

Home

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This story highlights that amidst crises, humans face the problem of mistrust and misunderstanding. We sometimes miss the big picture and lack the conviction to face the real problem. However, as a human race, we have struggled through many crises and have overcome them from time to time.

Prologue. Year 2130

“So many stars!”

“Yes, the sky is beautiful tonight dear,” Sarah carried her three-year-old daughter to her bedroom. “Sleep well.”

She sat down on the couch after tucking her daughter in bed. Her hair was thinning and greying at the temples, but her smile was beaming as she admired the curious stars clustered around Jupiter.

Part I - Surviving the Climate Disaster

Year 2079. 11 Dec

Interconnectedness

The showcase themed “Sustainable, Green Future” was the inaugural Asian expo, hosted across the region, flaunting the interconnectedness of the region with energy sustainability and green innovation.

Will was director of “Press International”. His team was specially invited to preview all the exhibitions. The team was travelling northbound, deploying journalists in the cities along the way. They left Ho Chi Minh City over an hour ago and Will’s legs were numb from prolonged sitting.

Suddenly, Will received a notification. It popped up on the edge of his glasses. He blinked the file open.

You will soon witness the nuclear fusion rocket programme by StarUnion China. It is believed that China wants to attain dominance over the entire solar system, especially non-Chinese industries on the Moon and Mars. They are pushing for an exponentially accelerating space weapons programme. The Expo is a veil for the military agenda to garner support for funding and investment for seemingly sustainable developments. If Press International positively portrays StarUnion, the entire human race will be under the threat of Chinese authoritarian control. We will release a decade-in-the-making ransomware to cripple the Chinese economy and any others dependant on it.

For the next twenty minutes, Will stared at the message, reading it fifty times over... He was deep in his thoughts when Natasha roused him from his musings.

“Will, we’re here.”

The electric cruiser audibly dialled down its whirring. *320 kmph... 280 kmph... 160 kmph...*

Đà Nẵng, read the the sign affixed five metres above the hyperway. The cruiser veered into the slip road, away from the sixteen-laned artery that connected all of East Asia and Southeast Asia, called the Great International Eastern (GIE).

The GIE is a collaboration between China and ASEAN, aimed at saving the world from economic desolation using sustainable technology. The oceans were the regions' worst enemies, as their coastlines were constantly ravaged by tsunamis which eroded beaches and swallowed coastal settlements. Rogue waves were so common that maritime transportation was no longer tenable. Air flight was frowned on due to its emissions, making overland transportation the main mode of trade.

The GIE was built on rezoned international territory that no country has sovereignty over. It starts from Singapore, charging through ASEAN, through the cities of Shenzhen, Shanghai, and Tianjin, and then heading south through Pyongyang¹ and terminates in Busan. The GIE was designed for hyperfast transport² of up to 430 kmph, half the speed of traditional airliners, bringing countries closer together. To Will, a Singaporean, Busan is now his hinterland.

The team entered the immigration checkpoint for the security check using their digital passports, unlocked via their irises, and in five minutes they were in Da Nang.

Outside the checkpoint, a group of men with signboards reading "BAN STARUNION", "~~STARUNION~~→OUT" were seized by authorities and hurried away. The team remained calm.

Food

The hungry team headed to the nearest food zone at the Lang Lo Bay. Exiting the cruiser, their glasses darkened instantly and reflected the brilliant sun light³.

¹ See footnote - "North Korea"

² See footnote - "The GIE"

³ See footnote - "targeted transmission and reflection of light"

This zone featured manpower and space saving food centres, with vending machines, automatic food printing and automated chefbots.

Will ordered a bowl of fried crickets. Fred had Pho Bo from the Thìa Gõ restaurant vending machine, while Natasha, Sheela and Brennen went for lab grown chicken sandwiches from McDonald's. They returned to the cruiser for their lunch.

"Hey, look at your receipts," Brennen shared, "I accidentally wet mine and saw..."

Thank you for ordering. Boycott STARUNION.

Wetting their receipts, the same message appeared. Will and his team became weary.

Green Conspiracy

Sheela and Brennen stayed to explore Expo Da Nang while the rest continued north.

In the evening Sheela reported on Da Nang's common microbial fuel cells in residential zones, where food and biodegradable waste were deposited to allow bacteria to digest food waste and create electron flow.

They also sighted incidents of unrest against StarUnion.

"Will, the Chinese eco-cities are worth a longer visit. There are plant microbial fuel cells, air-conditioning heat recovery systems using stirling engines, and even these transparent solar cell technologies -" Natasha pointed at his spectacles, "- on all the windows."

"And the first firing up of the fusion rocket engine in Hong Kong." Fred replied.

"Mmm..." Will's colleagues were puzzled by his preoccupation.

Over the next few hours, incidents of protests against businesses related to China sprouted more often.

There indeed has been speculations of an extremely huge push for space technology by China, leading to rumours of the USA multiplying its space military spending... Will frowned and grabbed his head, groaning inwardly.

Will's digital journal gained recognition for their politics-free journalism. They were factual and trusted by a global audience. Their agency was the best example of international and interplanetary crowdfunding (his journals reached outside Earth as well).

Part II - Doomsday

Location: Hong Kong Ritz Carlton. Five Days Later, 16 Dec

The night sky was lit by the brilliance of the fusion drive near Zhuwantou (竹湾头) Island⁴. The light rays of the engine warmed the skin. The reflective front on everyone's spectacles protect their eyes from the incandescent ball. Will thought, *fusion is already giving us half the world's energy needs. One day, it may propel everything else, including space travel...*

Humans had developed nuclear fission uranium-plutonium powered rockets for economical travel between the Moon and Mars. However, fission fuel is radioactive, unsafe for use within Earth's and Mars' atmosphere, or at the Moon or on space stations. Chemical rockets are still used for launches on Earth and Mars.

China requires more funding for its aggressive fusion drive development. Despite monopolising hydrogen combustion rockets, it still cost millions to launch each rocket. Fusion powered rockets would bring the cost down significantly. USA controls the Panama space elevator, so they didn't invest in fusion rocket development.

Will received an urgent email from his team in Dubai. They have news of Astral Living Individual ENTities. ALIENS.

Will immediately backed away from the crowd that had gathered on 118th floor to view the static fire test. He ran to his room in excitement of the news.

Three teams from different universities found an irregularity at the outskirts of the Kuiper Belt - a high concentration of objects cruising towards the solar system. One of the teams quoted a Peking University report in 2069 sharing that the Chinese space agency had found similar object signatures in the outer Oort Cloud. His Dubai team suspected this is the reason for China's increased weapons programme spending.

⁴ See Footnote – "Static Fire Test"

Although the university observations are facts, the Chinese weapons spending is a speculation – Will's thoughts were interrupted by a "secret" message from the Chinese National Space Agency (CSA).

Will,

CNSA found a mysterious cloud of objects in the outer Oort Cloud. We took years to design and launch a probe to investigate⁵. Two years ago, its signals were cut off for 30 seconds before resuming transmission. The special encryption code to detect any tampering of the signal disappeared.

The disrupted signal and the sightings of masses at the outer Kuiper Belt corresponded with those at the Oort Cloud. These evidence hinted at unnatural occurrences, but were unclear ALIENS were involved.

The Chinese government needs you to continue writing about the expo, keeping the speculative news about the possible approaching ALIENS embargoed.

We would not want to raise the alarm which can destabilise the fragile global peace we have. Meanwhile, China has been ramping up our military capabilities. If there was indeed a threat at least we have begun preparations.

Thank you for your cooperation. We will contact you again when we have updated information.

Will felt suspicious. While there was undeniable data supporting China's course, the global suspicions seemed valid. Why weren't the Chinese more forthcoming? Are humans once again in-fighting instead of confronting the real problem - like the Climate Crisis?

His plan of going home for Christmas with his daughter Sarah might be ruined.

⁵ See footnote – "Probe"

Location: Kazakhstan, 21 Dec

Will was the only correspondent travelling together with a top secret team of Chinese scientists reporting to the dry and chilly desert.

An extra-terrestrial object landed on the Aral Karakum Desert in Kazakhstan. It was an extremely black object, darker than vanta black. Based on infrared and electromagnetic scans, “Alvanta” as it was called, had a material property designed for effortless radiation absorption, probably enabling it to harness energy from its surroundings. This might have been why it was undetected as it entered Earth’s atmosphere.

The United Nations set up an outpost to protect and study Alvanta. Ever since it landed, it had been pulsing unintelligible radio signals.

By noon, a string of six numbers were sent using short pulses of similar radio waves:

“2, 3, 5, 7, 11, 13”

Alvanta responded, with similar radio waves:

17, 19, 23, 29, 31, 47

Some linguists believe Alvanta understood and wants to tell us more. The scientists sent both Chinese and English versions of greetings to Alvanta⁶.

15:00

Alvanta finally answered. The personnel received an audio file from Alvanta.

⁶ See footnote “Extraterrestrial language and communication”

Hello.

It was a low-pitched, male-sounding voice.

The personnel sprung into high alert. As the commanding officer of the operation, United Nations Vice-president, Dominik was on guard. After a small discussion with his delegation of negotiators and scientists, they sent an audio message.

“Hello.”

I, many things to tell.

“Hello, we are humans from Earth,” Dominik directed his team’s response. “Who are you? Where are you from? Why are you here?”

Alvanta took longer to answer this time.

Alvanta, nice name for baby explorer. We, wanderers from far. Alpha Centauri, Bernard’s Star. We here because need accommodation and resources. Want to share Earth, our Mother.

The men wondered how the machine knew its given name. Moreover, why would they call Earth their mother?

“How many of you are there?”

We, few. Less than one for one thousand human.

“Why are you wandering?”

16:00

For a long while, Alvanta did not answer. The personnel thought it went offline. But after an hour Alvanta broke the silence.

We, curious. We, sent signal out into cosmos. After that, attacked by star pirates⁷, one big bullet fly towards home. They, bombarded Mother. We, tried to defend. We, tried to shoot the bullet. Bullet, too big, smashed into Mother.

16:05

Dominik and his men were about to reply, but another message began broadcasting, this time in flawless English.

After we left our devastated Mother to seek other mothers to nurture what's left of us, we wandered far away, for the last 6 million turns of Father, whom you call Sol. We found no other mothers that we could live on. Till the last turn of Father.

The scientists tried to decipher the seemingly straightforward information. Dominik questioned further:

“What happened at the last turn”

We found you.

“How?”

We observed you through spectroscopy. The oxygen and methane levels in your atmosphere are indications of life. Over the course of the last two hundred Earth years, we managed to sample your planet thrice. Your carbon dioxide levels rose and fell dramatically, faster than any natural process. We concluded that there was life again on Mother.

As we got closer, we picked up signals. Then we found your probe 星联盟 (xing-lian-meng), STARUNION. It is drifting through the Kuiper belt as we interact.

⁷ See Footnote “The Dark Forest Theory”

16:10

Waves of commotion burst through the room as the message was amplified from Alvanta, verifying the existence of the probe that the Chinese had sent two years prior.

As they were formulating a reply, another message came forth, this time in all languages.

We are coming home.

Deafening silence.

Dominik enquired slowly:

“Where are you now?”

*Where you can't see us. We are hungry. Return Mother to us. We can share her.
Expect us in one Father Flip, what you call Solar Cycle.*

“You left her. Earth... Mother, belongs to us, now.” Dominik replied firmly but diplomatically.

With each sentence, Alvanta transmitted with a stronger baritone. It was quickly gaining confidence in English.

You are defenceless against our technologies.

“Then we will die defending OUR MOTHER or perish together with her!” Retorted Dominik defiantly.

This is the flaw of humans. You knowingly and willingly murder Mother. You fight amongst yourselves. We just studied your history. You won't change. Let us help you.”

16:50

Behind the scenes, scientists pieced the information together. The team was frantic but Dominik stayed calm. He finally replied after half an hour:

“You left Mother to die. You left the dinosaurs to perish. Mother Earth was consumed with fire and smoke, then tormented with ice. True, we almost killed her. True, we fought amongst ourselves, but we fixed climate change in a global effort, and we had global peace for more than a century, until you came along. Do you really think we need your help?”

We never wanted to leave our fellow kindred behind. It would be nice if we had space for all of them, but we didn't. Besides, your sustainability is flawed. You will run out of resources because of your unchecked development at the expense of other children of Mother, your siblings.

17:00

As the audio file played, Dominik was interrupted. “Sir! Alvanta is... is changing its shape!”

Alvanta had seemingly shape-shifted into a familiar figure. It resembled a smaller T-rex, with more refined features, a smaller set of jaws with a much taller forehead.

... return Mother to us and we can solve this peacefully... The figure spoke.

“He’s a T-rex!” someone exclaimed.

Alvanta seemed offended. “the Tyrannosaurus Rex were our illiterate, overgrown, lazy cousins. They refused to listen, to leave with us. It was a pity they stayed.”

“Sir, something is trying to establish a radio connection with us. Waiting for your command.”

Answer our call. Alvanta spoke again.

Dominik was stunned. These... dinosaurs... are grasping our system of technologies so Swiftly. "Dinosaurs aren't outdated afterall..." Dominik mumbled.

He snapped himself out of his reverie and established the connection. For the first time in history, voices were exchanged between two species separated by over 66 million years in time⁸. It was 1725 hours, 21 December 2079.

The dinosaurs spoke first. "Good evening. I am Kruffonok, leader of the Deosians."

"Good evening. This is Ervin Dominik, Vice-President of the United Nations. Greetings From Earth." Dominik confidently represented the human race. The room was silent with anticipation.

"Upon further study of humans, we are impressed by the global efforts humans have mustered to fight climate change. The collaboration between nations worldwide is no simple feat, given humans love to fight. We have decided to spare you. We will fly to Jupiter and harvest resources from there. But first, we demand that you provide us with the biological resources we need, or we will seize mother."

A true negotiator, Dominik stayed calm. He asked, "if you could defeat us so easily, why the delay?"

An awkward silence.

"Kruffonok, you need our help." The Hungarian veteran stated. "We can find a peaceful solution."

Alvanta went silent. The line was cut, but the humans received a radio message from Alvanta.

Wait.

⁸ See footnote - "Quantum Communication"

17:59

Hello Dominik.

Our family is dying. We are running out of food and fuel. Our life support systems need overhauls, but we have no resources to do so before our current home fails and leaves us frozen in an ice coffin. Alvanta was the last power source we could spare. Mother is our last hope. We can only reach Jupiter before our food runs out. We are currently unable to print food, much less synthesise energy. You have been unable to spot us because we have turned off all our lights, engines and reactors, to save up enough energy for one last deceleration burn to rendezvous with Europa at Jupiter. Most of us are not in hibernation due to energy constraints, so we are consuming food at an extraordinary pace. We are willing to share our technologies in exchange for your assistance. Our Genetic engineering will enable you to attain real sustainability by speeding up the propagation of your rainforests. It is unnatural, but at the rate your forests are being wiped out, this is the only solution. It pains us to see our ancient flora cousins disappear from Mother.

18:00, 23 Dec

Humans discussed, and in a surprisingly short time of 18 hours, they made a decision.

Dominic replied on the noon of Christmas Eve, 2079, "help is coming."

Part III - Reconciliation

Will, still reeling from the historic 72 hours of contact with ALIENS, was strangely calm and reflective. Dominik had probably altered history, and dwarfed the contributions of men past and present. Although Dominik has not set foot in space, he reached beyond the realm of reality, communicating with the our prehistoric cousins.

Reimagining the world, past and present. He thought his journey to the expo was the dreams of the future of mankind. Will didn't imagine that he'd need to reimagine the world in the past as well.

It's time to go home for Christmas.

Over the next decades, Will and Sarah witnessed exponential growth in human collaboration, in a determined global effort to guarantee our existence while taking all precautions when collaborating with our "extra-terrestrial cousins".

His faith in the human spirit was slowly restored.

(2987 words)

Footnotes and appendix:

Prologue

Sharp readers would have caught the prologue's meaning after reading the confession message by the Deosians. The stars clustered around Jupiter were indeed the fusion drives of the Deosian fleet around Jupiter.

Footnote 1:

North Korea - in this story

The reopening of North Korea was a historic moment in 2039. After the great famine and "earthquake" that wiped out the entire eastern half of North Korea in 2031. It was rumoured that the event was due to a failed nuclear weapons experiment that almost killed the entire authoritarian regime, leaving the country in tatters and having no choice but to accept international aid after failing to recover.

Footnote 2:

The GIE - in this story

The GIE itself was an essential exhibit of the expo, showing off the progress of artificial intelligence. It was designed and constructed over 16 years in five simultaneous mega contracts covering ASEAN, South China, East China, North China and Korea.. The entire highway is connected to the Transport Grid Network, TGN, which syncs every single vehicle on the highway. Bodies on the hyperway are detected, their movements analysed and predicted. Employing traffic avoidance algorithms, TGN was touted that should anyone set foot onto a lane, instantaneous vehicle redirection takes place for safety.

Using powerful artificial intelligence, the TGN calculates and processes where and how vehicles along the GIE move. On this hyperway, human reaction time would not be adequately fast enough to react to any potential accident, such as roadkill incidents and natural disasters. It also encompasses traffic jam avoidance algorithms. With the TGN, a human could effectively set foot on the highway and still not be killed - the cars would just be redirected along a different lane on the expressway to avoid the human.

In terms of computational power for artificial intelligence systems for the TGN, there are three ways the grid is optimised for high computation. Firstly, computer chips in this age no longer predominantly use electrical circuits. They use optical circuits, which use materials such as silicon nitrite to “wire” light. This greatly increases computational power because of the greater speed in which light travels compared to electricity.

Secondly, the TGN makes use of the on-board computers of the vehicles, on top of the in-built computers along the expressway. They are connected via an intranet, and the whole expressway - including the vehicles - effectively becomes a single computer. When there is a higher number of vehicles, there is a higher need for computational power because of the calculations needed for all the routes the vehicles are taking. Since there is a higher number of vehicles, there are more vehicles connected to the grid, there is higher computational power available to process all the calculations.

Lastly, the intranet works in a regional manner. The problem was, since the calculations are very time-dependent when vehicles are travelling at high speeds and human lives are at risk, there cannot be any lag involved. An intranet still relies on high bandwidth and frequency radio waves to transmit information, and radio waves can only travel at the speed of light. Thus, even with light’s superspeed, the curvature of the earth (the radio signals have to be detected and transmitted repeatedly so that the highway below the horizon can still receive the signals) and the vast distance of the whole highway, the resultant lag would outweigh the previous two optimisations.

Thus, the vehicles would be connected only to regional networks. The entire GIE is split into hundreds of smaller TGN networks which process the computations needed in that area, lag-free. There are also separate TGN computers that handle the sole task of smoothly transmitting information from one smaller network to another, for vehicles that are travelling from one zone into another. This smaller breaking up and handling of information makes the whole TGN system more effective, fast and efficient. It also brings about more energy benefits. Because some parts of the GIE would sometimes be utilised more than other parts, having the TGN work regionally would save energy that would otherwise be spent activating the full power of the entire TGN system twenty-four hours a day, seven days a week.

Footnote 3:

Targeted transmission and reflection of light – In real life

Light comes in many forms. From lowest to highest frequency (and energy) - radio waves, microwaves, infrared, visible, ultraviolet, x-ray and gamma ray. The types that manage to reach earth's surface are mostly infrared, visible and ultraviolet light.

There are current technologies (2020) being worked on that can selectively reflect, absorb and transmit these different lights in the electromagnetic spectrum. Transparent Photovoltaic panels absorb the infrared and ultraviolet radiation for energy generation, leaving out the visible light⁹.

Targeted transmission and reflection of light – In this story

The technology is at a stage where even different colours of the visible spectrum can be targeted and either reflected or absorbed. This means that the look of different

⁹ MIT Energy Initiative. (2017, October 24). *Transparent solar cells*. Main. <https://energy.mit.edu/news/transparent-solar-cells/>

objects can be changed because the object's surface targets and reflects certain colours of light, while absorbing or transmitting the rest.

In the case of glasses, they can serve as reflective or darker sunglasses when needed. The apparent colour of the lens on the glasses can also be altered as and when the user likes.

They mostly work by having layers of different material such as semiconductor or metal material that absorbs, reflects and/or transmit certain wavelengths of light (whether visible or in the other parts of the spectrum).

Footnote 4:

Static Fire test

Zhuwantou island was chosen as it was sheltered from regular tsunamis and was also unpopulated (as of real life 2021 Hong Kong)

Footnote 5:

Probe – In the story

The probe was by the company StarUnion, which was China's flagship enterprise for space technologies and deep space exploration.

Powered by the most powerful fission drive of the time, it was on continuous burn for a whole hour, accompanied by state-of-the-art ion drives. It had reached the outskirts of Pluto's orbit two years ago, having attained 0.03% the speed of light.

Footnote 6:

Extraterrestrial language and communication – In Real life

Voyager I's *Golden Record* is most likely the first deliberate attempt by humans to allow aliens to understand mankind. It makes use of the universal hydrogen atom to tell alien species who might find the record on the Voyager I spacecraft how fast to spin the record under a pin to produce a sound. What was included was the sounds of Earth – of everyday happenings and people's voices.

Extraterrestrial language and communication – In This Story

This was a huge problem within the story. Considering extra-terrestrial species do not have contextual clues to figure out what certain phrases or actions (actions such as a nod of a head, which is quite universal around the world) even mean in human language, it would be extremely tough for them to figure out human language.

In the story, there are systems developed to help extra-terrestrial civilisations understand more about human language. Most systems done use the most common languages in the world, English, and Mandarin.

Most systems were based on real interactions and physical objects like a playing physical disc (such as in real life Voyager I). Only two had been worked on to be compatible by computer systems to be sent over to another receiver via an electromagnetic medium. One system was made in an assumption that the alien species was similar to humans and had carbon-based life, and could use that to their advantage in setting some context. Another was made in the assumption that the species was totally different from humans in any way.

Both systems were sent to Alvanta, with translations to both English and Mandarin.

Footnote 7:

The Dark Forest Theory – In the story

This theory was created by author Liu Cixin in his series “Remembrance of the Earth’s Past”.

The Dark Forest Theory states that the universe is like a dark forest - teeming with life, but all are extremely tough to spot. Some ‘animals’ survive by scaring off the others, other animals camouflage themselves. Terribly powerful civilisations exist, and other smaller civilisations try to hide, even from each other. Association with other small civilisations can risk exposing themselves to the superior civilisations. Even the superior civilisations themselves had no way of knowing if they were superior.

Or else, every civilisation on average has the same power and is not going to risk anything by exposing themselves in case of Mutually Assured Destruction.

But why hide? This is because the universe has a finite, limited, amount of resources. As civilisations expand, resources most definitely would get limited. There would certainly be lack of supply and overdemand. To make sure one survives, the others must go. It would be impossible to share.

This was already so easily seen throughout Earth's history. Time and time again, countries invade and conquer. The only saving grace was distance, or the lack thereof. Because everyone was human, war could easily be solved through talk. But there is still unhealthy tension, guarded by a thin thread of treaties.

Language and biological synergy allowed the civilisations on earth to coexist.

But there is no language that transcends the stars. The distances are too great.

Footnote 8:

Quantum communication – In real life

Quantum communication ideas (albeit still mired in science fiction) now make use of the fact that quantum entanglement transcends the universal speed limit of the speed of light. This is because when two quantum particles are entangled together, they adopt the same quantum state. When one particle changes its state, the other particle, no matter how far away in the universe, also changes its state. This means that if the state of the particles are controllable and measurable, it can provide extremely instantaneous communication, no matter how far one is in the universe.

Quantum communication – In the story

The Deosians could use Alvanta to initiate a call due to the fact that they used Quantum entanglement. Alvanta's communicator is entangled to a communicator on

board one of the Deosian ship command, and can directly relay information to the command without any lag whatsoever.