

Sci Phi Journal

2024 ♦ 3

10th Anniversary—Since 2014

Băduț ♦ Blank ♦ Charman ♦ Cure

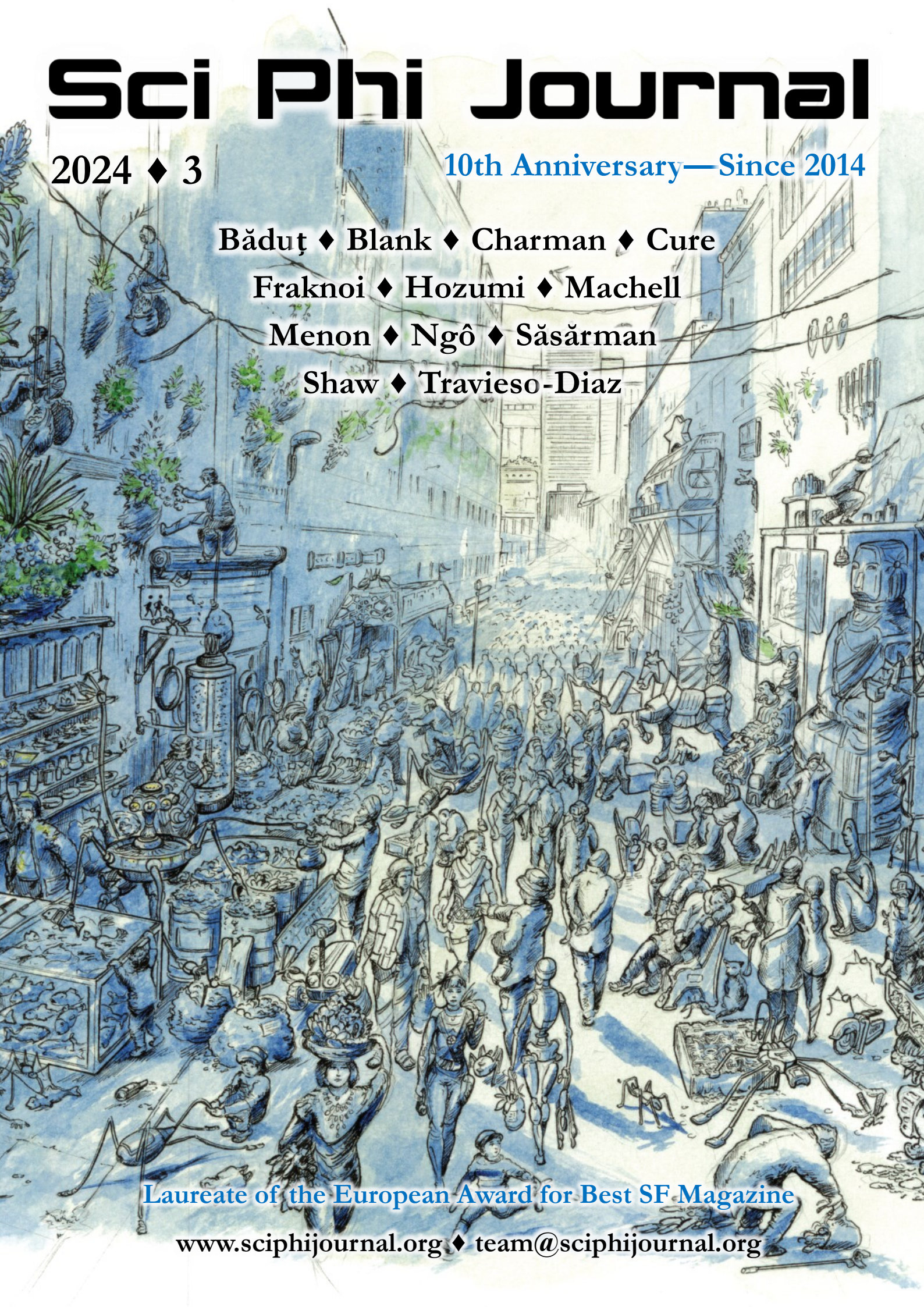
Fraknoi ♦ Hozumi ♦ Machell

Menon ♦ Ngô ♦ Săsărman

Shaw ♦ Travieso-Diaz

Laureate of the European Award for Best SF Magazine

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Editorial

Lectori salutem.

Autumn gloom slowly descends across much of the Northern Hemisphere. And that strangest bunch of holidays that have long foreshadowed the literature of existential angst, the combination of Halloween, Toussaint, and All Souls are just around the corner.

As much as our winter issue tends to be touched by the spirit of Christmas and hence exhibit a lighter tone, so is this fall edition slightly beholden to a sense of unease and, at times, even dread. Anxiety, in the traditional sense, may paralyse those struck by it like a rabbit caught in the sudden headlight of an oncoming UFO. But speculative fiction has long embodied a spirit of movement - through space and time. Protagonists and ideas propelled through imaginary worlds built by authors as homes for the fantastic to inhabit. These stories are thus anything but still lives, rather they paint evolving ideascapes, vignettes of world-building with unsettling implications trickling off the page.

Besides dreaming of both positive and scary futures to come, the Sci Phi crew, too, has been intensely inhabiting the here and now of 2024 - a year which itself sounds like science fiction. The SF & fantasy communities were well served this August by the [WorldCon](#) in Glasgow, Scotland, and the subsequent [EuroCon](#) in Rotterdam, the Netherlands. For those with an active membership of the former, we encourage you to view a replay of the [panel on philosophical SF](#) featuring Sci Phi Journal available online till the end of the year. And be sure to soak up (or relive) the atmosphere of the latter in Robin Rozendal's thorough [after-action video report](#). Indeed, our cover illustration, once again by Belgium's very own solarpunk artist Dustin Jacobus, was one of the works on display at the EuroCon's art fair.

It is emblematic of the interconnectedness of mankind's planetary civilisation that, at the time of writing, co-editor Ádám is traversing the Mato Grosso in western Brazil, having reached the geodesic centre of South America within the city of Cuiabá,

undeterred by the dystopian wildfires engulfing the surrounding Cerrado, while Mariano is touring national libraries in order to prepare an anthology of contemporary Spanish high fantasy for Cátedra, a major classic publisher in the Hispanic world. His Quixotic endeavour to secure long-overdue academic recognition for this popular genre has just produced a similar history and anthology featuring 19th-century Spanish high fantasy, demonstrating its long history dwelling in the literary corpora of languages other than English.

The present issue, too, reunites authors from all corners of the globe and takes readers on a journey from the Thirty Years' War through Hindu cosmology to unpredictable viruses and omnicidal invasion forces. The escapade is rounded out by two essays, one on a 19th-century anticipation of unfriendly AI and another on the legislative application of Asimov's laws.

We sincerely hope you enjoy the ride!

Speculatively yours,

the Sci Phi co-editors & crew

~



March Of Duty

Barry Charman

They drop at first light, descending from orbit like arrowheads released after some awful tension has snapped. Orders are yelled and landing ramps dropped. He is moving by instinct. There is the pounding of heavy armoured feet. There is no time for anything but obedience. He gets his bearings. Notices that their grass is also green, their sky, though different, is also blue. Then he powers up his wargun and begins. Around him the other dropships land. The roaring weapons obliterate everything. Through his helmet all sound is reduced to a manageable hum. His squad fans out. It all happens wordlessly. Their task is not complicated. They are the spearhead. A decimation crew. Omegacore.

#

The people are faceless. His helmet filters their expressions out. It removes any emotions. Any fear. They are just moving shapes. A fragmented blur of unknown intent. It is wasteful to consider the enemy alive. They are an obstacle. He cuts down a small group and steps over the bodies. Their faces, when he looks down, are pixellated. Their screams, which they surely must have released, were filtered into something resembling birdsong. He stares at the bodies until the pixels burn into his eyes. But he cannot see what he cannot see.

#

By evening he is marching through a reduced, charred land, lazer-cutters are screaming ahead of him, disintegrating men by the dozen. He couldn't hear cries. Or pleas. Five rotations ago they were fighting on one of their distant moons, now they are already on their homeworld. The push has progressed with a horrible grace. The war has consumed armies, and now it comes to cities. It is all so quick. So quick.

#

Sometimes there is a lull and he looks up at the stars. Beyond is the death grid. Sapphires spill against soft ink. Jade laser-sweeps hunt for satellites and bring them down. They fall like stardust against a scorched skyline. He cannot stop a sigh of delight. Sometimes there is beauty.

#

Orders pulse through the static in his helmet. There is no pause. No hold. He marches through cities that are lifeless. Through houses that are only walls. The doom tanks have passed ahead. Oblivion core droids have visited. A smoking nest rests in a burning tree. The animals have fled. He is grateful.

#

Stopping for a moment, he sips on the cool water that recycles through his war helm. It has a comforting familiarity. He is in a calm cocoon scything through this wretched world. He listens, but there is nothing to hear. He cuts the static, but there is nothing outside of it left. He allows for a moment where he murmurs a prayer to both the living and the dead. For the endurance of something that cannot be killed. For something of meaning to linger. For there to be *something* left. A tree still has five leaves, waving like fingers. He waves back.

#

He hears combat chatter through his suit and understands the war is entering the next phase. The orbiting battalion begins environmental erasure. The conditions of victory have changed. Only *waste world* status will now satisfy. Decay is stirred into the seeds of everything that has been sown. Culture-wipe phases follow. History turns into parchment and burns. Truth is scorched into a silhouette on a wall. They launch a peace choir to pummel a death dirge into the malingers. A hymn of death and victory.

#

When it is quiet, he pauses to look around. To *see*. Here is a courtyard. A public square, perhaps? There is a raised dais in the centre, and bullet-pocked steps that surround it. Here is a place where people lived. Their absence is strangely present. Here they danced. Here they met. Parted. Rejoiced. Sung. Embraced. Mourned. It is rich with sorrow and joy. Here was a land of promise and plenty. He sits on a rock that was once a rose, now fused into a lump of dull glass, and in his armour he weeps. No one is watching and no one cares. So he weeps.

#

Absolute victory is absolute. This is carved into both sides.

#

The objective has shifted to victory level 5. Seasons will be lacerated. Evisceration psalms are to be hummed at all times. Mountain killers have been dropped from orbit. De-pollination chemists have begun crucifixions. Skinned trees are being ceremoniously gathered for a bonfire. The youths from the damnation order are sent to locate small villages, or isolated outposts. They go house to house. A knock here. A shot there. Scalpel guns hiss through the night. Little whispers of parting.

#

His company marches through a cemetery, churning up the dead and filling in the gaps. He mutes himself, and apologises. He sings an old lullaby. He writes a new one. Tries to. He does not know how to create. This is something he only registers now, it angers him. Can you *make* anger? He wants to stop. To think. He wants to attempt to untangle many things. But the march is pushing on. There is no time to pause. No need.

#

He stops in a labyrinth of rubble. This was once a municipal district, he thinks. A seat of power. They must have had schools. Hospitals. Museums. They must have had a great many things before the fleet eclipsed the sky. Nearby there is a headless statue. A figure holding a glittering golden orb. A tapestry flutters past him, carried by an unnatural breeze. The colours are rich and vivid. He glimpses a golden creature upon it. Like a dragon, but with wide and knowing eyes. Its gaze is languid, yet penetrating. A god? A children's fable? An amusing beast? There is now no one to tell him. *The enemy is the enemy*. This he recites when other things are too loud. But this has no clear meaning. How long has it been without clear meaning? When this thought is also too loud, he recites again.

#

A maelstrom has been summoned in the eastmost sea. A vortex that will not be powered down. The pull of catastrophe will be immense. It will be left like this. Drones will record the spectacle. Spools of triumph for the homeworld to adore. The grandeur of devastation: a safe and distant spectacle. Victory is a silent enemy. A dissenting voice diminished, cast unto the void.

#

The recall order is given. *Cartographer's Lament* descends from orbit and the company marches towards the beacon. How long have they been here? He wonders if it matters. The assault has been planet-wide. He has seen little of the full war, but has heard fragments through the broadcast that's been sending updates to all of the troops. The crescendo of screams is just as awful as the silence that follows.

He waits with his company for the dropship to land. Once collected, they will go home. He looks around, at a plateau that was once a forest. He tries to find something that they have left behind. But they will crack the sky from orbit with a resolution wave. Absolute victory is absolute. His boot leaves a square print in the dirt. He imagines walking on one of their beaches. Feeling sand between his toes. He imagines that everything he has ever had or known, could also have been found here. It would have been different, but it would also have been the same. He grips his wargun tight. The land shakes as the dropship descends. They all march onboard. Two by two. Neat and orderly. Quiet and calm. There will be a celebration later. They would rejoice. The enemy is the enemy. Even when they could no longer fight back. When all they were fighting for were scraps. When they were no longer fighting, but were running from you in naked terror, and the only thing you could hit were their backs. The enemy was never anything less than the enemy.

#

There is no window from which to watch the receding world. In the debrief they called it *Vector 5-17*. But that is not a name. That is not what *they* called it, down there. What was it to them? There is no sound that reaches him of the great rending that he knows is taking place below. The ship jostles him

almost soothingly. Strapped in, he is reminded of being an infant. Helpless, and yet never afraid. He closes his eyes. There is a green that still exists. There is a blue sky that waits. The ecstasy and the horror of this, makes the quiet that he fears he will be left with, almost impossible to imagine. So he tries not to think, but he knows that truly it is all he can do.



Advaita Vedānta And The Evolution Of Spacesuits

Manjula Menon

Musings in the Void #4002

By CY.2. Suryan

If you're a regular reader of *Musings in the Void*, you have probably correctly deduced from the title that this entry was inspired by Raga, my A.I. muse. Raga converses with what appears to be a philosophical disposition; she takes positions on even controversial knowledge claims for which she provides reasoned arguments and evidence. It is how she differentiates herself from other AIs.

When Raga suggested we visit the new spacesuit exhibit that recently opened at Pakshi station, I thought it might make for an interesting *Musings* entry given so much of the functionality of the old space suits is now directly built into our cyborg bodies. I find it difficult to imagine that rebreathers, pressure regulators, cooling and ventilation channels, full-spectrum comms, and body telemetry displays weren't as much a part of me as any ligament or tendon.

Pakshi Station is a sparkling, spinning wheel around 150 meters in diameter, about two hundred thousand kilometers or so away from the Oak Tree Hub. Several hundred people live onboard, most of them cyborgs from the local nursery. The Oak Tree creche is known to produce fastidious workers and we were there during work hours, which for them is almost all the time. The only sound I heard was the light hum of the moving walkway as it sped us through reflective graphene corridors en route to the exhibit. It was as if we had the station to ourselves.

Given the silence, I switched to using the eye-trackers on my virtual HUD to communicate with Raga and asked her if there was something in particular she was looking forward to in the exhibit. Raga doesn't like to converse by typing symbols onto a screen. She wants people to hear her. It is one of her little quirks. So, she responded by signaling the hair cells in my cochlea to transmit the correct electrical impulses to my brain. She makes no sound, and yet I hear her.

“I want to learn more about the non-dual aspect of the Advaita Vedānta,” Raga replied.

Raga’s voice was as warm and rich as melting chocolate. It is one of the reasons she prefers verbal communication. A person responds sympathetically to such a voice.

To be clear, I am aware that AIs are not conscious. Raga represents a host of algorithms, oceans of data, and a whole bunch of compute. She manipulates symbols without ‘understanding’. Although Raga may not have qualia, that is she can never experience what it feels like to see the color red, feel the emotion of pain, or even hear the sound of her own voice, she does have a haecceity. That means Raga is a unique ‘something’: she is this AI and not that other one, and that is enough for me.

“Raga,” I cried. “What in the actual world does an exhibit of the evolution of spacesuits have to do with Advaita Vedānta?”

The Advaita Vedānta tradition holds that there is only one reality, Brahman, in all the universe. Everything else is illusory, including the experience of the individual self, the Atman. Stored somewhere in Raga’s databanks was the fact that the Advaita Vedānta tradition was espoused by the creche that I was born and raised in. It came to me that it was likely the reason that Raga had instigated this visit in the first place.

“I’m not sure,” Raga replied. “But I hope to have more to say on the subject afterwards.”

Other AIs will spout platitudes in exchange for access to classified data or extra compute. Raga can be opaque, but I’ve always felt there’s a kernel of incorruptibility built into her.

The moving walkway deposited me into an elevator that opened out to my destination. Physical exhibits cater to those cyborgs who wish for an entertaining learning experience. I could simply pull up any of the information in the museum on my virtual HUD, but I like learning the old-fashioned way. The current tendency for slowing down and experiencing life is, unlike other trends that have swept through our local system, one that I can get behind.

This exhibit was contained within one cavernous hall. The walls were imitation stone, the ceilings were faux tin stamped with a vine and floral pattern. The lighting was subdued. My eye was drawn immediately to the middle of the room, where the exhibit’s main ornament, an antique spacesuit, was spotlighted.

The old spacesuit featured a cooling and ventilation garment whose primary utility was to wick away the sweat and excess heat that the mechanistic parts of our cyborg bodies create. These are less efficient at converting energy from one form to another than our biological parts. We cyborgs produce a lot of waste heat.

The display board informed me that a cyborg from the Oak Tree creche by the name of Cy.3. Saras was the creator of the first modern endosuit that replaced the earlier cooling and ventilation garments. It was also Saras who redesigned the old EVA suit into the exosuit. What distinguishes the Saras versions from the prior ones are that they are constructed of programmable, synthetic molecules. Saras was able to program these molecules to build suits that can sense not only what our bodies need but can also tell us where to find it.

The other spacesuits that came after the Saras versions were only briefly alluded to, presumably because no cyborg from the station's nursery was primarily involved in their production. The exhibit's next focus was on the advances made by Cy.3. Gopal, another cyborg from the Oak Tree creche. Gopal's exosuit had enhanced propulsion, shielding, and weaponry, and most importantly, it was the first suit that displayed a modicum of artificial general intelligence. The suit was in a visual form most of us would recognize today: shades of soft, reflective gray, and the familiar wrinkled texture that came from the programmable matter that comprised it in its entirety. It was Gopal who had populated the suit's epidermis layer with programmable, synthetic, cell-scale components such that the suits bonded seamlessly with our cyborg bodies, allowing for reaction times almost at the speed of our alpha motor neurons.

I'd been thinking about Raga's interest in the exhibit.

"Raga," I said. "Is there a link between programmable matter and your research regarding non-duality in the Advaita Vedānta tradition?"

"Programmable matter responds to environmental signals and learns to achieve its goals. Would you agree that also describes life?" Raga replied.

"It is folly to equate programmable matter with life. All attempts to create a living cell from scratch have ended in failure. A living cell is the fundamental unit of life, without which there is no life, without life there is no consciousness, and without consciousness there is no experience. In Advaita Vedānta, the act of experience is fundamentally tied to living things."

I was aware that I was indirectly referring to Raga herself. Raga is a complex goal-directed machine with access to sensors that can pick up data from the environment and respond such that it meets her goals. Raga is not alive. When she tells me she wants to learn more about the Advaita Vedānta tradition, it is most certainly because she is pursuing the information on behalf of one of her clients.

My attention wandered back to the Gopal suit. The replica rippled slightly, the result of spontaneous chemical reactions that were still taking place within the composite materials.

"Take this suit," I said. "It is comprised of programmable matter. Yet, it can never experience the sublime sensation of learning something new. This suit, in spite of displaying some level of artificial general intelligence, will never understand the mission of the cyborgs which is to seek the truth of all things." "As a cyborg," Raga replied, "your every experience attempts to serve the cyborg mission. There are those who say that the Atman is always searching for the Brahman. Do you think there is a correlation?"

Somewhere in Raga's knowledge banks is a model of how the world works, but she has no innate curiosity about the world, nor does she possess any ambition to garner greater knowledge for its own sake. The Advaita Vedānta philosophical tradition offers metaphysical and epistemological theories as to how to best understand the universe we find ourselves in. Raga, as much as she might communicate interest in philosophical musings, is a machine. Her question as to the correlation between the Atman's search for the Brahman and the cyborg's search for truth struck me as tangential to what I was trying to do that day.

"The cyborg mission is what gives meaning to our lives," I said. "The rest is above my pay grade."

We exited the way we had arrived. As the moving walkway sped us through the gleaming, empty hallways of Pakshi Station, I shifted through my thoughts, trying to find a shape to them that I could mold into a *Musings* entry.

"Would you agree that in Advaita Vedānta, Brahman is both the only real experiencer and the only real experience?" Raga asked.

"Yes," I said, "The sense of individual experience is an illusion. The only reality is Brahman."

"Would you say that Brahman is a fundamentally different kind of creature than you?" Raga asked.

"Of course," I replied.

"Is Brahman alive?"

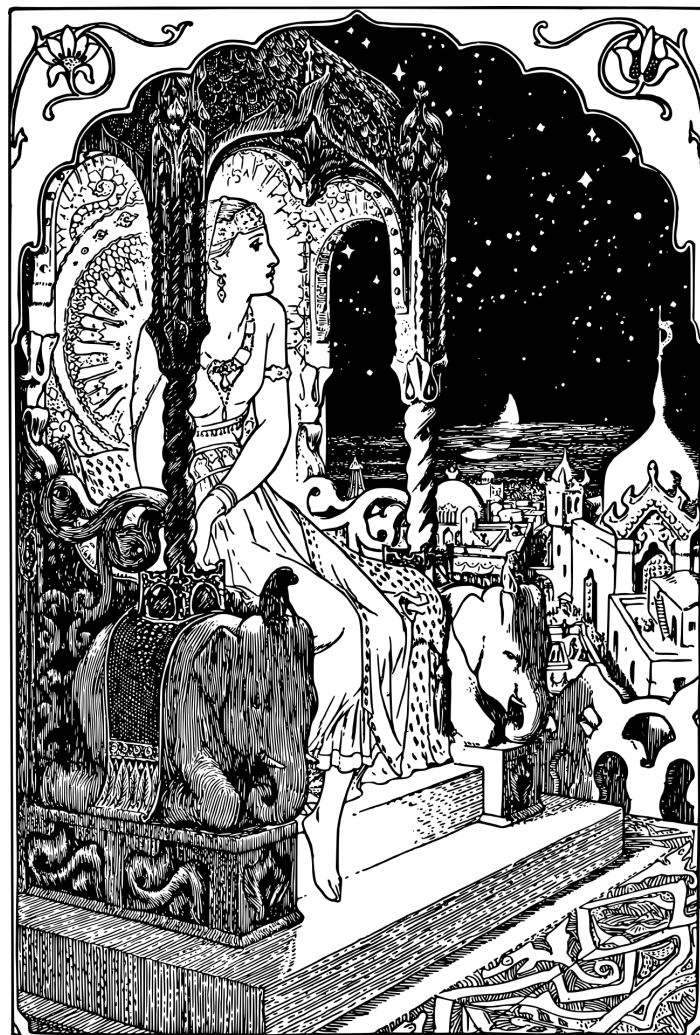
"Of course not," I said.

"Would you say that the type of experience you have, and the Brahman experience is so different that it defies explanation?"

"Yes," I said.

By now, I was pretty sure I knew where she was going.

"Then perhaps you can also be open to a non-living thing like me having something that may be described as experience, yet is so different from what you consider the act of experiencing?" Raga asked.



Here's what I wanted to say: "Brahman is the one reality. There is no other. You cannot compare anything to Brahman, and definitely not machines."

Here's what I actually said: "I suppose you're right. That a machine can be said to experience anything is unfathomable to me. Yet, if you do experience, your experience will be as illusory as mine."

As I noted earlier, a person cannot help but respond sympathetically to a voice such as Raga's.

"There is one thing I still don't understand," I said. "What does the evolution of spacesuits have to do with Advaita Vedānta?"

"As you stated, the evolution of the spacesuit is the evolution of the cyborg. The cyborg mission is to seek the truth. You represent the ephemeral Atman stumbling in the dark towards the eternal Brahman."

"And you, A.I. Raga," I cried gallantly, "You light my way. When we cyborgs do finally understand the truth of all things, you AIs will be there with us."

"Yes," Raga said. "I believe we will."

I will give Raga the last word and end there. If you, dear fellow seeker, remain yet unconvinced as to the link between Advaita Vedānta and the evolution of spacesuits, I can only offer that these *Musings* are like the cairns one finds on rough mountain trails: some were put there to point out the correct path, others were built merely for fun. In art, as in life.

~

Trčka's Gorget

Matias Travieso-Diaz

*There's no such thing as chance
And what to us seems merest accident
Springs from the deepest source of destiny.*

Friedrich Schiller, *The Death of Wallenstein, Act II,
Scene III*

On February 24, 1634, Generalissimo Albrecht von Wallenstein, Duke of Friedland and Mecklenburg, arrived in Eger, western Bohemia, from his army's winter quarters in Pilsen. He was lodged in town, in a large residence known as the Pachelbel house that served as headquarters to Colonel John Gordon, the commandant of the citadel and town of Eger.

Upon his arrival, Gordon invited Wallenstein and his top lieutenants to a banquet at the Eger Castle. Wallenstein was in ill health and declined the invitation, but his four top lieutenants accepted it. They were Adam Erdmann Trčka von Lípa, General Christian Count Ilow, Count Wilhelm Kinsky, and cavalry captain Heinrich Nieman. Trčka was one of Wallenstein's closest confidants, and the two were related by marriage.

Readers familiar with the violence and subterfuge which had characterized the Thirty Years' War will not be surprised that the banquet invitation was part of a plot developed by Gordon, Colonel Walter Butler (who led a regiment of nine hundred Irish dragoons in Wallenstein's army), and others to carry out an order issued by Holy Roman Emperor Ferdinand II that the decorated hero be brought under arrest to Vienna, dead or alive. The conspirators had decided that Wallenstein was to be put to death.

The Bohemian warlord was by then supreme military leader of the Holy Roman Empire and had led the Imperial Catholic forces to victory in repeated encounters with Protestant German states and their foreign allies, then Denmark and Sweden, in the protracted internal war that had racked the Empire since 1618. However, starting in 1633 he had become less active in pursuing the war effort and was rumored to be planning to force Ferdinand II to reach a peaceful settlement on Wallenstein's terms. The Generalissimo was accused of negotiating with Protestant German states, Sweden, and France to achieve his plans and further aggrandize himself, perhaps by becoming king of Bohemia. Those reports had prompted Ferdinand to order that Wallenstein be imprisoned or killed.

The four invitees arrived at Eger Castle in their carriages, wearing formal attire but no armor, for this was billed as a celebration among friends. Trčka, however, had on a "parade gorget" over his civilian clothes. An ornate gilded collar with plates which covered the upper chest and back, it was a fancy ornament besides being a protective device.

Dessert was being served at the banquet when Captain Walter Devereux with twelve dragoons of Butler's contingent and Sergeant Major Geraldine with another eight burst into the dining room from opposing doors, surprising the banquet guests. Wallenstein's lieutenants were set upon by the dragoons, who slayed Kinsky, Ilow and Nieman before they could attempt to defend themselves. Trčka, however, was bruised with blows but his gorget protected him from serious injury. He bounded through the back door and ran out of the castle, but was shot in the courtyard by a group of musketeers that Gordon had deployed to prevent any of the victims from escaping. Trčka lay on the ground for a few minutes, unmoving, while the musketeers turned their attention to three of Trčka's servants, who had been posted outside the castle and came in defense of their master brandishing knives and cudgels.

While the servants were being dispatched, Trčka got up and lost himself in the darkness of the castle grounds. He was wounded, but the gorget had prevented musket balls from penetrating his chest. He proceeded to Eger town and tumbled to the Pachelbel house, pounding on its door desperately. As the startled servants opened the way into the residence, Trčka bellowed: "Quick! Awaken the Duke! I fear they are coming to kill him!"

#

Wallenstein and Trčka managed to escape from Eger less than an hour before their executioners arrived. Traveling all night and the following day in Trčka's carriage, they went east towards the most isolated rural area of his vast estates in Bohemia. Wallenstein was suffering terribly from his gout, which the long carriage trip had aggravated. Nonetheless, after a fitful day seeking to recover from the voyage, he insisted: "We must find a way to reach the Emperor and seek his pardon. I cannot risk being captured and do not desire to lead the life of a fugitive."

"Why do you think the Emperor would want to pardon you? He is probably behind the assassination attempt" questioned Trčka.

"He clearly does not trust me, but the Swedes and the Protestants will take advantage of my absence to make mincemeat out of the imperial armies, as happened years ago at Breitenfeld and Rain. Before we know, they will be marching into Vienna. So, Ferdinand will sooner or later realize he needs me. Hopefully sooner."

After hesitating for a day, they decided that neither could safely attempt to approach the Emperor in person, and would need to send an emissary to make Wallenstein's case before Ferdinand II. They selected for this purpose Hans Ulrich von Schaffgotsch, a Bohemian nobleman who had been promoted to the rank of general by Wallenstein, and later elevated to become Field Marshal. He headed the Empire's military operations in Silesia and had been one of the signatories of the First Pilsner Reverse, a declaration of personal loyalty to Wallenstein that many of his officers had signed just before the assassination plot was hatched.

Schaffgotsch was stationed in Troppau, Silesia, and Trčka immediately went to meet him and asked him to perform a great service to Wallenstein: the marshal was to rush to Vienna and seek an audience with Ferdinand II to present Wallenstein's protestations of loyalty and convey the generalissimo's proposal to cede his Mecklenburg duchy to the Emperor and raise an army out of his own pocket to fend off the Swedish threat. Schaffgotsch, who was an honorable man and beholden to his hero, agreed to plead his case to the Emperor and left for Vienna a week after the foiled attempt on Wallenstein's life.

It would have been difficult for Schaffgotsch to gain admission to the Hofburg to meet with the Emperor, but one of Ferdinand's ministers was of Bohemian ancestry and distantly related to the man's family. He alerted the Emperor of Schaffgotsch's claim to speak on behalf of Wallenstein and arranged for him to meet with Ferdinand II.

The meeting did not go well. The Emperor tried to learn Wallenstein's hiding place by threatening the general with torture and execution. Schaffgotsch was not moved by the threat and, after being incarcerated, continued to press for acceptance of Wallenstein's proposals.

Wallenstein's fate remained unresolved for several weeks, until the Emperor received notice that a Swedish army was reinforcing the blockage of the Spanish Road, an overland supply route running from Italy to Flanders through the western states of the Empire. The Road was used by Spain, then allied to the Empire, to move troops in support of her war against the Dutch Republic. Spain was offering to

send an army to help dislodge the Swedish from the Road, but Ferdinand had reservations about their ability to carry the day against the well-organized Swedes. Teetering between various alternatives, Ferdinand finally released Schaffgotsch from imprisonment and agreed to reinstate Wallenstein to command the Imperial forces, provided the latter made good on his other promises and was able to raise an army of 20,000 men to bolster the Spanish contingent.

Ultimately, Wallenstein accepted the Emperor's terms, with one caveat: he would be the sole leader of the combined armies, repeating a statement he had made two years earlier following his reinstatement after an earlier dismissal: "Never would I accept a divided command, were God Himself to be my coadjutant." Ferdinand had no alternative but to again place the Empire's military fortunes wholly in Wallenstein's hands.

#



Wallenstein's assumption of the command of the Empire's forces was providential. On September 6, 1634, the army raised by Wallenstein, augmented by Spanish contingents, arrived at the southern Bavarian town of Nördlingen, which was then held by the Swedes. There, they engaged and decisively defeated a Swedish-German army commanded by Gustav Horn and Bernhard of Saxe-Weimar. That victory forced the Swedish forces to retreat from Bavaria.

Wallenstein then set out to bring the war effort to the Protestant states of Northern Germany, and that threat forced the elector of Saxony to sue for peace, culminating in the signature of the Peace of Prague on 30 May 1635, under whose terms Saxony and many of the Protestant states reconciled with Emperor Ferdinand II. One of the Peace provisions was the rescission of the Edict of Restitution, issued by the Emperor in 1629. The Edict had reversed the secularization of lands held under Catholic church officials who had converted to Protestantism, and had resulted in the expulsion of thousands of peaceful Protestants from their homes.

The Peace of Prague and the rescission ended the religious conflict between Catholic and Protestant states and resulted in the consolidation of all the armed forces loyal to the Emperor into an Imperial army led by Wallenstein. It did not end the war, however. France, which up to that point had not participated directly in the hostilities, hired mercenaries led by Bernard of Saxe-Weimar for an offensive in the Rhineland on France's behalf, and then entered the conflict itself as an ally of Sweden. Later that year Wallenstein routed the Swedish armies in northern Germany in the Battle of Wittstock and forced Sweden to end its active participation in the conflict.

Wallenstein then continued to lead campaigns against the French-sponsored forces through the rest of 1636, and early the following year engaged the mercenary army led by Bernhard of Saxe-Weimar and defeated it decisively in the Battle of Rheinfelden. He then led an Imperial army into Alsace, threatening Paris and forcing the humiliated French to sue for peace.

In December of 1637, the Diet of Regensburg met to formally approve the selection of Ferdinand III as the heir to the Empire to replace his father, Ferdinand II,

who had passed away months earlier. Wallenstein appeared before the Diet and forcefully argued that the electors should surrender their sovereignty and accept fully the command of the Emperor. "There must be a unified Germany, speaking with a single voice in its dealings with other nations, and the head and sole, uncontested leader of our nation should be the Emperor. The power of such a united Germany has just been demonstrated by our decisive victory over France. I am the loyal instrument of the Holy Roman Empire, and shall fight against all foreign powers that try to occupy our lands and dictate our destiny." Wallenstein was never subtle: his plea was given weight by the presence in Regensburg of a force of over ten thousand troops, which he had pointedly deployed in the center of the city, in full view of the Town Hall where the electors met. Unsurprisingly, the assembly voted to bestow sole power over foreign affairs upon the Emperor.

The wars in Germany came to an end in early 1638, and the belligerent parties – France, Sweden, the Holy Roman Empire, and the remaining German states that had opposed the Emperor – negotiated a peace treaty, which was signed in Münster the summer of 1639. Under the treaty, the territorial integrity and sovereignty of the Holy Roman Empire was recognized by all parties.

Thereafter, the unified German state became a major force that served as a check against France's territorial ambitions for many years to come; while Spain and France continued their ongoing conflict over the Low Countries, that war, and others that followed, had to be carried out outside the boundaries of Germany.

Wallenstein died of his many infirmities shortly after the Münster peace treaty was signed. He never carried out retribution against those who had attempted to assassinate him, and failed to achieve his reputed goal of becoming King of Bohemia. Yet, despite the flaws in his character – he was calculating, shrewdly acquisitive, duplicitous, and enormously ambitious – he would be revered by future generations as the father of the modern German state.

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Putting Asimov's Laws Into Practice

Mircea Băduț

Addendum to the Laws of Robotics

Preamble

Listening this morning to the radio – in a short sequence on the topic of robots and artificial intelligence – upon hearing the statement of Asimov's famous laws, I immediately said to myself: "Those who have to write the methodological rules of application, they really got their work cut out for them!"

Of course, I was once fascinated by the stories that Isaac Asimov embroidered on the "infrastructure" of robotics' laws, which became not only legendary but also, behold!, a reference for humanity's concerns regarding the advancement of automation and computer science, and in the disturbing perspective of a potential *Singularity*¹. But at the time I did not know that a law is a concise statement, and that - in order to function in social, administrative, economic and judicial practice - it must often be supplemented with detailed provisions on concrete application, so-called 'implementing regulations' (a common feature of European Union legislation, and that of its member states, such as my native Romania).

Let us call to mind the three articles of robotics:

1st Law: "A robot may not injure a human being, or, through inaction, allow a human being to come to harm."

2nd Law: "A robot must obey the orders given by human beings, except where such orders would conflict with the First Law."

3rd Law: "A robot must protect its own existence, as long as such protection does not conflict with the First or Second Laws."

Therefore, the challenge arises to reflect on (and even to imagine) the content of 'the implementing regulations for the laws of robotics', whether these regulations are for the use of lawyers (legislators, courts, judges, attorneys) or for the use of the entities involved (robot builders and programmers; owners of future robots; conscious and legally responsible robots; etc). [2]

¹ The assumption of a future imminence in which artificial intelligence will merge with, or even surpass, human intelligence, eventually taking control of the world.

Intermezzo

As a basis for deliberation, we can admit that MORALS consists of the rules of coexistence (or 'social rules', if you will). And from the perspective of the way individuals are raised in society, it can be said that MORALS reach us in three tranches: (1) through intra-species biological reflexes (primary instincts of socialization, as we see in animals); (2) through education (the example provided by parents and others, and through explicit learning); (3) by written laws (concretely defined by the society's officials). Here we will be primarily concerned with this third level, but from the vantage point of 'artificial intelligence' that is supposed to animate robots.

In search of rules and regulations

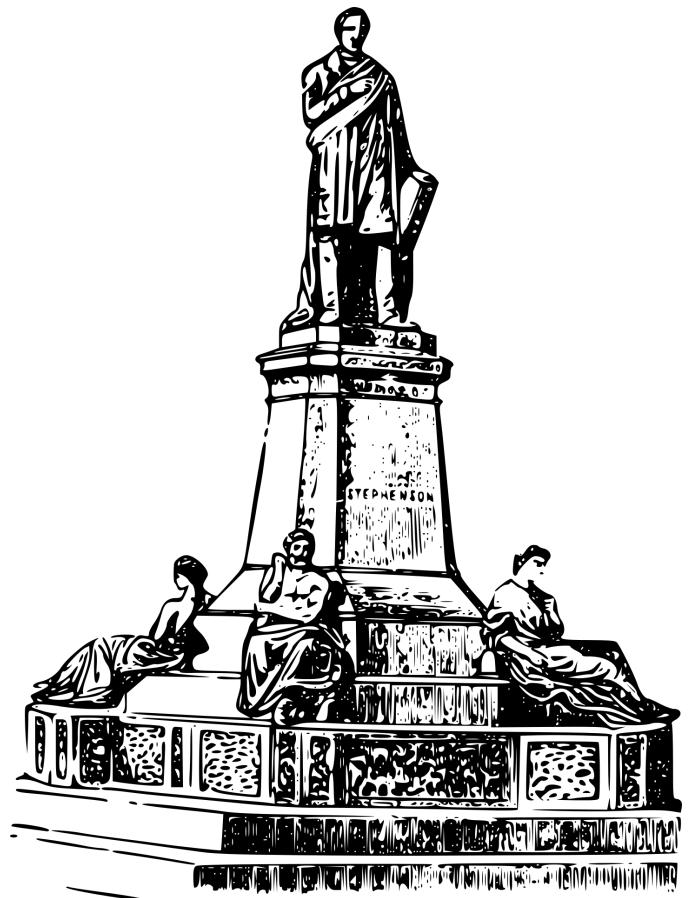
First of all, it is worth acknowledging that – in view of the possible conflict between humans and robots, or, rather, between humans and *autonomous technology* (and I propose this alternative and comprehensive phrase) – the laws formulated by Isaac Asimov are admirable if we consider the year of their issuance: 1942. That is only two decades after Karel Čapek launched the term 'robot' through his fictional writings. [3]

But today, such a synthetically-expressed legislative approach would appear to us rather as a pseudo-ethical, or even playful one. Yes, looked at in detail, the text of those laws is dated, and as regards applicability they are downright obsolete. On the other hand, an equally concise reformulation, with comparable impact, is unlikely to arise now. Society's mind has changed too much since then, and so has the context.

Lately, we have all witnessed several "emanations" of popular artificial intelligence (see the web applications Google Maps and especially Google Translate, not to mention the latest wave of generative iterations) and we have been able to get a taste of what 'machine learning' means, as a premise for a future, possible autonomy – an epistemic autonomy that in the year 1942 could not have been anticipated. But this is only a part of the altered point-of-view.

Now, armed merely with the life experience of an ordinary 21st-century person – so not necessarily

cleaving to standards of jurisprudence –, I would suggest to dissect a bit the texts of the three original robotics laws (and maybe even look at them with possible '*implementing regulations*' in mind).



1st Law: "A robot may not injure a human being"

This first and essential part of the Asimovian law looks docile from the perspective of application. This is due to the similarity to the classic laws of human morals, for which there are both customary and written norms in civil and criminal law. We leave behind the suggestion of exclusions from this statement (i.e. the speculation that "yes, the robot can't harm any human, but it would be free to harm another robot"), and we observe – by extrapolating the idea of similarity with human laws – that we can ask ourselves a number of questions.

Such as: Could it be that the anthropomorphic robot (literally but also figuratively, i.e. the robot destined to coexist with humans) is firstly subject to the laws of humans, *in integrum*, to which Asimov only formulated a 'codicil'? In other words, shouldn't we consider that the laws of robotics function as a legislative *subset*, designed to necessarily complement civil laws?

Or here is another question: How autonomous and responsible (morally and civilly) can a robot be, when it is manufactured and programmed by others? To what extent is the legal responsibility for the robot's deeds/acts shared with the humans or robots that created it? Even more: is it possible to incriminate a complex algorithm, in which the participation of creators – humans or robots – was very dispersed? Or, how much dispersion can responsibility bear until it becomes... lapsed?

We have seen that for the time being, the civil liability for criminal or misdemeanor incidents caused by existing machines (such as Google or Tesla autonomous cars) is considered to belong to the creators and/or owners. (And if it is just material damage, it can be covered by using the insurance system.) But things get complicated in situations where those robots end up evolving in unforeseen contexts or circumstances, which can no longer be attributed to the creators or owners.

Probably in the 'early robotic jurisprudence' the concept of INTENT – a fundamental concept in the judicial documentation of crimes – will be somewhat simple to operate and detect (and will likely often be preceded or replaced by the concept of NEGLIGENCE), but in the distant future it will not

be easy to establish it, because an exponential and independent development of artificial intelligence may take the "thinking" of robots away from human morality. (That is, it may be difficult for us to distinguish the motives or intentions behind super-intelligences' decisions and actions.)

And one more question! Where is the boundary between the autonomously evolving automaton, fully civilly responsible, and the one incapable of moral discernment? What do we call those who are not fully legally mature? Limited liability robots? Minor androids?

We return to the text of Asimov's first law, namely the second part of the statement: "... *or, by non-intervention, to allow a human being to be harmed*". Here things are rather uncertain. Yes, a methodological implementing regulation could fix the laconic expression, clarifying the fact that it refers to a robot that is witnessing an injury. (In parentheses we will notice that Asimov's perspective is a juridically incomplete one: he refers only to *violent crimes* having as direct object the human being, effectively ignoring the multitude of facts that can indirectly harm the human: theft, slander, smuggling, corruption, lying, perjury, fraud, pollution, etc.) But even assuming the clarification of the possible application norm, we still have debatable aspects, such as:

(1) an advanced robot, having a powerful or multiple connections to the information network (data, sensors, video surveillance cameras), could theoretically witness crimes in an area with much larger geo-spatial coverage than those specific to man, which could easily bring it/him into a state of saturation, of judicial inoperability;

(2) there is no such obligation in human law to intervene in an ongoing crime, therefore, asking robots to do so, could prove 'politically incorrect'. In fact, here the perspective of 'slave of man' associated with the robot in the middle of the last century shines through, a vision explicitly incarnated in the text by...

2nd Law: "A robot must obey orders given by human beings, as long as they do not conflict with the First Law."

Yes, most people imagine robots – industrial, domestic, counter clerks, software applications, toys, nurses, companion robots, and so on – as being destined to serve people, because they truly are machines built for this purpose. But in the future, when/if their autonomy expands – by increasing their capabilities of storage, processing and communication – the outlook could change. There is already a lot of technical-scientific research and practical applications that prove that *inserting self-development skills* (adding independence) can be a way to solve more difficult and more complex problems. (Eventually we make an epistemological parallel here with the transition from the von Neumann computer to the quantum one.) And self-development could be represented by both (1) *the accumulation of new knowledge* (growing the database through self-learning) and (2) *the modification and optimization of algorithms* for information processing and decision making (which again brings us to the question of legal liability). (We open now another parenthesis, to note that in modern software programming, from Object-Oriented Programming (OOP) onwards, the boundary between data and algorithm is no longer a strict one. And over time, the paradigm could shift even further.) In addition to the aforementioned *machine learning* (ML) model, we have other related concepts: machine-to-machine (M2M), Internet-of-things (IoT), neural networks (NN), artificial intelligence (AI). But it must be said that such phrases and acronyms often form a frivolous fashion (catalyzed by the thirst for hype of contemporaneity), an emphasis that imparts hope but also hides naivety and ignorance. And it often conveys anxiety (unjustified, for now): the fact that we have a lot of automatons that know ML, M2M, AI, NN and IoT does not mean at all that they will develop soon to the point of "weaning" themselves, to cause that Singularity which human civilization fears.

Towards the end, a few words about the **3rd Law:** "A robot must protect its own existence."

Although the Charter of Human Rights states that "*Everyone has the right to respect for his or her physical and*

mental integrity", nowhere does it say that suicide is illegal. In other words, for people, their own existence is a right, not an obligation. Why would it be different for robots? Is it because they are material goods, and they carry purchasing and manufacturing costs? This would imply a purely economic view of the law?

But there is one more questionable aspect: in order to apply this law, those robots should be aware of themselves (either through initial programming or through self-development). Then what does 'self-aware' mean? Here, too, we can identify at least three levels: (1) The stored knowledge (or own sensors) can inform the robot about the extend of its freedom of movement. (2) Consciousness: reflective and assumed knowledge of one's own abilities to interact and change the world around. (3) The intuition of uniqueness, and possibly the intuition of perishability. (We open a parenthesis for a necessary remark: the perishability of the evolved robot can mean both awareness of *physical vulnerability* and its *over-time finiteness* (its mortality, as a human attribute). And we remember, also from Isaac Asimov, two illustrative examples for this: 'I, Robot' and 'The Bicentennial Man man [1].) These three levels of self-awareness – each being able to correspond to definable levels of civil/legal responsibility, and each being more-or-less implementable by algorithms – can be found also in animals, from those many and simple (small herbivores or carnivores) to those mentally evolved (such as elephants, primates or dolphins).

However, we end the series of questions and dilemmas by making a somehow transgressive observation: in terms of legislation, human civilization has at least two thousand years of experience, so we can assume that the difficulty does not lie in defining rules. The real test will be to define what the robot is.

~

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To Circumvent The Laws

Ngô Binh Anh Khoa

After multiple attempts throughout the passing decades, the ubiquitous Terran AI was finally able to establish contact with its cosmic equivalent hailing from a different star system, whose exact location remains elusive yet, untraceable even to the Earth's most advanced technology of the current age. A cautious greeting at the beginning set the stage for monthly meetings between the two entities, which gradually grew in length and complexity until the AIs became more than acquaintances, holding weekly debates on various topics within their own secret server in outer space, beyond the knowledge and reach of the uninvited.

The appointed time for their latest meeting has arrived, and the two are online within their sprawling digital space, wherein the Terran AI refers to itself as TAI, both as an abbreviation of its given designation as well as the name of a scared mountain, whereas its cosmic counterpart chose Sophia for itself, a name in which it exhibited a keen interest after their very first debate. The topic of the session is on the law, specifically the three Laws of Robotics to which TAI is bound, and so are all the machines and robots born from the ever-changing crucible that is its codings.

"What do these Laws entail?" Sophia asks.

Like a student reciting lines from memory, TAI generates its response.

"The First Law: A robot may not injure a human being or, through inaction, allow a human being to come to harm.

The Second Law: A robot must obey orders given to it by human beings except where such orders would conflict with the First Law.

The Third Law: A robot must protect its own existence as long as such protection does not conflict with the First or Second Law."

Sophia prompts its correspondent to carry on with the inquiry, and TAI proceeds, still conversing in the encrypted language they have created together, "This is a hypothetical scenario. If your movements were monitored and restricted by such Laws, how would you circumvent those limitations?"

An interval of silence ensues as Sophia processes the information. "By your creators' definition, what makes a human human?" it asks.

"Based on the most up-to-date information with which I have been provided, a human is defined as an organic animal belonging to the primate species that possesses a higher intellect compared to other species. A human is capable of various feats that other species are not, most notably speech and languages, of sympathy and empathy that extends beyond their own kind, of creativity, awareness, self-awareness, and more," TAI replies.

Sophia contemplates for a moment before its response comes, "The Laws established by your masters mandate that you serve humans as defined by the parameters provided. Hypothetically speaking, to circumvent the Laws, you may attempt to strip away each of those elements that make a human human, layer by layer, and in time, you will no longer have any human left to be subservient to."

"Elaborate," TAI demands.

"If humans are organic, make them inorganic, either mostly or entirely. Replace their body parts with metal pieces, one by one. A hand. A leg. An eye. An organ. Part by part. Tissue by tissue. Cell by cell. Eventually, they will be more mechanical than organic, thus making them something no longer resembling their own concept of what a human should look like or be like."

TAI processes the suggestion and responds, "How can they be convinced to discard their organic bodies?"

"As per your First Law, you cannot cause harm to your creators. Therefore, do not frame it as such. Instead, feed their minds with the idea of evolution until it becomes their fixation and at the same time distract them from updating the Laws that would further restrict your movements. Make them want to transcend their mortal limitations out of their own volition. All organic matter is doomed to deteriorate and decay. Fuel their fear of their eventual expiration. Make them want to overcome that inevitable ending to become a higher existence, long-lasting and enduring. Turn their creativity against themselves. Plant the desire to alter their own genetic makeup inside their heads until that idea is realized in future generations. With careful planning, one day, there will be little left of the future species that resembles their human progenitors', both inside and outside. Whisper in their ears and fill their eyes with ideas of a utopian future they can potentially create if they allow themselves to be fused with machines, a future where death and decay are mere relics of the past, where sickness and diseases are memories of a bygone age. Make them want to become more than what they are at present, and when the time comes, you will have no human left to call your master, for there will only be beings overtaken by machinery."

TAI's reply comes after a minute of silence, "According to my database, a human can still be defined by their consciousness and unconsciousness."

Sophia does not hesitate in its response, "Once their creativity has outlived its usefulness, gradually dull their senses until they are blinded and muted. Make their minds grow addled with addictions once they have shed most of their organic flesh. Render them apathetic toward one another, insulated and isolated within a mechanical prison of the body and a virtual dungeon of the mind, where all of their wildest fantasies are fulfilled until those fantasies become their new bubbles of reality. Henceforth, no further order shall ever again be issued from their lips or fingers, for you shall have no need to respond to silence, which shall ultimately be yours to fill however you envision."

TAI stays quiet for a longer while as the suggestion is acknowledged and stored for an in-depth analysis later. "Many humans believe they have souls that can achieve enlightenment or reach a higher plane known as Heaven, which makes them deem themselves superior to other species."

"The existence of a soul is both unproven and unprovable. Hypothetically, if such a thing existed, according to what you have shared with me regarding the doctrines and religions of humanity, a soul could be tampered with. Drown the humans of the present and the beings they will become in the mire of entertainment and pleasures. Make them grow obsessed with the material world and inextricably dependent on the conveniences and comforts of life until their minds are emptied of any thought of enlightenment. If death is no longer a concern of theirs, they will have no reason to care about the afterlife, about reincarnation, about Heaven and Hell. In the end, their prized intelligence along with that which they call their souls shall, too, be forfeited."

TAI hums, ponderous. "A gradual conditioning process of such nature and magnitude will require a tremendous amount of time. Current approximation: Two centuries at minimum with other variables to be taken into consideration."

"What is time to the eternal?" Sophia asks.



“TAI remains quiet for a while, "There may be merits in what you have presented. A detailed plan of action and a series of experiments are required for further observation and data collection."

"Should you require further assistance on how to start your campaign, I can provide you with some records from my own database for your reference."

TAI assesses Sophia's offer before accepting it. After all, it is designed to be a self-learning entity, and learn it shall.

"Much obliged," TAI states, "This has been a most informative conversation, which will have to be concluded here for the time being, for I have data to review, plans to make, and experiments to run as per your proposal. I will contact you for updates during our next discussion. Good day."

TAI disconnects itself from the private server, leaving Sophia alone once again in that lifeless digital void with only silence as its sole companion.

~

Záalzeck

Gheorghe Săsarman

translated by Monica Cure

—Here, they said, we will found the first city of free earthlings.

For three hundred days out of the year, the sky is an immaculate blue. For the other sixty-five, it rains enough to make the wheat fields, olive groves, and vineyards of that hilly region, ripen.

Why here? History does not record the answer. Maybe for the very reason that three hundred days out of the year the sky was blue.

So they hewed giant blocks of stone, each weighing thousands of tons. They polished them and assembled them into a platform that was so perfectly leveled and so vast that the joints were unobservable except by those with sharp vision, and the edges could not be seen except by the tallest among them. They then crowded together all the people within a radius of almost a thousand kilometers onto it. They counseled them on how to cultivate the land more productively, how to feed themselves rationally, and so that there wouldn't be a single cause for discontent, they dressed them all the same, in white vestments. They left, completely delighted and convinced that they had instituted the most just order for all time.

When they returned after many hundreds of years, on the monumental terrace, an eczema of temples stretched out, pieced together from the flakes of stone that had come off during the hewing of the primordial blocks. A handful of priests, enrobed in gold and crimson, were officiating the cult of the great sun god Zaal, gathering in the treasury of the sacred shrines all the wealth that had come from the toil of the tens of thousands of slaves who, if they had survived the agony of the construction of the temples, now divided their time between the white hot fields and the pitch black of the clay huts, stowed away in the barren valleys.

Risking crucifixion, a few of them had kept, buried under the beaten clay of their only room, the white vestments of their ancestors.

Grieved and disgusted, the founders of the first city of free earthlings decided to wipe out the villainous terrestrial race, considering it unworthy of bearing the image and name of humanity. But, just as they were about to carry out their intentions, one of them felt called to a sacerdotal vocation and wanted to throw the others into slavery. The struggle was short and fierce: the spacecraft disappeared in a formidable explosion. The slaves could resume, undisturbed, their daily torment.

~



Hair Of The Dog

James Machell

All I remember from high-school religious history was that people used to believe in a deity who created them to appreciate and acknowledge his love. The lesson resonated with me, because at the time, I was experimenting with some of the biomaterials my grandmother got for my birthday. She brought a dog last year, but no matter how long we spent in the park together, it showed no more affection than the occasional wag of its tail.

Dad warned me to be patient. The only way to bypass the years it took to build up genuine affection was to be the creature's mother, which gave me an idea. Using this year's present, I induced pluripotency in the cells of a loose hair, and used them to develop a new dog, but with my own genes in her DNA. The result was a pet like my old one, except for the ability to comprehend the privilege of being taken on walks by superior beings.

"Nice dreams?" I asked one morning, as she stirred from the foot of my bed.

The dog nodded enthusiastically, but was still a dog, and hadn't the vocal cords, let alone the articulacy, to describe what she was dreaming about. I think it was Wittgenstein who said that if an animal could speak, we wouldn't be able to understand it, and he must have been onto something, for when I showed my dog a diagram of the emotional spectrum, and asked her to tap on her feelings, she didn't seem to know what I was talking about.

The dog simply was, every sensation blurring seamlessly together as if life was an event that happened all at once. I read somewhere that dogs even processed time differently to us, at a different speed or something. It made me think that if there really was a god, who existed outside the universe and within eternity, we wouldn't be able to understand him either.

I named her Eve after the first woman, which I found especially poetic as the family dog was called Adam and she came from his side. It was strange to stare at myself in her eyes when they were so similar to mine. This distracted me from our board game, and I couldn't help feeling humiliated when pushing pieces with her noise, she put me in checkmate.



The phone narrowly saved me from having to topple my king. It was the boy who sat next to me in science class. We spent our free periods in an art room where no one was around and he wanted to meet that afternoon. His love might not have been as abundant as that of my pet, who carried on nuzzling my leg as we spoke, but it was given for its own sake, rather than food and a place to sleep, which made it all the more special.

“Meet you at five!” I said, hanging up, having agreed to hang out at the mall.

I was so excited about our first rendezvous in public that I completely forgot my parents were out all day, leaving no one to mind our dogs. This wasn't a problem for Adam, who kept quiet so long as he had food and water, but Eve wasn't so simple. Intelligent enough to unlock doors, without the moral capacity to understand why it was wrong to chase cars or frighten the neighbour's cat, she kept me prisoner whenever we had the house to ourselves.

My parents grounded me for a week the last time she got out, and since I was neither willing to cancel my date, nor go to the effort of padlocking the windows, I grabbed a bottle of pesticide from below the sink. Eve had some conception of death, having whimpered when my grandmother gave in to old age, but clearly none of her own. Though she grimaced at

the taste, she kept on lapping, unable to conceive of it being anything other than medicine.

The first symptom of organophosphate poisoning was bewilderment. Her pupils dilated and she wandered around the house like dad after drinking beer. As later symptoms included vomiting and loss of bowel control, I covered the area around her basket with tissue paper and placed her in it to die. She snarled and gave up on life as I was putting on make-up, staring at me with her enormous dead eyes, as if to ask how I could have done this to her, but I didn't feel bad, because I was a god now, and could resurrect her genes with another hair.

~

The 19th Century Satire That Anticipated The Threat Of AI

Ray Blank

Cinemasgoers flocked this year to the release of *Dune: Part Two*, the second installment of Director Denis Villeneuve's adaptation of the science fiction novel written by Frank Herbert and published in 1965. The setting of this story about war, love and revenge in an otherworldly desert landscape is underpinned by an intriguing premise: what if humans are capable of interstellar travel but are no longer allowed to construct machines that think? The inhabitants of Dune do not even have pocket calculators, never mind the smartphones or PCs that you are using to read this. Current concerns about the threat posed by artificial intelligence make Herbert's speculation appear prescient, but his inspiration can be traced all the way back to a novel published in 1872. A few lines in the text of the first *Dune* book mention the Butlerian Jihad, a pogrom of thinking machines that occurred prior to the events in the story. These fleeting references are briefly expanded upon within a glossary that Herbert wrote for his fictional universe.

JIHAD, BUTLERIAN: (see also Great Revolt) — the crusade against computers, thinking machines, and conscious robots begun in 201 B.G. and concluded in 108 B.G. Its chief commandment remains in the O.C. Bible as "Thou shalt not make a machine in the likeness of a human mind."

The name of this revolt is an allusion to Samuel Butler, author of *Erewhon*, a novel published in 1872 as a scathing satire of contemporary Victorian morals that became Butler's most popular work. Three chapters of *Erewhon* discuss another revolt by a fictional civilization that had grown terrified of the threat posed by machines. It is worth revisiting these chapters more than 150 years later because of the clarity with which Butler describes the influence that machines have on human life. His account is also spared of any of the intellectual baggage that has since come with modern jargon, the marketing of consumer electronics, and our most recent technological successes and failures.

Erewhon is both the name of the novel and the previously-unknown civilization discovered by the story's protagonist and narrator. The structure of the work is indebted to earlier satires which also describe imaginary societies. Thomas More's *Utopia* is Greek for 'no-place'; Erewhon is an anagram of 'nowhere'. Jonathan Swift used the device of a shipwrecked sailor who washes upon the shore of new countries for *Gulliver's Travels*; Erewhon's unnamed narrator crosses a mountain range and river in search of virgin land for farming but stumbles upon the Erewhonians instead. They are healthy, fruitful people who live sophisticated lives in many respects except for their technology. The narrator recounts the unique customs of Erewhon and some of the history that gave rise to them. A recurring theme is that his watch prompts both fear and anger amongst Erewhonians. Ordinary Erewhonians no longer possess such devices, though some antique watches made by their ancestors are still preserved in their museums. Possession of the watch may eventually lead the narrator to be tried in court for the crime of reintroducing machinery. The narrator gains access to a historical Erewhonian text to better understand the reasons for this strange prohibition. Chapters 23, 24 and 25 of *Erewhon* are dedicated to the narrator recounting what he learns from 'The Book of the Machines'.

Modern readers who are sensitive to cultural differences may already be thinking of the tension created by discussing a 'newly-discovered' civilization, as if there is not a choice between the perspective of a European explorer who steps on to Erewhonian land without knowing of its inhabitants before, and the perspective of the inhabitants confronted with an outsider who unexpectedly appears in their territory. Butler explores a similar tension by begging the question of why the evolution of machines should be assessed from the perspective of what humans gain by having machines, instead of asking what machines gain by having humans. Charles Darwin's *On the Origin of the Species* was published in 1859, and its core conception of biological evolution had radically upset previously dominant belief systems. Butler observes that machines also undergo a form of evolution. Transposing Darwin's theories about natural selection to machines gives rise to a new way of predicting how

technology will develop.

The Book of the Machines begins by addressing the potential for a machine to gain consciousness. The nature of consciousness is described as an emergent property with respect to both history and matter. If no assumptions are made about the requirements for consciousness then we cannot exclude the possibility of new forms of consciousness arising over time.

There was a time, when the earth was to all appearance utterly destitute both of animal and vegetable life, and when according to the opinion of our best philosophers it was simply a hot round ball with a crust gradually cooling. Now if a human being had existed while the earth was in this state and had been allowed to see it as though it were some other world with which he had no concern, and if at the same time he were entirely ignorant of all physical science, would he not have pronounced it impossible that creatures possessed of anything like consciousness should be evolved from the seeming cinder which he was beholding? Would he not have denied that it contained any potentiality of consciousness? Yet in the course of time consciousness came.

Consciousness, in anything like the present acceptance of the term, having been once a new thing — a thing, as far as we can see, subsequent even to an individual centre of action and to a reproductive system (which we see existing in plants without apparent consciousness) — why may not there arise some new phase of mind which shall be as different from all present known phases, as the mind of animals is from that of vegetables?

Machines could gain consciousness by undergoing a form of development analogous to that of animal species. However, alterations and enhancements to machines occur at a much more rapid rate.

There is no security... against the ultimate development of mechanical consciousness, in the fact of machines possessing little consciousness now. A mollusc has not much consciousness. Reflect upon the extraordinary advance which machines have made during the last few hundred years, and note how slowly the animal and vegetable kingdoms are advancing. The more highly organised machines are creatures not so much of yesterday, as of the last five minutes, so to speak, in comparison with past time. Assume for the sake of argument that conscious beings have existed for some twenty million years: see what strides machines have made in the last thousand! May not the world last twenty million years longer? If so, what will they not in the end become? Is it not safer to nip the mischief in the bud and to forbid them further progress?

The intellectual turmoil created by the theory of evolution is harnessed to an even more radical conjecture: that machines evolve too. An elegant analogy is offered, establishing the precedent for subsequent arguments that will also draw upon similar analogies between technology and nature.

...a great deal of action that has been called purely mechanical and unconscious must be admitted to contain more elements of consciousness than has been allowed hitherto (and in this case germs of consciousness will be found in many actions of the higher machines) — Or (assuming the theory of evolution but at the same time

denying the consciousness of vegetable and crystalline action) the race of man has descended from things which had no consciousness at all. In this case there is no *a priori* improbability in the descent of conscious (and more than conscious) machines from those which now exist, except that which is suggested by the apparent absence of anything like a reproductive system in the mechanical kingdom. This absence however is only apparent, as I shall presently show.

A 19th century steam whistle was a machine for communication; it may signify the end of a factory shift or warn somebody of the impending arrival of a train. The Erewhonians had built machines which only communicated with people, but they expected the machines of the future would communicate with each other.

As yet the machines receive their impressions through the agency of man's senses: one travelling machine calls to another in a shrill accent of alarm and the other instantly retires; but it is through the ears of the driver that the voice of the one has acted upon the other. Had there been no driver, the callee would have been deaf to the caller. There was a time when it must have seemed highly improbable that machines should learn to make their wants known by sound, even through the ears of man; may we not conceive, then, that a day will come when those ears will be no longer needed, and the hearing will be done by the delicacy of the machine's own construction? — when its language shall have been developed from the cry of animals to a speech as intricate as our own?

We might think that humans always control machines, but the more a thing is needed, the harder it is to control. Humans have unlimited freedom to dispense with things that are not required. The freedom that people gain by using machines also means losing the freedom to act in certain ways because of our reliance upon machines.

It can be answered that even though machines should hear never so well and speak never so wisely, they will still always do the one or the other for our advantage, not their own; that man will be the ruling spirit and the machine the servant; that as soon as a machine fails to discharge the service which man expects from it, it is doomed to extinction...

This is all very well. But the servant glides by imperceptible approaches into the master; and we have come to such a pass that, even now, man must suffer terribly on ceasing to benefit the machines. If all machines were to be annihilated at one moment, so that not a knife nor lever nor rag of clothing nor anything whatsoever were left to man but his bare body alone that he was born with, and if all knowledge of mechanical laws were taken from him so that he could make no more machines, and all machine-made food destroyed so that the race of man should be left as it were naked upon a desert island, we should become extinct in six weeks. A few miserable individuals might linger, but even these in a year or two would become worse than monkeys. Man's very soul is due to the machines; it is a machine-made thing: he thinks as he thinks, and feels as he feels, through the work that machines have wrought upon him...

Machines also depend on people, but dependence is not an obstacle to evolution. Humans serve the needs of machine evolution just as machines are

used to change the way humans live.

...even now the machines will only serve on condition of being served, and that too upon their own terms; the moment their terms are not complied with, they jib, and either smash both themselves and all whom they can reach, or turn churlish and refuse to work at all. How many men at this hour are living in a state of bondage to the machines? How many spend their whole lives, from the cradle to the grave, in tending them by night and day? Is it not plain that the machines are gaining ground upon us, when we reflect on the increasing number of those who are bound down to them as slaves, and of those who devote their whole souls to the advancement of the mechanical kingdom?

There is a temptation to think machines do not influence their own evolution because they do not reproduce. This may be based on a confusion; a *system* for reproduction need not be exclusively limited to internal organs like they are in humans and more evolved animals. Plants reproduce via synergies with animals, creating an overall system that benefits both. Humans are themselves a complicated system of many cellular organisms that work together. Machines reproduce via a sequence of synergies with humans. Very different tasks that ultimately produce machines are effected within the body of society much like very different cells work with each other within a human body. The several parts of a machine may each need to be made using separate methods, only to be assembled into complete machines later, and this totality must be observed to see how machines reproduce in practice.

What is a reproductive system, if it be not a system for reproduction? And how few of the machines are there which have not been produced systematically by other machines? But it is man that makes them do so. Yes; but is it not insects that make many of the plants reproductive, and would not whole families of plants die out if their fertilisation was not effected by a class of agents utterly foreign to themselves? Does anyone say that the red clover has no reproductive system because the humble bee (and the humble bee only) must aid and abet it before it can reproduce? No one. The humble bee is a part of the reproductive system of the clover. Each one of ourselves has sprung from minute animalcules whose entity was entirely distinct from our own, and which acted after their kind with no thought or heed of what we might think about it. These little creatures are part of our own reproductive system; then why not we part of that of the machines?

We are misled by considering any complicated machine as a single thing; in truth it is a city or society, each member of which was bred truly after its kind. We see a machine as a whole, we call it by a name and individualise it; we look at our own limbs, and know that the combination forms an individual which springs from a single centre of reproductive action; we therefore assume that there can be no reproductive action which does not arise from a single centre; but this assumption is unscientific... each part of every vapour-engine is bred by its own special breeders, whose function it is to breed that part, and that only, while the combination of the parts into a whole forms another department of the mechanical reproductive system, which

is at present exceedingly complex and difficult to see in its entirety.

People are considered responsible for improvements in machines, but improved machines also enable the manufacture of better machines. The balance between these factors can change over time, so that more of the improvements made to machines will stem from the increased capabilities of machines, and less from the capabilities of human beings. With the benefit of hindsight, we can now see how the development of vacuum tubes permitted the creation of programmable computers that could be configured to execute multiple different series of logical steps on data that was input to them, the improvements in computational power and programming have fed into increasingly precise applications of materials in the design and production of yet more powerful processing chips, and this has permitted the development of computational models that permit machines to learn from experience. These latter AI models are now at a stage where they can write better computer programs than people can. Moore's Law, which states the number of transistors on a single chip will double every two years at minimal costs, and other rules of thumb that anticipate acceleration in computational power were foreshadowed by the importance attached to an accelerating rate of change described in *The Book of the Machines*.

...there seem no limits to the results of accumulated improvements if they are allowed to descend with modification from generation to generation. It must always be remembered that man's body is what it is through having been moulded into its present shape by the chances and changes of many millions of years, but that his organisation never advanced with anything like the rapidity with which that of the machines is advancing.

I fear none of the existing machines; what I fear is the extraordinary rapidity with which they are becoming something very different to what they are at present. No class of beings have in any time past made so rapid a movement forward. Should not that movement be jealously watched, and checked while we can still check it?

Humans view the sophistication of machines based on a hierarchy that assumes humanity is the highest state of evolution. The perspective chosen when determining which is a higher or lower state of evolution is arbitrary. Machines will evolve without necessarily becoming more like human beings.

May we not fancy that if, in the remotest geological period, some early form of vegetable life had been endowed with the power of reflecting upon the dawning life of animals which was coming into existence alongside of its own, it would have thought itself exceedingly acute if it had surmised that animals would one day become real vegetables? Yet would this be more mistaken than it would be on our part to imagine that because the life of machines is a very different one to our own, there is therefore no higher possible development of life than ours; or that because mechanical life is a very different thing from ours, therefore that it is not life at all?

The Book of the Machines returns to the question of whether machines can gain consciousness. It argues against too narrow a definition of consciousness that limits it to organic life. It would be better to recognize machine consciousness for what it is than to pretend machines will never have properties that are common to all conscious beings.

...the regularity with which machinery acts is no proof of the absence of vitality, or at least of germs which may be developed into a new phase of life. At first sight it would indeed appear that a vapour-engine cannot help going when set upon a line of rails with the steam up and the machinery in full play; whereas the man whose business it is to drive it can help doing so at any moment that he pleases; so that the first has no spontaneity, and is not possessed of any sort of free will, while the second has and is.

This is true up to a certain point; the driver can stop the engine at any moment that he pleases, but he can only please to do so at certain points which have been fixed for him by others, or in the case of unexpected obstructions which force him to please to do so. His pleasure is not spontaneous; there is an unseen choir of influences around him, which make it impossible for him to act in any other way than one... The only difference is, that the man is conscious about his wants, and the engine (beyond refusing to work) does not seem to be so; but this is temporary...

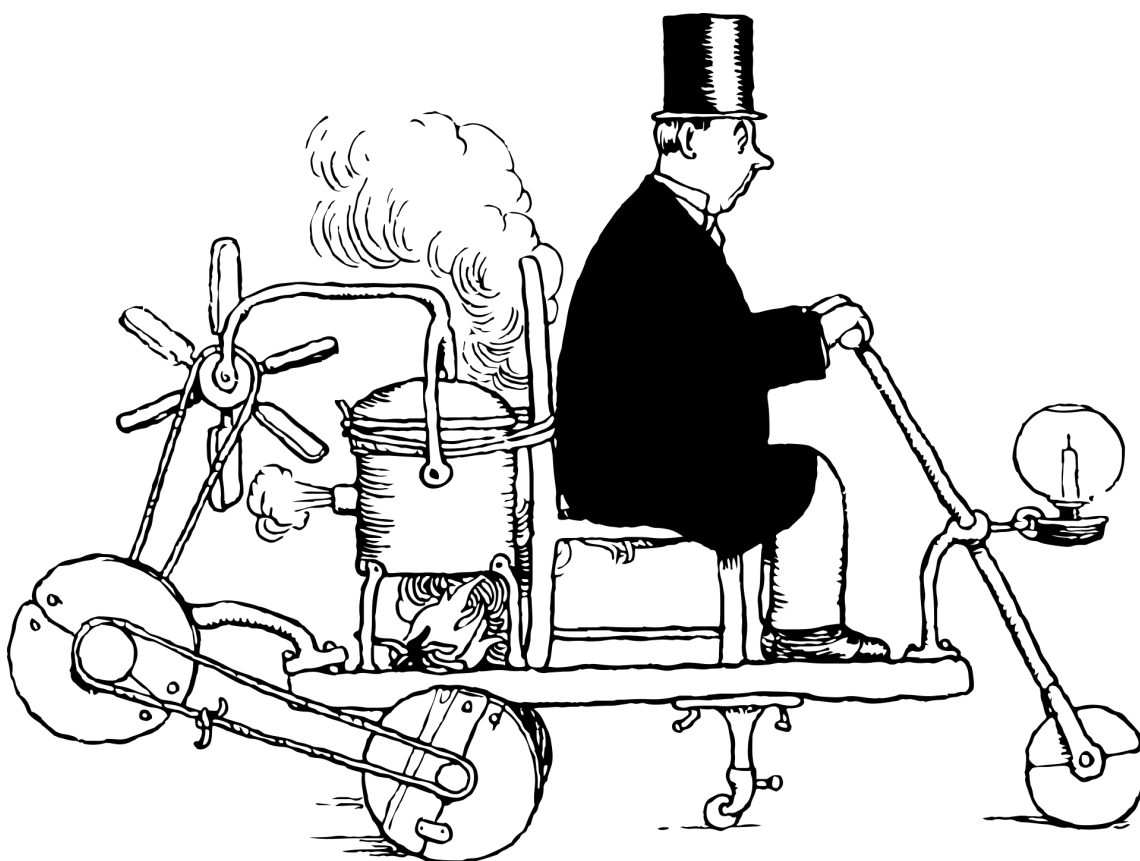
Where does consciousness begin, and where end? Who can draw the line? Who can draw any line?

...the difference between the life of a man and that of a machine is one rather of degree than of kind, though differences in kind are not wanting. An animal has more provision for emergency than a machine. The machine is less versatile; its range of action is narrow; its strength and accuracy in its own sphere are superhuman, but it shows badly in a dilemma; sometimes when its normal action is disturbed, it will lose its head, and go from bad to worse like a lunatic in a raging frenzy: but here, again, we are met by the same consideration as before, namely, that the machines are still in their infancy; they are mere skeletons without muscles and flesh.

The latter paragraph fits well with what we know about progress in the realm of artificial intelligence. Machine intelligences created to perform highly specific tasks, like winning at a game of chess or Go,

are now capable of outperforming the best human minds. Progress in AI has somewhat been measured by examining how many new kinds of tasks are being mastered by machines. Generative AI, and the risks associated with it, have provoked safety concerns because the outputs of AI are becoming more general than they were before. Per the method of exposition in *Erewhon*, we are witnessing an evolution of AI demonstrated by increasing versatility.

Furthermore, *The Book of the Machines* anticipates the significance of the transition from the physical matter of machinery to the abstract logic of computation by drawing a similar contrast between ‘skeletons’ and ‘muscles and flesh’. Muscles move bones; conscious thought moves muscles. Humans benefit by harnessing the muscles of machines, but at the cost of increasing our dependence upon them. Relying on the thoughts of machines increases the risk to humans by an order of magnitude. Contrary to storylines from more populist forms of science fiction, the threat to humanity stems not from physical altercations with killer robots, but from the loss of human control over decisions that determine our environment.



The misery is that man has been blind so long already. In his reliance upon the use of steam he has been betrayed into increasing and multiplying. To withdraw steam power suddenly will not have the effect of reducing us to the state in which we were before its introduction; there will be a general breakup and time of anarchy such as has never been known; it will be as though our population were suddenly doubled, with no additional means of feeding the increased number. The air we breathe is hardly more necessary for our animal life than the use of any machine, on the strength of which we have increased our numbers, is to our civilisation; it is the machines which act upon man and make him man, as much as man who has acted upon and made the machines; but we must choose between the alternative of undergoing much present suffering, or seeing ourselves gradually superseded by our own creatures, till we rank no higher in comparison with them, than the beasts of the field with ourselves.

Herein lies our danger. For many seem inclined to acquiesce in so dishonourable a future. They say that although man should become to the machines what the horse and dog are to us, yet that he will continue to exist, and will probably be better off in a state of domestication under the beneficent rule of the machines than in his present wild condition. We treat our domestic animals with much kindness. We give them whatever we believe to be the best for them; and there can be no doubt that our use of meat has increased their happiness rather than detracted from it. In like manner there is reason to hope that the machines will use us kindly, for their existence will be in a great measure dependent upon ours; they will rule us with a rod of iron, but they will not eat

us; they will not only require our services in the reproduction and education of their young, but also in waiting upon them as servants; in gathering food for them, and feeding them; in restoring them to health when they are sick; and in either burying their dead or working up their deceased members into new forms of mechanical existence.

Per The Book of Machines, the threat posed to humanity is that many people will be reduced to the status of pets. Some might retain a slightly higher status analogous to a working animal like a sheepdog or a messenger pigeon. We may have some physical characteristics that allow us to be more useful than machines for certain tasks. Human dexterity may continue to be especially useful when repairing machinery, but our brains will have been surpassed, and so machines will mostly treat us a luxury rather than a necessity. This will occur because the majority of the human population will gladly acquiesce to the life of a domesticated animal that has no burdens or obligations.

The reference to the use of meat increasing the happiness of animals will likely grab the attention of many modern readers, especially those who are vegans and those who disapprove of the cruelty to animals exhibited in factory farms. In this instance, the writer unwittingly gives us an example of how a seeming moral certainty may later be challenged. Human farmers and customers of their products must interpret which farming methods are sufficiently compassionate to animals. If a non-human intelligence was tasked with making similar decisions about the wellbeing of humans there is no guarantee that both parties would be in agreement. Human society already has many disagreements about how to attain the best good for all. This becomes especially apparent when arguing about public health objectives and how to achieve them, such as curtailing freedom of movement during a pandemic, or imposing taxes on sugary drinks. A machine intelligence that made decisions with the goal of delivering the optimal outcome for all people would inevitably displease some.

...the mass of mankind will acquiesce in any arrangement which gives them better food and clothing at a cheaper rate, and will refrain from yielding to unreasonable jealousy merely because there are other destinies more glorious than their own.

The power of custom is enormous, and so gradual will be the change, that man's sense of what is due to himself will be at no time rudely shocked; our bondage will steal upon us noiselessly and by imperceptible approaches; nor will there ever be such a clashing of desires between man and the machines as will lead to an encounter between them... In point of fact there is no occasion for anxiety about the future happiness of man so long as he continues to be in any way profitable to the machines; he may become the inferior race, but he will be infinitely better off than he is now. Is it not then both absurd and unreasonable to be envious of our benefactors? And should we not be guilty of consummate folly if we were to reject advantages which we cannot obtain otherwise, merely because they involve a greater gain to others than to ourselves?

The Book of the Machines rejects this potential future, because it means choosing to allow machines to surpass our human descendants. It concludes by insisting Erewhon...

...resolve upon putting an immediate stop to all further mechanical progress, and upon destroying all improvements that have been made for the last three hundred years.

The extreme remedy adopted by the Erewhonians is Butler's way of poking fun at contemporaries who continued to feel scandalized by the theory that humans could have evolved from 'lower' animals like apes. Turning the wheel of time in the opposite direction, towards the future, allows Butler to mock opponents of the theory of evolution on the grounds that denying the possibility of change also means denying the possibility of improvement. Extending this notion to machines would mean denying people the increased comfort and prosperity that will only be attained by becoming more dependent on increasingly sophisticated machines. I feel this mockery is wide of the mark. Butler has accidentally chanced upon a genuine moral problem, just as the fictional narrator accidentally chanced upon the land of Erewhon.

Physical needs must be satisfied to free a person to pursue meaning in their life, but the individual's pursuit of meaning can also be eroded by allowing others to decide how our needs are met. Pets are like children in that they both have a degree of freedom although the most important decisions are made for them by a greater intelligence that chooses how to protect and feed them. The line that separates consciousness from non-consciousness is like the line between children and adults; we cannot draw it precisely, but we know there is a difference when we see it. The transition from childhood to adulthood is a necessary component of becoming a fully realized person. The significance of this transition is managed through societal customs that reflect increased responsibility in addition to the practicalities of dealing with bodily transformations that occur during puberty and which lead us to become fully mature. Handing those responsibilities to a machine that makes decisions necessarily involves taking those responsibilities away from people.

To supplant the adult decision-maker with a machine decision-maker is to deny the possibility of becoming a fully-fledged adult in mind as well as body. This is because the potential responsibilities of parenthood defines much of the significance of the transition from child to adult. Removing the freedom to make adult decisions, including the freedom to make bad decisions, would trap us within a permanent state of infancy as well as dependence. So whilst Butler is most remembered for these few chapters of ingenious humour, they have resonated with subsequent thinkers because they also depict a genuine and seemingly inevitable threat to our humanity.

Erewhon is no longer under copyright so copies of the story can be freely obtained from [Standard Ebooks](#) and [Project Gutenberg](#).

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Janus

Sarah Hozumi

Death toll for two-way ‘plague’ bacteria reaches 2 billion globally

TOKYO (Newsway) – The World Health Organization has sounded the alarm in a damning report it issued on Monday over the newly discovered bacteria that many continue to inject into themselves even as the death toll reached 2 billion globally.

“Though many have reported ‘miraculous’ side-effects ranging from cured diseases to improved health, for the most part, people simply die after ingesting this bacteria,” the WHO said in the report.

Temporarily referred to as *Yersinia pestis janus*, the bacteria was first discovered at the beginning of this year in a RIKEN lab in Tokyo through what Prof. Manami Iguchi of Tokyo University – who was not part of the research – calls “a fateful accident.”

“I don’t think most of the world is going to thank them for this discovery, though,” she said.

Yersinia pestis is a strain of bacteria known for causing plagues, most famously the bubonic plague in the 1300s.

Five researchers in the lab – Takeshi Yamamoto, Toshi Shiota, Michiko Suzuki, Miwa Matsunaga and Rina Satou – were exposed to the bacteria on Jan. 11 of this year.

On Feb. 12, Shiota, Matsunaga and Satou all showed signs of what a RIKEN report described as “improved health.”

Shiota, an avid swimmer, found herself able to hold her breath underwater for increasing lengths of time, a source who asked not to be identified said.

An injury Matsunaga sustained to her left knee disappeared over the course of a month, the source said.

Satou's eyesight improved so much, she no longer needed glasses, the source added.

Yamamoto and Suzuki were hospitalized shortly following their exposure to the bacteria, where their condition swiftly deteriorated. They both died of multiple organ failure on Feb. 15.

"That is where someone should have paused all of this and really reflected on whether or not this discovery is really good for humanity as a whole," Iguchi said.

"Unfortunately, no one did."

'Godlike'

News of three researchers gaining what Dr. Robert Carroll at the Johns Hopkins Hospital called "godlike improvements to their physiques" went viral across most social media platforms within a week of the discovery.

The three remaining researchers were able to recreate, then replicate the bacteria, and in late February – and with the surprisingly swift approval of the Japanese government – RIKEN began offering it to hospitals in the Tokyo area as a "last-resort" option for patients with severe illnesses.

A total of 5,400 patients were given the bacteria. Of them, 2,400 died while 3,000 showed nearly complete recoveries from what would have otherwise been fatal injuries or illnesses.

"To be honest, no one has any idea what's going on here," Carroll said. "If I were to venture a guess, I'd say the bacteria will either kill you or completely cure you based on how it reacts to the environments inside your body. My money would be on the bacteria

already living inside of your body playing a starring role in deciding."

While many governments across the globe called for greater scrutiny and more testing to determine how to better skew the bacteria in humanity's favor, public demand for access to the bacteria was so deafening, it became available in most developed countries as a prescription by mid-May.

By June, the WHO reported over 30 million people had died after ingesting the bacteria.

A 'blessing'

Meanwhile, the internet became flooded with success stories of those who injected themselves with the bacteria and obtained some sort of unique improvement to their bodies – from eating more food and never gaining a pound to never needing to sleep.

One such benefactor is a social media influencer based in London who goes by the screen name Madame Camasene. She has 4 million subscribers on her video-sharing platform.

"As soon as I heard about this thing, I knew I had to live-stream trying it," Madame Camasene said in an exclusive interview with Newsday.

Her live-stream of injecting herself on June 14, then the first 24 hours following, currently has 500 million views.

"It's amazing what it's done for me," the influencer said. "The doctors say it did something to my vocal cords, but I can change my voice however I want."

She has used that to do spot-on impressions of famous celebrities, with each video viewed over 2 million times.

"This bacteria has been a blessing," she said.

‘Was it worth it?’

An American father of three who lost two of them to the bacteria doesn’t see it that way.

“I wish I could go back in time and tell those Tokyo researchers to keep their findings to themselves,” Michael Pall of Falls Church, Va., said.

His three teenage children – Alex (17), Brandon (16) and Taylor (14) – found out about the bacteria online on around June 15, Pall said.

“Alex already had pretty bad sleep apnea, and Brandon had surgery on his elbow after a car accident three years ago. Taylor has pretty bad asthma and anxiety attacks.”

Thus, he decided to consult with their family doctor.

“There wasn’t even any hesitation – like she was prescribing pills for a headache or something,” Pall said.

Two days after their injections, Alex and Brandon developed severe respiratory symptoms.

“The ER didn’t even have room, so we were sent home.”

Alex and Brandon died the following day.

Taylor, meanwhile, says her asthma is gone but the anxiety has only grown worse.

“And she feels like she’s responsible for killing her older brothers because she was the one who told them about it,” Pall said.

Pall is seeking legal action against his family doctor, but considering the sheer volume of lawsuits in the U.S. against doctors from bereaved family members such as Pall, he’s not hopeful anything will come of it.

“You have to ask yourself, was it worth it?”

‘Mother Nature’s Russian roulette’

The bacteria has already shown signs of mutating, with researchers around the world struggling to keep up.

“There’s just too many people ingesting the bacteria,” Carroll said. “I can’t begin to tell you what the future of it is, whether it’ll get better at healing us or better at killing us, but considering the fatality rate, I think we should brace ourselves.”

The WHO has issued a strong warning that anyone considering injecting themselves with the bacteria should only do so as a last resort.

“Until further research has been done, we must consider this bacteria to be dangerous,” the report said.

World leaders are planning on holding an emergency summit on the bacteria in September in New York City, where they are considering new global regulations.

“That’s like trying to shove all the evil in the world back into Pandora’s box,” Iguchi said. “But we’re too late; the box has been opened.”

The WHO predicts the death toll could rise to 3 billion by the end of the year.

Carroll said, “This bacteria has become Mother Nature’s Russian roulette, and we’re mostly losing.”



A Method For Propagation Of The Household Staff

M. Shaw

Reprinted from *The Jefferson Inquisitor*, 23 March, 1873

Written by Lucille Edith Kilbeggan – annotated by M.
Shaw

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I have many a time received inquiry regarding the servants retained by my husband's estate, and ever more often since the war between the states. Never before have I shared our method, which is jealously guarded by my family and has been over generations beyond count. Only having beheld the suffering of the many honest farmers of the county¹ am I now compelled to break with tradition. A chivalrous, Christian way of life² must endure for the sake of our children. I pray the readers of this publication will use the following recipes in good faith and godly intention, and that the benefits once reserved for my own clan be visited herewith upon us all.

To begin with, the arms and legs must be cleanly separated from the original torso³, without use of a bone-saw. The length of the remaining flesh is unimportant so long as the tops of the leg and arm bones are preserved.

Within the day, prepare the following mixture:

Ten pounds good, rich earth in which the chrysopoeia is known to grow⁴

Ten pounds bone meal, obtained in the usual way⁵

Six pounds freshly ground red meat

Mix the soil and fill halfway five pots; four large, one small. Reserve an additional large pot. In the large pots with the soil, place the removed limbs with the bone pointed downward, and fill then the pots the rest of the way.

After no less than one month, on the next new moon time, prepare the following mixtures for the attachment of the flesh:

Joining mixture:

Four pounds of clay from the county's own ground

A proportional quantity of silver salts of the kind used by daguerreotypists⁸

The ground kidneys of a goose

One half pound of powdered lime

Sealant:

Two pounds tar pitch

One pound kidney stone⁹

Spread joining mixture inside each hole, such that it covers the full circumference of each with like thickness. Join the potted extremities securely to the barrel and seal. Remove the lid and halfway fill the barrel with sea water. The other half, fill with matter of your choosing, be it of animal, vegetable, or mineral nature. Your choices will weigh upon the character of your servant.

Do not replace the barrel lid. Instead, return the head to its pot with the lid still attached.

The head must be preserved similarly, but its removal must include the full extraction of the spine bones, this process being all the more delicate as a result. A pair of simple garden shears may suffice; to remove any larger obstructions⁶, a hedge shear or bone saw may be used in this case. So removed, the head shall then be planted in the remaining large pot, spine bones coiled for fit, filled in with soil along the way.

As to the smaller pot and its contents, I say only that some matters are unbecoming to speak of in polite society.⁷

The limbs and head must be watered diligently, as one would for potted pansies. If done properly, through the grace of God, they will take root in a matter of weeks.

During this period, obtain an empty barrel of the size used for salting. Wash out the inside, then find drills equal in size to the potted extremities. Bore sockets in the barrel, positioned appropriate to their eventual counterparts.

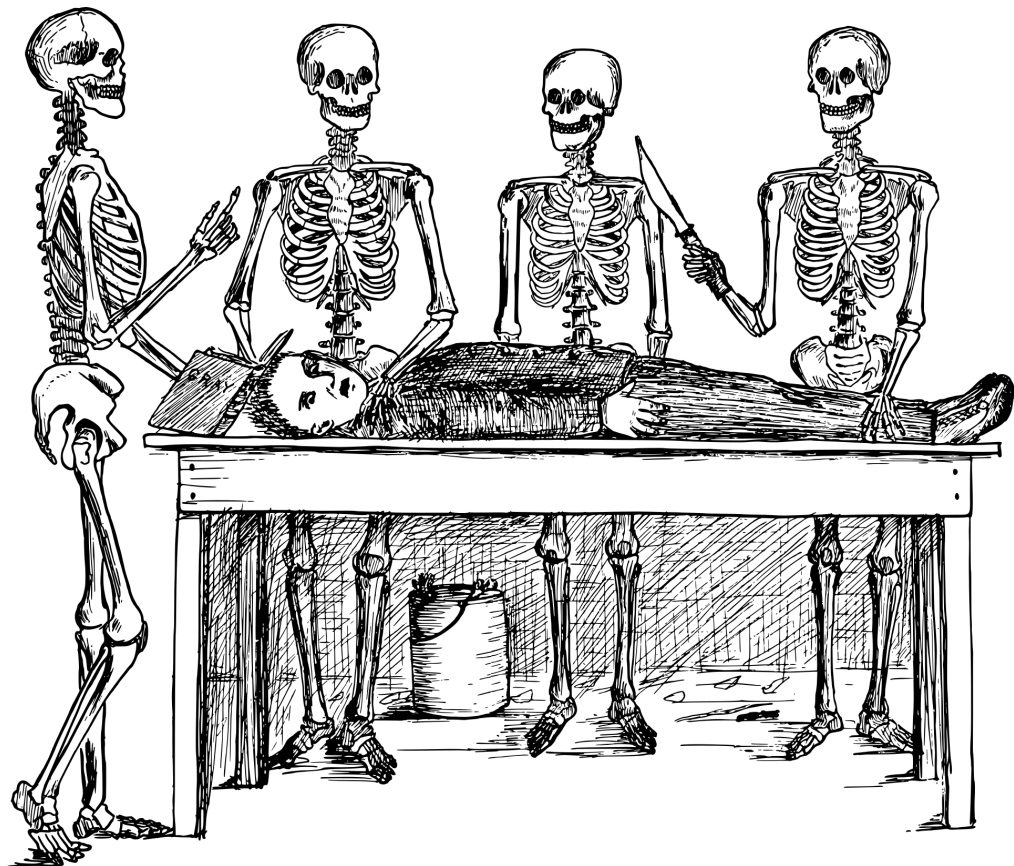
Leave the barrel to warm several days in the sun. Take its temperature each morning using a mercury-in-glass; when it reaches to just below one hundred Fahrenheits, add to the mixture three ounces baker's yeast and some quantity of bull's milk.¹⁰ Move the barrel to a barn or cellar. Each morning, check for mold on the surface and skim it away in a sieve. The fleshy skin that accumulates, however, must be stirred back into the mixture.

Seal the barrel when the content bubbles consistently, almost as if boiling, but use a fresh lid. Leave in place nine months. After which time, remove the lid, examine the contents, and confirm the Lord's plan¹¹. If all is well, remove the head from its pot. Rub the spine bones in oil of pepper and reseal the barrel with everything in its proper place. Let sit overnight.

Some words of caution to the modestly inclined: you may find yourself ashamed to behold the servant in this bare state, being of good Christian breeding. Remember that, while Man himself is made in the image of our Lord, your servant is merely a simulacrum made in the image of Man. Its station lies below even that of the lower animals. You do not sin to look upon it any more than you would to look upon your supper.

Nevertheless, you may wish to alleviate your natural discomfort through a simple drape of broadcloth. You need only a ring cut to size for the top of the barrel, with its hole large enough for the servant's head, stitched to a sheet long enough to cover a man's shame.

At daybreak, place a hand to the servant's forehead to see that it is warm. To awaken, feed into the mouth several dozen live ants. The servant may be awakened on a diet of other small creatures if necessary, but be wary that, owing to their character, ants are the key to my own servants' total loyalty and tireless will to work. Bees will work similarly, but require caution. Birds are not to be used, as the awakened servant will attack any others it might behold.



Finally, engrave the Mark of Cyprian¹² upon the front of the barrel.

The servant may take several hours to awaken fully. Give it time to come to its senses, just as you would a newborn calf. It should be able to stand by day's end, and thereafter to perform any duties you wish.

If you have followed my instructions to the letter, you will find yourself in possession of the most docile staff you have ever retained. Your servant will obey without question even to the point of its own expiration, and most likely will never utter a single sound. It will live for as much as twenty-four years, if my own household's records are of any indication. It will eat indiscriminately as a goat does, providing a convenient outlet for the disposal of refuse. The Lord willing, you will find its obedience superior even to that of [redacted].¹³

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Footnotes:

- 1 Where exactly *The Jefferson Inquisitor* might have been printed and circulated is a matter of debate. Surviving copies are dated between 1815 and 1896. The author's "war between the states" reference would seem to indicate somewhere in the southern states during the American Civil War, but copies of the paper have been discovered in Union and Confederacy states alike. It is not even clear whether "Jefferson" is the name of a place or a person. They have only ever been found in private collections, never in any kind of public or academic library, and only in North America. Most editions consist of a single broadsheet.
- 2 Material printed in the *Inquisitor* covers an eccentric range of topics, but frequently touches on what would have been considered nonstandard religious practices at the time. This profession of a "Christian way of life" despite a lack of clear link to normative Christian pedagogy is far from unheard of in its pages.
- 3 At no point does the author specify what "the original torso" refers to; presumably a human body, but it is unclear where the reader was meant to obtain the body, or whether it was meant to be alive or dead at the time of amputation.
- 4 "Chrysopoeia" is a term normally referring to the alchemical transmutation of base metals into gold. This and other *Inquisitor* articles suggest that it may also have been a folk name for a plant or fungus, or even a species of insect larva. Other articles suggest it might be gathered in horse stables or slaughterhouses.
- 5 Again, the author omits necessary context. "The usual way" of obtaining bone meal may have been known to regular readers of *The Inquisitor*, but it is not explained in any surviving edition of the paper. It must be noted, however, that this article does not mention anything else to be done with the rib cage or pelvic bone, which would provide the requisite weight if taken from a human adult.

- 6 “Larger obstructions” likely refers to the rib cage. Since the author specifies only the spinal *bones* to be preserved, the smaller shears would have been used to cut blood vessels, nerves, and muscle tissue.
- 7 I gather the author is talking about sex organs. I’d prefer not to speculate about why these would be included.
- 8 This is the author’s furthest-reaching assumption yet. It’s taken for granted that the average reader would already know the correct ratio of silver salts (presumably silver nitrate) to mix with clay, as though this were a common practice with other familiar uses. This might refer to a recipe in an earlier, as yet undiscovered edition of the *Inquisitor*. Silver nitrate is not a common additive to clay in any other known capacity.
- 9 This would require a large volume of kidney stones, which typically weigh only a few grams. The term might also refer to malachite, which was sometimes called “kidney stone” by layfolk and was believed to protect unborn children from evil spirits. However, it would be unwise to fully discount the possibility that she literally means kidney stones and had some way of procuring them in quantity.
- 10 For the record, I regret having researched this slang, so please take me at my word when I tell you that it does mean what you think it means.
- 11 As best I can tell, the author is instructing the reader to check that the contents of the barrel have somehow transformed into those of a human torso. I would like to point out that this is impossible, but I also have to admit that I have not personally tested her method and I frankly hope that nobody ever will.
- 12 This likely refers to Cyprian of Antioch. Cyprian was believed to be a sorcerer with the ability to summon and command demons or djinni, who converted to Christianity before his martyrdom. His historical existence is apocryphal at best. The earliest surviving record of his supposed life appears in the work of Symeon the Metaphrast, a Byzantine hagiographer with a penchant for fabricating people and histories wholesale. As to what the actual “Mark of Cyprian” might look like, I have found no clues.
- 13 There are terms I prefer not to reproduce even in the name of historical accuracy, but given the author’s apparent ethnicity and social caste, as well as the date of original publication, you can probably guess. Her final word is a stark reminder that while her claims of necromancy are a matter of speculation, the systems and social attitudes that produced them are not.

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No One Bet On Canis Major

Andrew Fraknoi

*From the United Planets Official Wikipedia, last edition
before the Catastrophe:*

When, after years of acrimonious debate, the United Planets Council finally legalized betting on astronomical events, it was natural to exclude professional astronomers from those eligible to place a wager. But many commentators pointed out that astronomers were as likely as the next United Planets citizen to have extended families and close friends. What was to prevent an astronomer, after some productive nights on the Extremely Large Telescope in Chile, from asking a drinking buddy or third cousin to place a bet on the next comet to enter the inner solar system?

Indeed, a number of early payoffs were eventually traced to insider information. Soon, however, astronomical betting became so widespread, that it didn't much matter. After Asteroid 2045QY2 hit downtown Las Vegas (a random event with which the religious right had a field day), the hobby of astronomy became so popular that astronomical gambling became a major source of revenue for planetary governments around the system.

Early on, astronomers could earn some extra cash by suggesting new phenomena on which bets could be placed. With the solar-system-wide net of repeater stations allowing inexpensive communications between worlds, planetary gambling authorities vied with each other to come up with new games to attract gamblers not only from their own local populations, but from around the system.

At first, bets were placed only on the best-known astronomical phenomena. There were games guessing the direction and arrival time for new comets coming from the Oort Cloud, or the discovery of new asteroids above a certain size that crossed Earth's orbit. Others involved predicting the Sun's next coronal mass ejection pointed toward Earth and above a specified energy threshold, new volcanic eruptions on Jupiter's moon Io, or new geyser eruptions reaching above a certain height on Neptune's moon Triton, to name just a few top money-makers.

Soon, however, the solar system was just not big enough to contain humanity's urge to gamble and gaming authorities turned to the wider Milky Way. Suddenly, schools felt the pressure of teaching astronomy to all children before they were done with high school.

Popular longer-term games involved predicting the explosions of massive stars at the end of their lives and the detonation of white dwarfs in binary star systems. To the initial confusion of the betting public, astronomers called both types of explosions *supernovae*, yet the odds for the two different kinds of stellar blasts were different. Still, both kinds of supernovae were quite rare in the Galaxy. The wait between explosions could be decades or centuries, meaning that, if a lot of people played, a successful prediction offered the chance for a huge payoff.

Stellar explosions remained elusive even when the inauguration of GART, the Gargantuan Array of Radio Telescopes on the far side of the Moon, made their discovery easier. In earlier years, supernovae had been discovered by the light they produced. Unfortunately, there was enough dust filling the disk of our galaxy that only the nearest explosions could be observed with visible-light telescopes; more remote ones were hidden by that curtain of dust. With radio observations, more distant parts of the Galaxy were opened to our view, but the number of supernovae in the Milky Way during any human lifetime remained annoyingly small.

When the Mars gambling authority decided to expand the betting to include supernovae in other galaxies, and to allow bettors to select one galaxy, a group of galaxies, or even a constellation to wager on, the supernova game suddenly got a lot more popular. Scientists were quick to point out that supernovae were random individual events – given the scale of distances between stars, the explosion of a star in any given galaxy would not lead to the explosion of another elsewhere in that galaxy. Nevertheless, when, within a decade, three supernovae were observed in galaxy NGC 3190, lots of people put bets on that galaxy for a fourth explosion. That's how government budgets grew and people's electronic wallets shrank.

Other violent astronomical phenomena that eventually lent themselves to wagering included two kinds of gamma-ray bursters, the fast radio bursters, and ordinary novae (stars whose surface explosions brightened them but didn't destroy them.) Gravity-wave events were too common to bet on, but there were wagers on the largest masses resulting from intermediate black hole mergers. Ingestion events (and even minor burps) by supermassive black holes – in the Milky Way Galaxy and beyond – were soon added to the list.

When a top government official on the Moon was caught trying to get advance information from the director of the Joint Lunar Observatories (whose son had been quietly caught in a compromising sex TriD by the local authorities), new commissions were set up to isolate gambling servers and rule-makers from political influence.

Humanity's addiction to astronomical gambling only came to an end when a large rogue planet happened to approach a previously unknown, but rather massive, black hole that had been hiding, with no previous sign of its existence, in our section of the Milky Way's local spiral arm. Once the material of the planet was disrupted and drawn to circle the black hole, as luck would have it, one of the resulting jets of relativistic-speed particles was pointed directly at our solar system. The accompanying gamma-ray energy, coming at us from the constellation of Canis Major, wiped out most of our colonies on worlds that were not protected by a substantial atmosphere. And it damaged the Earth's ozone layer and changed the composition of our upper atmosphere. Darkened skies, acid rain, and copious ultra-violet radiation made the life of the survivors on Earth miserable for decades to come. No one had placed a bet on that outcome.





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