of the world. It involves the knowledge about the characteristics of different geographical regions to determine characteristics of living species.
- Bioeconomic
  It is the study of living organisms form economic point of view. For example, the cost value and profit value of the yield of wheat can be calculated through bioeconomic and benefits or losses can be determined.

## Science Trivia

*For the curious and well informed this magazine provides some trivia questions. Some of the answers can be found in stories and articles in this issue. Others we've answered on our Facebook and Twitter feeds. Still others will have to be given some thought. The answers will be provided in the next issue.*

Answers for June Issue

**Question One:**
Which author is known as the father of Hard Sci-Fi?
*Hal Clement is known as the father of Hard science fiction stories.*

**Question Two:**
What Book does this last line come from? "The Auctioneer cleared his throat. Oedipa settled back to await the crying of lot 49."
*This last line is fittingly from the story "The Crying of Lot 49"*

**Question Three:**
What is the average temperature of Titan?
*The average temperature of the moon Titan is 90.6K (–179.6 °C, or –290 °F)*

**Question Four:**
Which gifted artist was the first to paint in outer space?
*Alexei Leonov was the first astronaut to paint in space. No easy feat in zero-gravity!*

**Question Five:**
What is a hyperbolic orbit?
*A hyperbolic orbit is an orbit unbound to our sun.*

**Question Six:**
There are now tardigrades on the moon. How did they get there?
*An Israeli space-craft carrying tardigrades as part of an experiment crash-landed on the moon. It is expected the tardegrades survived and are now on the moon. Without water, there is little chance of them reviving. However there are trace amounts of water on the moon, so who knows?*

Questions for August Issue

**Question One:**
Who, in the early 17th century, was the first person to draw a map of the moon?

**Question Two:**
How old was John Glenn when he became the oldest astronaut in space?

**Question Three:**
What is the Supernova Machine?

**Question Four:**
Aldous Huxley wrote his first novel while suffering what ailment?

**Question Five:**
What event did the Assyrians record in 763BC that would later be used to fix a chronology to all of Mesopotamian history?

**Question Six:**
What is a Sturddlefish?

**Question Seven:**
What is the Greek word for Economics mean?

**Question Eight:**
What is the only bird that can fly backwards?

**Question Nine:**
How many hearts does an octopus have?

# The Reader Speaks!

*In this section we will post a few comments submitted to us by our readers, allowing them to share their opinions (what they like or dislike) of past stories and to ask questions about points of scientific interest in regard to a story of the past issue, a trivia question or article, or just general curiosity.*

*Hearing from our readers, like you, is one of the most rewarding parts of working this magazine. We welcome your thoughts, critiques, or praise to our writers. Please submit any comments through our website at utopiascienceficiton.com or e-mail us directly at utopiasciencefiction@gmail.com. This is a small section and we will only select a few comments or questions with which to fill it in and then, only with the commenters permission. Feedback is important to us and there is nothing more exciting then hearing back from our readers, so please do send us a message*

**Charming**

Dear Editor,

I very much enjoyed all of the stories in the last issue. They were delightful to read. I just recently started to read this magazine and I was impressed, especially by the story 'You're It' which I thought was quite charming and elegant. I look forward to reading more issues!
Gretchen Ryan,
Ontario, Canada.

*Dear John,*

*Thank you for your kind words. We were impressed with 'You're It' as well and recently nominated the work for the Best-of-the-Net anthology for consideration in their annual publication. All of the stories, we feel, were excellent and I'm heartened to hear you think so as well.*
*-Editor*

**A World For My Ashes**
Dear Editor

This was an absolutely beautiful poem, I loved it! Was the artwork before it supposed to be a companion to the piece? I loved the artwork there as well. It's my favorite piece in the issue I think. You always publish great art.

Dominic Shulman,
Oklahoma

*Dear Dominic,*

*I'm glad to hear you enjoy our poems and artwork. We're quite proud of our contributing artists. The piece you mention was drawn specifically for the poem A World For My Ashes. The artwork was done by our the talented Haley Grunloh. If you're interested in more of her artwork, she has a website haleygrunloh.com.*

*-Editor*

**A Question On Science**
Dear Editor,

In one of your stories, Rainmaker, the characters use jet-packs to fly across the surface of Titan. Is this in keeping with scientific possibility? It seems to me that jet-packs are difficult enough to use effectively on Earth. Wouldn't a denser atmosphere make that more difficult then? I loved the story, but wondered about that point. Though I don't know if this is the place to ask such a question. Thanks for your time.
Tom Hogendeck
*Dear Tom,*

*These are some of our favorite communications to receive, so definitely the right place to ask them. Your question is a good one and an apt observation. Firstly a distinction should be drawn between rocket packs and jet packs. Jet packs will not work on Titan for a very simple reason. There is not enough Oxygen. Jet packs intake oxygen and use it to fuel the combustion process. So to answer your question simply, no – jet packs would not work on Titan. The author of Rainmaker uses the term wingsuit, which we will assume functions closer to a rocket pack, with wings to add aerodynamics. Another thing to note is that Titan's gravity is significantly less that of Earth, which is why the character Jess grew up significantly taller than her family. With less gravity, less fuel is expended fighting the downward pull. So while the atmosphere is denser, it should not impact the ability to travel via a rocket pack.*

*Thank you for your question. We invite any readers with similar questions to ask them as well.*

*-Editor*

# Contributing Authors

**Christopher Miller**
Weekdays Chris is a systems programmer with an interest in cryptography. Weekends he washes dishes and flips eggs in a family restaurant. He enjoys chess, Go and table tennis, writes for love.

**David Chevalier**
David M. Chevalier is a writer, programmer, and improv. performer. He lives in rural New Hampshire with his wife and two children.

**Franco Amati**
Franco Amati is a speculative fiction writer from New York. His educational background is in cognitive science. His fiction has been published in The Colored Lens, Northern Speculative, Visitant Lit, and other places. You can find more of his work at francoamatiwrites.com

**Gregory Gafni-Pappas**
Gregory Gafni-Pappas is a practicing emergency physician in the United States. He is passionate about improving humanity by challenging the status quo and uses science fiction writing as a conduit for his hopes and dreams. He is currently working on his first major science fiction novel.

**Nancy Kay Clark**
Based in Toronto, Canada, Nancy Kay Clark writes sci-fi and speculative fiction for both adults and children. Published work includes a middle grade adventure novel The Prince of Sudland: Escape from the Palace
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**A.G. Armstrong**
Ana lives in New England with her partner and their dog who likes to eat sofa legs. Her stories have most recently appeared in Daily Science Fiction, Corvid Queen, Write Ahead: The Future Looms, and others. You can find her on twitter at @whataremetaphor

**Russell Hemmell**
Russell Hemmell is a French-Italian transplant in Scotland, passionate about astrophysics, history, and Japanese manga. Winner of the Canopus Awards for Excellence in Interstellar Writing. Recent work in Aurealis, Cast of Wonders, Flame Tree Press, and others. SFWA, HWA and Codexian. Find them online at their blog earthianhivemind.net and on Twitter @SPBianchini

**Ken Poyner**
After years of impersonating a Systems Engineer, Ken has retired to watch his wife continue to break national and world raw powerlifting records. Ken's two current poetry ("The Book of Robot", "Victims of a Failed Civics") and four short fiction collections ("Constant Animals", "Avenging Cartography", "The Revenge of the House Hurlers", "Engaging Cattle") are available from Amazon and elsewhere. www.kpoyner.com

**Baishampayan Seal**
Baishampayan Seal is based in Kolkata, India, where they are currently pursuing an MSc in Statistics. When not testing hypotheses or beating the keyboard for C++ or R coding, they enjoy writing short poems and flash stories. Their work has previously appeared in Star*Line (http://www.sfpoetry.com/sl/issues/starline43.3.html) and Bewildering Stories (http://www.bewilderingstories.com/issue859/questions_stay.html), and is forthcoming in Illumen, Scifaikuest and Space and Time, among others. They can be found on twitter @BaishampayanSe1

**G.O. Clark**
G. O. Clark's writing has been published in Asimov's, Analog, Space & Time, A Sea Of Alone: Poems For Alfred Hitchcock, Tales Of The Talisman, Daily SF, HWA Poetry Showcase VI and many other publications. He's the author of 15 poetry collections, the most recent, "Easy Travel To The Stars", 2020. His second fiction collection, "Twist & Turns", came out in 2016. He won the Asimov's Readers Award for poetry in 2001, and was Stoker Award finalist in 2011. He's retired, and lives in Davis, CA.

**David P. Rogers**
David Rogers' latest work is Roots of the Dark Tower: The Long Quest and Many Lives of Roland, available from Amazon. More about David can be found at Davidrogersbooks.wordpress.com

**Elizabeth McClellan**
Elizabeth R. McClellan is a domestic and sexual violence attorney by day and a poet in the margins. Their work has appeared in Chrome Baby, Dreams and Nightmares, Star*Line, Goblin Fruit, Apex Magazine and many others. They can be found in most places with @popelizbet

**Sukarma Rani Thareja**
Dr Sukarma Rani Thareja is an Associate Professor(Retired) of chemistry from Christ Church College, CSJM Kanpur university, Kanpur, UP, India. She did PhD Chemistry from IIT-K , India. She is passionate about poetry, art, science. Her works have been published in National/International conferences/Journals

**Thomas E. Simmons**
Thomas E. Simmons is a professor at the University of South Dakota School of Law. He teaches courses such as Trusts & Wills, Estate Planning, and Remedies in Law & Equity. His legal scholarship has been published in numerous law reviews and journals. His poetry has appeared in Corvus Review, North Dakota Quarterly, and Nebo. Find him at https://www.usd.edu/faculty-and-staff/Tom-E-Simmons

**Randall Hayes**
Randall Hayes, PhD, did research in neuroscience and taught for roughly a decade before becoming a writer and entrepreneur in Greensboro, NC, USA. The failings of orthodox economics are an ongoing interest, and other pieces about it can be found in the PlotBot column at www.intergalacticmedicineshow.com or at his personal blog at steemit.com/@plotbot2015

**Sidra Waqar**
Sidra Waqar is a freelance writer.