

A Cli-Fi Anthology

Dear 2100,

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CEMUS, 2021

## **Special Thanks**

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Uppsala, 2021

Forewords by Derek Garfield and Hanna Wernerson

Anthologies by Aidan Gill, Aleksandra Mladenovic, Amanda Jonssson, Bella Klaus, Cleo Bakker, Emelie Elfvengren, Frederika Yngwe, Heiðdís Inga Hilmarsdóttir, Huifen Cong, Giulia Rossi, Jelmer van der Ham, Johanna Gäbken, Lillian Weaver, Miléne Spyckerelle, Natascha Brunner, Oscar Martin, Salman Majeed, Sara Sandberg, Siaoyu Lin, Steven Reich, Sonja Nettelbladt and Tess Marie Burroughs.

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## **Foreword** Derek Garfield and Hanna Wernerson

The stories presented in *Dear 2100,: a Cli-Fi Anthology* are the result of a final assignment from the course Worldviews and Visions within the MSc programme in Sustainable Development at Uppsala University. The programme is a collaboration between the Swedish University of Agricultural Sciences and Uppsala University, as well as the Centre for Environment and Development Studies (CEMUS). CEMUS is a centre founded on the idea of student-led education at Uppsala University and is where we work. CEMUS hires students to create courses for other students to strengthen the student-perspective in higher education: to give students the chance to influence what they are taught and how.

When designing this iteration of the course and its final assignment, we departed from the thought that inherent within different worldviews are different visions for the future. Worldviews are cognitive and normative frameworks that guide how actors and communities understand and live in the world. Worldviews are therefore at play when actors and communities envision and work towards *developing sustainably* as a species on this finite planet. The visions for the future seem to extend as natural consequences of the worldviews themselves: emerging from the rationalizations and practices that give the worldviews form and make them distinguishable from one another. We wanted to explore this idea, evaluate and relate to the futures that were made possible by different worldviews. Put more simply, we wanted to investigate not just different actors' visions of a sustainable future, but the *difference* in actors' visions for sustainable futures. We studied these visions by looking at how different actors talk about sustainable development, that is, the narratives and discourse they create, imbibe, disseminate, and live by. We did this because how we talk about things matters. It is an act of meaning-making. The way we create meaning through our words has implications for what actions are taken, or not taken.

Take the case of cows. In the current sustainability discourse, cows are often portrayed as destroyers of land, emitters of greenhouse gases, and to consume their flesh comes with the high price of various diet-related illnesses. Cows are a problem. In contrast, others portray cows as stewards of the land, grazers that restore the capacity of grasslands to sequester carbon dioxide, and their flesh is a source of key nutrients for human health. Cows are part of the solution. How cows are understood – talked about – matters for what actions are taken. If cows are part of the solution, our response might be to step away from the currently dominating industrial mode of cattle farming and explore regenerative grazing. But if cows are part of the problem, our response might be to further intensify our farming operations to raise more cows faster and thus reduce the number of resources used per cow life.

In this course, we employed a diversity of tools to explore different narratives of sustainable development. We invited guest lecturers from different disciplines and from civil society to present their perspectives. Students selected a climate fiction (Cli-Fi) anthology as a coursebook. We had writing workshops to improve students' writing. And, in culmination, the final assignment took shape as a scenario-writing exercise, the results of which you hold in your hands. Our goal was to create an assignment that demanded students stretch beyond their comfort zones and engage in methods and approaches to knowledge in novel ways. This cognitive stretching is key to developing critical thinking skills that are necessary when tackling the challenge of sustainable development.

We wanted to provide the students with an opportunity to challenge themselves in terms of analysis, argumentation, and writing skills, while at the same time being given space to be creative and think outside the box. In our experience, this sort of creativity is seldom, if ever, encouraged within academic assignments. This is nothing short of a pity because to rely solely on facts and denounce imagination is to look only towards what has been and not what can be. It is to use only the car's rear-view mirrors while driving. To fruitfully address the challenge of sustainable development, we believe it is necessary to boldly explore different approaches to knowledge. We argue that there is a case for questioning the longstanding division between the creative and the scientific, and the position of the latter as rational, objective, and authoritative and the former as emotional, subjective, and aesthetic. Instead, creative and scientific approaches to knowledge can – and should – be combined to help us address sustainable development in a holistic manner.

Scientific articles tend to focus on narrowly defined aspects of reality, such as the food

system, while creative writing, such as Cli-Fi stories, often paints an immersive picture of a whole future reality, including the food system. In this way, Cli-Fi stories can function as case studies where alternative futures are taking place and scientific literature can help us understand these cases by offering insights into the complex processes that inhabit them. Cli-Fi stories can help contextualize scientific knowledge by positioning scientific findings into a bigger picture.

With these considerations in mind, we decided that the final assignment was to be a scenario-writing exercise. A scenario, simply stated, is a description of a potential future that is anchored in scientific knowledge. Scenario-writing is involved in a range of future-oriented methods that are gaining more and more traction within sustainability studies. Within scenario-writing, we took a narrative approach and asked students to create a future world for the year 2100. More specifically, we asked students to identify current ecological and social trends and then consider how different worldviews might shape human responses. The idea was not that the students should give predictions on how the future will develop. Instead, we wanted students to use creativity and scientific knowledge together to move beyond a 'probability thinking' about what the future *will* be and towards recognizing that there is no *one* future. Instead, there are different *futures* that are created by the interaction of different sets of values, interests, and power structures that make up worldviews.

Consequently, a key aspect of the assignment was to consider ethics. Who benefits and who loses in the futures that the students created? We all should reflectively contemplate the normativity of the future and of sustainable development. We all should question how those futures will have consequences that are not always beneficial to each member of our communities. One person's utopian dream can be another's dystopian nightmare. From our perspective, ethics is a key dimension of sustainable development. To consider ethics also demands that we pay attention to who is behind the pen. Why do the students choose to write their scenarios from a certain perspective and what are the consequencees of that, given their own familiarity or unfamiliarity with that perspective? We must reflect on our *own* normative positionality and ask in what ways we are subject to systemic structures that cultivate our thoughts, values, visions, as the natural and correct ones and consider the possible consequences of our own bounded rationality.

We encourage you to step up to this challenge while delving into the future worlds the students have created: who do you meet, what are their everyday lives like, how did these realities come to be, and who are you in relation to this future?

## **The Grass is Always Greener** Aidan Gill

Ngombe was shading from the summer sun beneath the walnut trees when she heard the news. As the wind blew gently through the leaves, she ruminated on what Saniya had told her. It was time for them to move on. They had never stayed in any place for too long, the others always had plans for the land they had settled on and made their home. Maybe this time would be different, maybe this time they would finally settle for good. She would miss this place; avenues of walnut trees to shade them from the sun, plenty to eat and a chance to spend time with her daughters.

Where was Inkomo? As her youngest, the move would be most traumatising for her, Ngombe would need to prepare her for the journey and there wasn't much time. She'd been blessed with many daughters over the years. Sons as well, but they had left to live with the other men. They raised the children communally, as their mothers had done before, but there was always a closer bond with those they had carried and birthed themselves. A long time ago their young had been taken off to be raised away from their mothers, but times had changed. Much had changed.

She threw up in her mouth a little. Having to move again? She felt nervous, although moving was always more stressful than getting settled in the new destination. They did their best to be patient and resilient, and wherever they were to go next, they would make it into a home.

Jurgen looked at the alert on his tablet. The signal had gone out successfully, and tomorrow the final phase would begin. He'd get Surabhi to send a drone over tonight to check on Ngombe and her kin, but he was confident that they knew the drill by now. Giving them a day's warning was more than enough. He swiped up across, brought up the video footage of their new home and admired the transformation.



Where there had once been empty houses and abandoned malls, now there was a mosaic of grasslands, shrubs, and young trees. It was still early on in the project, but once Ngombe's tribe were settled there, the final stage would begin.

Ngombe looked back on the first time she had had to make the move. It had been stressful at first, not knowing where they were going, walking on to the strange transport with her family. Her older kin had comforted her and kept her calm, and the next time had been easier. The first home she remembered had been on a wide open plain. It had provided enough to eat and drink, but only enough. The landscape had seemed empty – very few trees and animals, and the birds were quiet. The routine had been dull – work first thing in the morning and just after lunch, then free time in the evening. Outside of work, there hadn't been much to do and nowhere to explore. She passed her time catching up and chewing the cud with her friends.

Work had improved over the years. Back then the overseers hadn't been so kind; they shouted at her and her sisters when they were late or made a mistake. Ngombe recalled her mother telling her that if you didn't work hard enough, then you'd be taken away. That never happened nowadays – they managed their own workload, and the men that had shouted at her as a youth had gone away. She actually looked forward to work now; it was comfortable, she could get clean and the snacks were good.

"Do you want another coffee, Jurgen?" asked Surabhi as she poured the oat milk into her tea.

"Yes, thank you," he replied. "I'll make the next round."

As she brought the coffee through from the kitchen, Surabhi looked around at the empty desks littered around the office. At first, she'd been disappointed that her first job after graduating had been just her and the old man, but as she'd grown to know Jurgen, a certain respect had grown.

"There used to be sixteen of us in here, you know?" Jurgen explained, noticing her gaze around the bare room. "It was a hive of activity, rearranging the landscape, keeping track of the tenants and making sure production was consistent".

## "What happened?"

"Fewer mouths to feed, and most of the demolition has gone to private contractors. With the Goloka project nearing its final stages, there's just not much for us to do now but let nature take its course."

It was true, he pondered. Western Europe was just an insignificant peninsula now. With an ageing population and very little immigration, swathes of land were



being abandoned. Old villages and towns turned back into habitats and carbon sinks. Most of the young people emigrated to India or Nigeria, where the real action was. Aid shipments to the former United States provided some external demand for agricultural produce, but with the rise in automation and urban farms the subsistence demand was low.

"You're in charge of the move tomorrow Surabhi," he stated. "You know what to do by now?"

"Yep, I'll head down early to make sure they get loaded up into the transports and do the final check. Once they get to the new site, I'll pop into the monitoring stations and make sure they are properly calibrated."

"Great, once you give me the OK, I'll contact Connor at the sanctuary to let him know we're almost ready for his contribution."

Surabhi shuddered. That was the part of the job she wasn't so happy about.

Inkomo was at the other side of the settlement playing with her half-sisters. Running around, investigating their surroundings, and poking their noses where they didn't belong. Ngombe's eyes brightened when she saw them. Inkomo was very young, and wasn't ready to join her family at work yet, but she was growing fast and soon she'd be coming to the facility with them. What would the facility at their new home be like she wondered? Hopefully, it wouldn't be too different, they liked their routine. Ngombe called Inkomo away and explained what was going to happen the next day. They'd queue up at the edge of their settlement and walk up onto the transports, where it would be dark and they'd all be huddled together. There would be strange smells and odd vibrations, but once they got to their new home, they could run free again.

The sun rose over the hills as Surabhi walked off the empty electric train carriage. She found it strange that they still used this outdated technology; back in India there were few passenger trains, everyone just used the much faster hyperloop network. Still, at least she'd been able to admire the view on the way from the city. There were rich grasslands, wildflower meadows and woods, interspersed with occasional abandoned buildings and empty villages. Soon they'd be gone too. Jurgen had told her the station that she had disembarked from had once served a town with a population of 9000, now it was just a few huts and the monitoring station.

The passengers were waiting patiently just outside the station gates, and gave her a big welcome as she walked towards them. It had horrified her when she'd learnt that the Westerners used to consume the flesh of these sacred mothers, who generously donated their milk to mankind. Part of the reason her family had moved to the West



was to monitor the strictly enforced welfare standards that India promoted globally. The declining European nations had adopted these values in return for money to help finance the ageing population. Another part of their deal with the ascendent African and Indian superpowers had been the landscape transformation to soak up the carbon they had expelled for hundreds of years. It has always seemed fair to Surabhi, given the damage they had caused.

Surabhi's earpiece beeped. It was Jurgen calling to check up on her.

"How are you getting on, are the passengers ready to move?" Jurgen asked.

"Yes, they're all here, I'll open the gates and get the drones to do a run down the walnut rows to check for stragglers. The crop is looking good and looks ready for harvest."

"Great! This'll be the last harvest before we clear this area for rewilding. Do a check around the dairy shed and make sure the drones have cleaned it for dismantling, otherwise, the Harvesters should be in tomorrow."

It was time. The strange-looking two-legged creature had arrived and was making strange high-pitched noises to herself while opening the gate. Ngombe and her sisters called out to let each other know it was time and they boarded the train, as they had done many times before. Inkomo stayed close to her mother and they prepared for the journey to begin.

As the train pulled up to its destination, Ngombe checked on Inkomo, who was huddled in the corner.

"Time to leave now," she told her "You can see your new home!"

They disembarked and looked around them. This was different from anywhere they'd been before. No long straight rows of trees, fences and or wide-open grasslands. Instead, young trees dotted the landscape, with shrubs, weeds and wildflowers scattered throughout. Delicious, she thought, as she and her friends started jumping around and exploring their new home.

It had been six months since the cows had been moved to their new home. They were no longer dairy cows, but a key part of a new ecosystem that was turning former farmland and dead towns into a new wilderness. The walnuts from the plantation had been harvested and sent off to the cities for processing, and work had begun to convert that land too. Surabhi knew what was coming next, and although she didn't like it, she knew it was necessary.

One of the key parts of the Goloka project was to populate the landscape with large herbivores, to mimic the extinct tarpans and aurochs that had once dominated



the pre-agricultural landscape. However, if left to their own devices these large herbivores could do significant harm to the recently restored ecosystem, by overgrazing until the vegetation was scarce, and preventing young trees from growing. If the population grew without any checks and balances, ecosystem collapse and starvation were inevitable. Balance was key.

Jurgen had notified Connor at the sanctuary to let him know that it was time for the final stage, and Surabhi had been working with him to organise the process. A group of eight would be taken to acclimation pens, far from where the cows had been let out half a year ago. The cattle had had time to adapt to their new home and get comfortable, but the newly restored wilderness would not be complete until the predators were reintroduced. For the first time in over 400 years, wolves would roam free again in the British Isles.

It was getting dark when Ngombe called for Inkomo and her friends to get back to the herd. It had taken time, but they'd adapted to the space and freedom of their new home. Without any barriers to hold them back, the herd had fragmented into multiple groups and travelled through the wilderness to find food. There was no facility here with snacks, so they had to find their own food as the weather grew colder and the foliage disappeared. Inkomo and her friends had gone off into the woods to find shrubs and young trees to eat, while the main herd had stayed together at the edge of the forest, avoiding going too far in. Ngombe called again, and shivered unconsciously. There was no response. As she started to approach the now dense woodland, something rustled ahead of her. The sky had become completely dark now, with only the moonlight reflecting off a nearby stream. Another rustling noise came from her left, when all of a sudden, she heard a piercing howl. Ngombe ran back towards the herd, and as she turned back to look into the woods a pair of yellow eyes stared back at her. As she and the herd stampeded away, she knew Inkomo wasn't coming back.

## **A New Hope** Aleksandra Mladenovic

*This is not what I went to school for*, she thought while putting her name tag on the shirt and stepping out into the store. It is a full house today, black Friday madness. *Ok Alex, you know what to do, smile and make these women happy*. Her sister just finished the first shift and was getting ready to run from that madhouse.

"Watch out sis, they are pretty needy today, guess this economy doesn't hurt the rich" Mary said while skipping through the boxes of shoes left on the floor.

"Thanks, hey did you get the jacket you wanted?"

"Nah, nobody was able to cover me with all of this happening, never mind, with the weather we are having right now I guess I won't need it either!"

It was the warmest December the Capitol experienced in the past 50 years. She kissed Alex's cheek goodbye and went on her way. In the meantime, women flooded the shoe store in need of a new pair of heels. It was a way to fill the void their husbands left neglecting them in pursuit of the moneybag.

After her shift, Alex took the bus home. On her way, she was listening to the radio news while scrolling through the Instagram feed. "We say goodbye to another bird species this month", the reporter announced, "The White-rumped Vulture has of-ficially been extinct as of today, while there was hope in saving this species by banning the use of Diclofenac for treating cattle somewhat a hundred years ago, the species never recovered. In other news, the ban on entering Capitol grounds still stands and will stand until the crime rates fall, says the President. He concludes with the statement that there are jobs for everyone who wants to work and opening new factories will only enrich our already flourishing economy. No need to worry folks, just be on the right side of the ramp, I guess. Here is Karen with the weather forecast". The voice

slowly disappeared as she removed her headphones. *I cannot listen to this anymore*, Alex thought while looking through the window.

There was so much fog you couldn't even see the building across the street. The fog came with the factories. The President promised that it would bring happiness to the people. Since there were no more fields to farm, no more crops to pick, people were forced to move to the cities in order to feed their families. The idea of opening more factories to solve the poverty and food shortage turned out to be an even bigger blow to the poor and the environment. The minimum wage became so minimal that you couldn't possibly pay all your bills, and put food on the table at the same time. And the toxic waste from factory processes damaged the environment. Everything was dying. People were so angry because all the income went to the Capitol and the rich, while the poor had to fight for the leftovers. Migration led to a mixture of culture in the city, small wars were led between gangs over the territories, over religion. Capitol, being the biggest city in central Europe, experienced an enormous flooding of people from all over the continent due to the economic crisis and environmental degradation.

Alex knew she could not live in this world anymore. Not like this, she studied so hard to make a change, to be part of the change and for what? To work in a mall? No. She had seen the ad before but was never bold enough to apply. It was pretty tempting with the pictures of nature restored and fairy tales about a better tomorrow for everyone! But it was an unpaid internship and money was tight at home. *Hell! I have a right for a better life, at least a chance for it!* She clicked the ad furiously and applied. Days passed and still no reply. Refreshing her email was the first thing she would do when she woke up and had become somewhat of a habit, a ritual. But one day while eating lunch on her little chair in the storage room she heard a notification sound coming from her phone. The email read:

"Dear Alexandra, we welcome you into our family at "New Hope". You are hereby invited to a special tour of the facility by the brain behind this organization, Maxim Spellman. And of course, afterwards, there will be a meeting with the rest of the staff where you will find out your future responsibilities. How exciting! See you on Monday! Best wishes, Cecilia."

She got the internship! A dream came true, but how would she manage the job and internship at the same time? She would have to quit. That sentence stayed in her mind for the whole day. When she came home, she saw her parents watching some reality show. A diversion created by the TVA moguls, invented to keep people focused

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on something else while the politicians ruined their country. Her father walked into her room and saw her crying. He turned the screen and read the email and knew how much this meant to her. "You are going tomorrow", he calmly said. "No matter what happens we can manage, but you are going to fulfil your dreams".

"New Hope" was an organisation that worked on developing new technologies for improving agriculture.

It was the morning she was waiting for. She put on her best outfit, lucky necklace, and her fanciest shoes. The drive there was quiet, her father did not say a word, just a smile. He dropped her off in the parking lot of the main building. The whole building was covered in green. It was grass. Hanging plants were dangling from every window and on every second floor, there was a garden filled with different types of trees. Alex could swear that she saw a lemon tree, but they went extinct back in 2070, it couldn't be. At the main entrance, a young man welcomed her. "Hello and welcome to "New Hope", be careful where you step". She understood right away what he was talking about. The floor was divided by ponds with many colourful fish swimming. It was actually a "working pond", a way of sustainably growing crops mixed with aquaculture and water consumption.

The way it works is that the fish waste is recycled and used for growing plants, and the water is recirculated in a closed system lowering the consumption of this resource. The whole building is a working organism, living and breathing to restore the nature we lost. Looking at the ponds she noticed someone approaching her. It was a figure of a woman in a grey suit. Maxim kindly smiled and shook Alex's hand.

"Hi, my name is Maxim Spellman, I will be your guide this morning".

"Hi, I'm Alex, thank you so much for meeting me, you probably have a lot to do".

"It is my duty to formally welcome you and give you some heads up about the company. Are you familiar with our work so far?"

"Well, I've read every paper I could get about "The Revolution" and I heard about you in the news and in the newspaper".

"Ok, some of it is true and some of it is not", Maxim smiled. "Nevertheless, let us begin, if you have any questions, you are more than welcome to ask".

Maxim started walking and Alex followed. At first glance, it looked like Maxim was a strong young woman with determination piercing through her eyes. But the smile revealed her other side, kindness. A side she tries to hide from the people because she knows how much they harmed her before.

"First stop, the mini-farms. Of course you've certainly heard stories that I make artificial vegetables and try to sell them to the big food chains. This is just a

farm, well a small one, with highly advanced technologies that help grow vegetables in a much more sustainable way. A big version of this farm is set to be made outside the Capitol. A few of them if we get the permissions we need."

 $\mathcal{Q}_{i}$ 

"In which way is this sustainable? Sorry if I am too forward". Alex asked.

"Not at all, the thing is, we do not depend on applying water, fertilisers, and pesticides uniformly across entire fields. Instead, farmers will use the minimum quantities required and target very specific areas. We run our farms differently than before, we use advanced technologies such as temperature and moisture sensors, aerial images, and GPS technology. It will allow us to be more profitable, efficient, and environmentally friendly.

"Oh, okay, and what is over there?"

"This is our 3D printing room; this is where our geeks print substitutes for ingredients in food. Basically, the printers use hydrocolloids, it is a substance that forms gels with water. Renewables like algae, duckweed and grass can replace the ingredients in food."

"But you need permission for all of this?

"Actually, I would like to call it support. You see, it would be wonderful if the government would support us. It is key in solving the food scarcity issue. By endorsing these programs, the government can reduce dependency on imports, become a net exporter not only of products but also IP, they can increase productivity and impact the shift to a knowledge-based economy."

"Did they ever listen to you?"

"I tried to schedule a few meetings with their ministry for environmental protection, but they say they are too busy for a dreamer like me, the world is collapsing, and I am thinking about vegetables. Nobody thought that maybe those vegetables can save us. But we are still doing the best we can with the donations we get from other organizations, the help of our volunteers, and my rich parents hah". You could see that Maxim was embarrassed while talking about her parents.

"They say that this kind of agriculture can be disruptive for food and security, what do you think?"

"Well yes, but disruptive in a good way. It may have biophysical, economic, and social impacts on food and nutrition security, it will have an impact on the way agriculture is embedded in ecosystems and landscapes. Furthermore, it is likely to change the way agricultural supply chains function, and the ways in which products are composed by food manufacturers, sold by retailers, bought by end-consumers, and food waste is prevented. How is that bad?"

"So, you are saying that your way of growing vegetables, trees, fish and al-

together can save our economy, get us out of hunger and include jobs for men and women?"

"Absolutely, we organise a lot of seminars about this topic, but who even thinks about coming when they don't even have the money for the bus ticket".

They walked through this magical building where you could feel life growing. It was like nothing else in the Capitol. Alex started imagining herself being one of the influencers from this organisation. She already started planning how she would save the world, well... let us start with the Capitol. Having Maxim as her leader she knew she could be groomed to become a great environmentalist. She was interrupted by a quick tap to her left shoulder. It was Maxim holding a glass bottle. "Would you like some freshly squeezed lemonade, Alex?"

## **Cooperation on a Finite Planet**

Amanda Jonsson

#### 8/9-2100

#### Dear diary,

What a great day this has been! I started my morning in the communal gardens by the river. This week it is my family's turn together with Chidinma's family to look after the communal gardens and prepare food for everyone. We started off with some weeding and harvesting; the corn is so ripe at the moment, and the rice fields are also ready for harvest. It has actually been a good year for food production, even though the weather is always a bit unpredictable. But our efforts to prepare for both droughts and heavy rainfall in our fields has really paid off this year. Local practices and the new advanced technology for weather predictions have greatly complemented each other. The resilience that we so strongly believe in truly increases every year! All the previous generations' efforts to improve the diversity and connectivity in all global production ecosystems have paid off! The increased connectivity and collaboration have also enabled better communication between different communities. Ever since scientists pointed out that increased connectivity can result in weakened feedback in the global system, they have been monitoring this closely to ensure that ecosystem feedback is recognized in time, so we are better able to mitigate and adapt to changes. I also think that our collaborations with all the communities surrounding ours have helped us learn from them and vice versa. Adapting the principles of no-till that have worked so well in their rice and maize fields has proved to be applicable on our field as well, and the harvest has increased by the looks of it.

After the morning duties in the gardens, me, Chidinma and her wife continued our day in the kitchen/restaurant. We still haven't decided on what we should call it after all these years, I am in favour of just calling it the heart of the community.



Well, I could ramble on here again about how important I feel that this space is for the community, BUT that was not what I wanted to tell you. When we started cooking breakfast with today's harvest for the 150 people now living in our community, we received some exciting news. In a couple of weeks, we will have the privilege of welcoming a group of scientists from various places around the world. They are coming to our region to collect data in our fields and gardens. Since this has been a terrific year for us, we are so happy to share our practices and experiences with the rest of the global community, with the help of these scientists. It was also quite some months ago since I last worked in the laboratory, so I am excited to participate in the process and finally analyse some soil samples.

#### 13/10-2100

#### Dear diary,

I am exhausted! This week has been very intense. The group of international scientists have finally arrived in our small community here in Senegal. The scientists are representatives from several other cooperative ecosystem villages worldwide and are all a part of the Global Cooperative Community of Science. Cooperation has truly been significant in these past decades. Many people, myself included, strongly believe that we would not have made it through the 21st century if it had not been for the increased cooperation not just locally, but regionally, and above all globally, to mitigate climate change. Sure, we still see the effects of climate change today, with fluctuating and unpredictable weather patterns. But by sharing knowledge, new technology, and a common agreement in environmentalism, we have managed to adapt.

I have been thinking a lot lately about my grandparents' stories about "The Big Awakening" during the 21st century. When environmentalism spread faster and faster as their generation started the movement that eventually spread into politics and economic systems across the globe, and how that truly changed everything. Together with the firm belief that nature has intrinsic value and that humans play an integral part in the ecological collective, people had to change their ways of living and behaving. They even managed to abandon classical neoliberal economics which was replaced with a version of environmental economics that focused on essential socio-ecological functions. Since then, we have gradually adapted to local currencies. We also trade most things these days, people are predominantly living in cooperative villages just like ours here in Senegal, where people help each other out to provide the goods and services needed. Besides, the global cooperative community ensures that resources not found everywhere are distributed equitably across the globe. When I ~~~

think about my grandparents being young and fighting for the planet during the 2020s and 2030s, I cannot help but feel incredibly grateful about what their generation managed to do. To change mindsets and the trajectory that society was heading towards, it could not have been without a struggle. Changing mindsets, and the entire global system's purpose away from continued growth towards socio-ecological sustainability was essential. I struggle to imagine how that time must have looked, it is truly so very different from how we live now.

Well, there we go again; I always manage to spin away in this diary... back to the scientists visiting! We walked them around our fields today, explaining how we managed them, how no-tillage methods, together with fertilisers, have increased our harvest every year. Together with the perennial cereal, rice and maize crops, it makes the soils organic carbon increase and utilises water and minerals more efficiently. They did seem impressed about what we are doing here. We also showed them where we have started up our replanting area. We have been receiving seeds for extinct native species from the global seed vaults that we have the responsibility to reintroduce. Even if my grandparent's generation did work wonders, it was in some cases too little too late, as the saying goes. The loss of biodiversity was severe, and the effects of climate change have made it even worse, especially in our area. But now with the help of the seed vaults and the cooperation program for restoring biodiversity, we are reintroducing lost species in our fields and gardens. Some of which we will replant in the wild as well. Diversity is essential in nature, in our societies, and in decision making. We started taking some soil samples today and will continue with that for the next couple of weeks. They also wanted to take some water samples, to keep track of potential runoff and eutrophication from the fertilisers that we still depend upon. We also mapped and calculated species to stay alert in case our area's biodiversity decreases further.

#### 24/11-2100

#### Dear diary,

Today I worked in the kitchen again, preparing food for our community. It truly is my favourite task, food connects us together as humans, it is such an essential part of who we are. It truly makes culture, both when we cook our old recipes, when we gather together every meal, and share experiences and stories, just as humans have for what seems like forever. What we eat and how our eating habits changed are some of the reasons why we still walk on this earth. The food system was once one of the major environmental impact drivers. But by connecting with the soil again, and partly with food as a tool, people changed, the food system changed, practices changed, and the environmental impact of food production decreased. Food is a powerful tool. We still



use industrial fertilisers provided to us by the global community, but much more carefully since phosphorus is a scarce resource, and the industrial production of nitrogen has decreased. We do not want to run out of it. Our soils depend on phosphorus and nitrogen to provide us with food. With new regenerative practices, the soil quality in many degraded areas was restored, which resulted in higher agricultural performance with fewer external inputs. However, I still feel like we need to be careful.

I also love when we gather for a meal to learn more from the people living here. I never get tired of hearing about them, their ancestors' lives, and lessons learned. We are a very diverse group of people living here. Some have lived here their entire lives, just like their parents, and grandparents before them. Most of us come from different places around the world. Senegal was believed to suffer severely from climate change but the efforts to install and prepare infrastructure were rapid here; thus we can still live here. But other places on earth were hit harder. Therefore, people had to leave some areas of the world. Most have relocated to northern Europe where climate change has also had positive impacts, and they can produce more food there than during the early 21st century. This food is also redistributed to us, for example, or other places that do not have the same ability to produce sufficient amounts of food. But where people live has changed, many coastal areas needed to be evacuated and people were relocated. Collaboration between countries and people made the relocations easier.

You see, now I rambled on about the past again... I get nostalgic after our meals, hearing the stories about our past.

#### 17/2-2101

#### Dear diary,

Today we got the results from all the samples we took during the autumn. It was not the happy news that I had expected. The soil samples showed a decrease in both nitrogen and phosphorus. Our soils need to have a high degree of available nitrogen to sequester carbon. The scientists are still trying to understand what is going on. They were also puzzled by the results having seen our farming techniques. I guess we just have to wait for now. But I do not have a good feeling about this. You could tell that the entire village is concerned. Everyone received the same information from the Global Cooperative Community of Science. Transparency in science is key, which means that feedback is instant.

**27/2-2101** Dear diary,

Now we finally know more. It seems like the fertilisers that we have been using are no longer containing the right amount of bioactive nutrients. It is not our practices per se, but rather the suppliers that have failed. This started an outrage in the global community. We have been receiving news daily from the Global Cooperative Community of Science. People all over the world are taking to the streets. It is not only our village that is affected by this. People feel betrayed by the system. It seems to be a collective problem. Which I guess all problems in an interconnected socio-ecological system are. The past decades have been characterised by cooperation and a strong belief in environmentalism. It seems like the global community has been fooled by the ones controlling the facilities to produce industrial fertilisers. Natural resources are actually running out! They have tried to hide this to prevent chaos while they looked for new solutions. But now we are here. Chaos. People are scared. I am scared. We will not be able to produce our food on these nutrient poor soils for decades to come anymore. This will mean that we have to relocate people again. But I do not know if it will be as successful this time even if cooperation is strong. There simply is not enough land left. The Global Cooperative Community of Science is working on producing artificial

fertilisers with algae and bacteria. We can only hope that it will not be too late. We

can sustain for a few more years, then the soils will start to degrade. I want to believe

in cooperation and that we will get through this, but we will see. I will still cook for

everyone tonight, maybe that can help settle things down. Tonight at least.

# The Last Generation

## Bella Klaus

Note to the reader: The protagonist is left undefined in gender, name and appearance.

I was standing at the edge of a cliff, looking out at what once used to be a lake. The dry valley before me stretched until the foot of the surrounding mountain chain, barely visible on the horizon. A warm breeze brushed a loose strand out of my face and I felt as though time had stopped.

"Are you coming?" a familiar voice called from behind me.

I took one last breath, uncertain of when I would be able to relax again, given the following days were expected to be turbulent. I turned around to answer the person whose voice came from the back of a pick-up truck parked a few meters away from me.

Raven was slender built, their short, platinum hair sticking up in every direction on top of their head, with the sides shaved down to a buzzcut. They were wearing their typical floor-length black coat and all-black outfit underneath. The only speck of colour on Raven was one icy blue earring on their right earlobe that matched their eye colour.

"Let's do this," I answered with a firm voice, and jogged towards the truck to jump on to the loading space right next to Raven.

I had known them since we were children, when we had to flee our countries during the Big Migration, caused by the impact climate change had on our homes in 2079. The increase in temperature has made sufficient water supply impossible. Farming and husbandry were suspended, food rationing led to starvation, which resulted in riots. I came with a group of fellow refugees from my home town in Egypt, and Raven from their village in southern Spain. Both of us ended up at the border between Germany and Belgium, in one of the Immigration Redistribution Centres, and had stuck together ever since. We found comfort in our similar pasts, orphaned and alone at the age of seven.

Our story was echoed more than a thousandfold in other people's lives. We were two of too few survivors of the Global South, who got a chance to migrate up north, clinging to the hope for survival in a climate-change ridden world. Never had I thought I would stick with Raven for this long, yet here we were, in the back of a truck on our way to do the one thing we still believed in: fighting for freedom.

The pick-up truck took a sharp left turn onto a dirt-road, and came to a halt under the cover of some bushes far enough off the main road to shield us from potential prying eyes. Raven and I jumped off the back of the truck onto the dusty ground. The front doors of the truck opened and out stepped our usual mission-partners, and friends, Pat and Drew.

The missions started as an act of rebellion when I was 29 years old, and fed up with the government of the country I was forced to live in. As an immigrant child, from a nation that no longer existed on human maps, I knew what it was like to fight.

Every generation in history can tell tales of great changes during their lives. Ours, amongst climate-change, and other issues that piled up from the past centuries, was the Great Depression of the 21st century. They called us the last generation, the children of generation beta and gamma which I always believed was a sign of hope, a positive outlook on the future: the last generation after which the world would change. As I grew older, I realised that they were being quite literal. They didn't call us the last generation because they had hope, it was because they had given up. We were at the mercy of fate, or more accurately, about to fall into a self-dug grave. Our outlook was bleak. What was there to live for if our world was likely to end due to our inability to take care of our planet? We accepted the name as we accepted our future with cynical apathy. Understanding the past, the ecological disasters, the economy falling apart, the massive waves of migration, it was no surprise when the suicide rates went up. It started in the southern hemisphere, where temperatures made it impossible to farm, water bodies began to dry up, and moving was not an option due to the extremely limited migration policies of the Global North. People were desperate and soon their spirits broke. Not long after that, the effects of climate change as well as the desperation started spreading to all parts of our world. In Europe, the Mediterranean area in particular suffered from droughts, floods, extreme heat, and biodiversity loss. Our world was destroyed and the last generation saw no more hope. There was nothing to live for.

I looked at the faces of Pat, Drew and Raven, and tried to ground myself in my new-found family. They were kindred spirits, who refused to accept the surveillance states as our new homes. Every time we set out on a mission, I sent a silent prayer to Mother Nature that all of us would return. The four of us donned our overclothes and swapped them for beige clothes made out of bamboo to blend in with the rest of the population of the country we were about to enter.

After reports of the early 21st century started to become increasingly alarming, humanity slowly moved towards sustainable energy, electrical vehicles, and switched to a "green economy." They fooled themselves by pretending that what they did worked wonders. Reports were published about how the new solutions started working and the rich celebrated so loudly that the voices of those who were without power went unheard, and their perspectives unseen. Yet again, the most vulnerable paid the price. By 2090 Europe, Russia, and North America could not stop the migration waves any longer. Most of the southern hemisphere was completely uninhabitable and people came flooding into Northern Europe, Russia, North America, and Canada. Even though suicide, and other effects of climate change, had reduced Earth's population, the accessibility to arable and habitable land also became more limited. The North could no longer pretend to be unaffected and ignore the South, and started distributing refugees amongst countries.

Raven and I were placed in France, where we would get to live in a shared living complex with other children and our caretakers. The borders between European countries were enforced with barbed-wire fences and walls to keep residents inside, and to make sure that refugees stayed in their assigned places. At school I was taught that nature is equal to humankind and we should never harm what little there was left of it. It was a mindset I had already adapted from my parents at a young age, but was never taught quite this vigorously. My wardrobe consisted of a few pieces of clothing made from hemp and linen. Raven and I, like all the other children, were given a single unique set of books and wooden toys, and were expected to share, so that we wouldn't have unnecessary doubles. I looked at my new home with the innocence and perspective of a broken-hearted child, trying to find connections to my former home whenever possible and merely wanting to fit in. Life was extremely frugal, and filled with learning about plants, animals, and producing food. When I grew older, I experienced the limitations of my life. I noticed the regular house-raids by the authorities who retrieved anything that broke environmental policies, ranging from too many sentimentally treasured pieces of jewellery, to books about politics, and capitalism in particular. Punishment awaited those whose house was not up to the newest sustainability standard, and any source of leisure items that went beyond the governmentally regulated amount were confiscated and redistributed to areas where they were needed.

Life was simple. Life was highly controlled. I collected small pieces of information and slowly started making sense of the system around me. I understood that all life was precious, and human beings were not of higher value. I fully committed myself to this mindset, and soon started telling on anybody who would put the slightest strain on our environment. I observed and learned, but when food was further rationed, I started asking more questions and demanded answers from anyone who could give them.

Who decides over our supplies?

"Well, the authorities in each country," they said.

Why are they doing it?

"Resources are running out. We need to have trust in the authorities that they distribute everything fairly," they reassured me.

What are they taking away from some of the houses? Why are they doing it?

"To protect our people and the environment you know. This is the only way it can work. And now stop asking questions," they ordered.

I was never satisfied with the answers I was given. I felt limited and censored, and sensed that something was off. When I went looking for answers on my own, I received warnings, threats, and ultimately punishment, but my curiosity and fury only increased. I grew angry and bitter at these strangers' ancestors that had the power to change the course of environmental destruction, but chose complacency over action.

And then I finally found some answers. Outside of towns and cities, in the nameless land in-between countries' borders, where the authorities often didn't bother with surveillance, underground freedom-communities started to form. They too were angry and longed for freedom, and while they also believed that nature should be protected at all costs, they wanted to achieve it by giving people back the power to decide over their own lives. Not through the government, but through grassroots initiatives and self-governed communities. Their ideas were the same as those of the European governments'. only their mindset included direct democracy. People started grouping together, likeminded sought each other out and formed communities, to farm, socialise and live as normally as possible. I couldn't help but join them. They had answers and I wanted to experience life beyond the fenced-in nation I was forced to live in. After more than a decade of (mostly unsuccessfully) avoiding conflict, and staying off the authorities' radars we decided it was enough. We were no longer able to watch what was happening to those unaware of other possibilities. In 2101 we started our missions to infiltrate the authoritarian states. In the beginning, our missions were aimed at sneaking into cities, spreading information, and laying out an alternative solution, and then returning to our communities' bases. When we became braver, we started helping people escape and join our communities. We even started guerrilla attacks to provoke, and cause disorganization and disruption at a larger scale.

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Today's mission was aimed at providing information and spreading hope. An informant told us that there were a handful of people who had tried to escape multiple times on their own accord, and might be willing to accept our help. Pat, Drew, Raven and I trekked a bit further into the dry bushes and then found ourselves at the end of the undergrowth. A strip of bare land stretched from where we stood, all the way to a tall barbed-wire fence. After walking parallel to the border, in the protection of the bushes, we spotted the weak point in the fence we had found a few days ago. We looked at each other, nodded in silent agreement acknowledging the official start of the mission, and turned our attention back to the fence. We were here to aid others in the upcoming revolution, to give information, to help rescue them from imprisonment, and establish communities.

Our goal was to protect the planet, and live peacefully with nature. It was never about disagreeing with everything the governments were trying to do, after all, we were working towards the same thing. But we believed in listening to everyone's voices and we wanted to make our own choices.

With fire in our hearts, and compassion for those in captivity, we approached the hole in the fence to begin our mission.

## **Frozen Hope** Cleo Bakker

Sarah was tying the shoelaces of her boots, her foot propped up on the little bench beneath the notice board. Her fingers were fumbling for the laces, the thick isolation material of her coat making it difficult for her to reach. Ollie, her 4-year-old husky, was jumping around her and trying to lick her face. When she finally managed to tie her shoelaces she crouched down next to him, checking to see if the clasps of his harness were secured and grabbing his leash. Ollie was wagging his tail excitedly. Sarah chuckled. She had often wondered if Ollie was the only being on the planet actually excited about the current predicament of the world. She walked over to the door of the research facility and entered the code on the little pad next to it. She heard the heavy locks move and saw a small opening appear. Cold wind immediately blew into her face and as soon as the opening was big enough, she forced herself through it. The cold, strong wind was whipping around her. Heavy snowflakes were being blown in all directions, assaulting her face and trying to get underneath her balaclava. Behind her thick, protective glasses Sarah could just make out the cleared-out trail with lights on either side, leading away from the facility to the small town a few kilometres away. Sarah looked to Ollie who was biting happily at the snow and had already turned a small part of the trail yellow. If it weren't for his orange harness, Sarah doubted she would be able to keep track of him for long. His white fur blended perfectly with the snowy white environment. The only things standing out were his eyes, one piercing blue and one black.

Together with Ollie, Sarah started marching down the illuminated trail. It didn't take long for her to feel the skin on her legs starting to prickle, her legs being the least isolated from the cold. Ollie trotted beside her, sniffing the landmark poles,

and not seeming very bothered by the -30 °C temperature. Sarah felt the trail climbing up which she knew meant she had almost reached the village. Halfway up the hill, she glanced to her left as usual. She was just able to see the top of Big Ben in the far distance. The lights of the city which would have surrounded it in the past were gone. The world had entered a new ice age around 40 years ago, five years before Sarah's birth. The climate crisis was destroying the planet. Many planetary thresholds had been crossed, and governmental solutions came too late. Van Beek Industries had grown into the most powerful and influential tech company in the world. It had hired a team of scientists and created 5 different technofixes, each for a different climate problem. They seemed to work great for a while, but then the Van Beek "Iceback" technofixes encountered an unexpected complication. They were meant to slowly lower the temperature of the waters around the North and South Pole, restoring the ice sheets in those regions and lowering the sea levels using the sun as their energy source. They worked perfectly for a while, but the solar flares started. The flares caused the machines to take in a lot more energy than they could handle. They started to cool the waters around the poles too quickly, disrupting the natural cycles of the oceans. As there were around 500 machines positioned around each Pole, the scientists couldn't repair all the machines in time. They eventually triggered a chain reaction resulting in the first planet-wide ice age of the Anthropocene. Now, the only region on the planet still sporting a reasonably temperate climate was around the equator. Sarah was born in that region. Her parents were among the first climate immigrants, fleeing their home in London and settling in Singapore to start a new life. Four years ago, Sarah had taken a job at the Van Beek "Energy, Agriculture and Technology Research Center". She worked in the agriculture department where she was focusing on creating new, genetically modified crops to feed the worlds' population. She was also tasked with expanding the "Genetic Material Database". For this, she had excavated DNA samples of different plant and animal species sent to her from all over the world. The ice age had affected biodiversity in the world greatly. The Database was a way of keeping the genetic material available for the future, in case the ice age would disappear, and life could roam the earth freely again. Hopefully, by then, it would be possible to resurrect the different species using the DNA from the Database. When Van Beek Industries had announced the opening of their new facility, many had wondered why it was built in one of the areas of the world most heavily affected by the ice age. The official statement was that the facility would take up too much precious space in the equator region, space which should be used more effectively for harbouring climate fugitives. After working in the facility for four years though, Sarah suspected it had more to do with the technology experiments happening in the East wing. Van Beek Industries did not want too many people knowing about those just yet, and the isolated location of the institute certainly helped with that.

Sarah kept walking over the hill, and after a few more minutes, she reached the little town square. Bunkers of grey concrete and metal were built around it. Each bunker was a shop of some sort. The shop owners had done their best to make the bunkers more inviting by hanging lights and decorations around the entrances. The town contained a post office, a market, a café, a library, a community centre , and a bar. The town was called Highpoint. It was small, but it provided everything the tiny community needed. She made her way over to the post office and felt the warmth inside envelop her like a hug when she entered. The post office was cosy, with a wooden counter and warm lights hanging from the ceiling. The owner greeted her from behind the counter.

"Morning Sarah! How can I help you today?"

"Hi Stan. I believe a package has been delivered for me here a few days ago. From Brazil". Stan disappeared into the back and she heard him rummaging through the racks of parcels. The little TV monitor attached to the ceiling behind the counter showed a news report:

"Tensions around the equator are rising continually as more and more wealthy climate immigrants from the Northern hemisphere are gentrifying neighbourhoods and taking over businesses. The population used to be happy about the immigrants coming to their countries and bringing money and opportunity. Now, riots are sprouting up as citizens feel they are being pushed further and further into poverty and watch their cultures disappearing before their eyes. We now go over to our correspondent Michael in São Paolo to tell us more about the situation".

Sarah turned her gaze away from the monitor and sighed. Her father and mother had kept her updated on the situation in Singapore, but she strongly suspected they hadn't told her everything. No doubt because they didn't want to worry her, but it made Sarah even more nervous to be kept in the dark. It wasn't that she didn't understand where the anger of the native population of the countries was coming from. She had lived in Singapore most of her life and had seen firsthand how the people were increasingly being treated as second class citizens. Many had been protesting already, calling it the second colonisation of their land, and comparing themselves to historical indigenous groups such as the Native Americans who were pushed off their land as well. Not to mention the disappearance of their culture. The immigrants wanted to eat what they were used to eating and keep their own customs. Slowly, all the native foods, ingredients, and customs got pushed into the background. The citizens called it unethical, tried to elect governments who would stand up for them, but the governments eventually always cared more about the money.

"Here you go Sarah, I think this is the one. Did you want anything else?" Sarah had been staring at the counter, lost in thought. She looked up at Stan and took the small parcel he was offering her.

"Thank you, Stan. No this will be all for today. Give my love to Mary and the kids!" Stan waved her goodbye and Sarah went outside holding the package, bracing the cold once more. Ollie trotted after her and together they made their way back to the institute.

Once inside Sarah zipped open her thick coat and kicked off her boots. She undid Ollie's harness and he immediately jogged to the common room, probably looking for his dog bed and planning to drag it in front of the fire. Sarah followed Ollie into the common room on her damp socks. As she went in, she immediately noticed the tension hanging in the air. Eric, Miyuki, Jenny, Paola, Andre, and Per were sitting at the big round table. They all looked worried, angry, and afraid. Sarah was mostly confused.

"Hi, guys. Is everything okay? You guys look like something is seriously wrong." Eric looked up at her.

"Something is... Check this out." He grumbled and shoved a piece of paper across the table to where Sarah stood. She picked up the paper and read.

Dear employees of the Energy, Agriculture, and Technology Research Center, We at Van Beek Industries highly appreciate everything you do for our fine institute and the hard work you all deliver to the rebuilding of the world. We therefore wanted you to be first to know of our newly developed innovation. Your esteemed colleagues from the East wing have developed a new technofix, the Van Beek 'Icemelter'. We believe this technofix is a revolutionary piece of technology that will rid the world of this horrendous ice age. Trials with the 'Icemelter' will start in a month. Please refrain from spreading this exciting information outside of the institute just yet. We will let you all know more about our media coverage plan in a few weeks. Join us for a celebration of this joyous news on Friday the 15th! Location will follow.

#### Regards,

Truman van Beek,

CEO and head of the Energy, Agriculture, and Technology Research Center

Sarah finished reading the letter and felt a deep pit in her stomach.

"They're going to do it again?" She whispered, rereading the notice, and feeling disgusted by the fun and careless tone used in it.

"Have they learned absolutely nothing from the last time!?" She said while she felt frustration and fear clamp her throat.

"You know they think they're doing the right thing, Sarah. You know a lot of people do. The people in this institute are a few of the only ones in the world who were able to piece together the real story of the ice age. Most people believe their propaganda story that they were too late with the technofix and that climate change itself made the ice age happen". Eric said, looking up at her.

"Then shouldn't we do something about this!? Shouldn't we tell everyone what is actually happening here?" Sarah was so angry she felt her hands ball into fists. She couldn't believe they were going to do this again. And worse, she actually worked for this company. Four years ago, she had no idea about the actual story behind the ice age, and now it was too late.

"You know how they work Sarah" Miyuki said in her soft voice. "They know where your parents live. And they always find out who it was who leaked the information. Remember what happened to Kevin." Sarah gulped. She was right. Kevin had drunkenly boasted about the company in the Highpoint bar one night, telling everyone who wanted to hear it about his work in the East wing. The next morning, Kevin was gone. No one had seen him or heard from him since. Sarah trembled. An icemelter. She could think of so many things that could go wrong. So many things that would imbalance the world even more. Technofixes were never fully secure, you could never really know what the global consequences would be. It could maybe work in a certain region, but the chain reaction effects on the global level were much more difficult to predict. But Van Beek Industries was convinced this was the way to go. They had so much power now it didn't really matter who opposed them. They would win no matter what. Somewhere in the back of her mind, she registered Ollie licking her hand. She looked down into his mismatched eyes. He cocked his head to the side, as if asking if she was okay. While looking into those eyes Sarah thought of all the people who were crammed in that little strip of earth around the equator. The people who had lost family members because of this ice age. She felt the determination and anger bubble up inside her like lava while she stood there, still with that piece of paper in her hand. She didn't care what would happen to her. It was time for a revolution.

## **The Crusader**

## Emelie Elfvengren

Angular and calculated, the Southern Harbour stretched across my entire field of vision. The sharp, jagged architecture clashed with the round, organic lines characterising the city centre where temperature-regulating glass and exotic plants had been trending for the last thirty years.

## "She's a beauty, isn't she?"

I nodded, and let the rest of Kira's words fade into the background. In front of me, the Crusader rose from her slot on the concrete platform. The ship was placed in its oval-shaped charging station, raising her at least thirty meters taller than the original hundred and fifty, and could easily be mistaken for a skyscraper if it weren't for the steel camouflage. A thin gangway rose over a hundred meters towards her arrival deck. I recalled a sentence from a guest lecturer who had told us about our maiden voyage. *A never-ending climb toward heaven*. I never understood what he meant, thought it was fairy dust spiritual nonsense. Until now. I tasted blood.

"Burglar-proof," Kira laughed. "I thought the university would prepare you better. Didn't you have any requirements for your physicals at all this year?"

Hundreds of army boots crackled on the creamy white polished floor of the boarding hall. Large navy curtains covered the windows, only leaving sterile lamps to light up the people lining up for registration. I saw an opening and quickly approached an administrator. He gave me a cloudy smile.

> "Welcome, disciple. Full name?" "Cecil, sir. Toby Cecil." He scanned my chip and looked at his screen. "Nationality?"

"First and second-line British, third line Eritrean."

## $\bigtriangleup$

"Eritrean? Very impressive. Don't think we had an Eritrean before. Educa-

"Fifth year on the Sea extension program, London."

"So, this will be your maiden."

"Yes, sir. And after that-"

"-final exams in January. Placement in February. I know the drill."

I nodded.

tion?"

"Bunk 6582, deck 65. Catering is available in the restaurants on decks 20, 57, and 68. The introduction is at five o'clock in the concert hall. You'll find everything in here."

He handed a plastic folder to me.

"Good luck, disciple. Next!"

Kira smiled.

"Feels pretty good to get those extra credits now, don't it?"

I knew that my origin would provide an advantage in the ethical diversity quotas of the recruitment process, but I had no interest in declaring Kira as the winner this time. After passing three narrow corridors we reached a grand lobby constructed by glass, where transparent elevators passed weightlessly through metallic pressure pipes. A multidimensional light model of the ship was placed in the middle next to a large screen.

"Feels like this place is expensive," I said as we approached the model.

"You should see the concert hall," Kira answered. "It's covered in rock crystal and silver."

"Sounds like money well spent."

"I heard it's for morale," she said. "You'll get it after three months on sea."

She placed my hand on the reader. My name and crew position appeared on the screen and bunk 6582 lit up on the miniature. Kira told me about the technology, how the Crusader had integrated the science of fifteen previous New Nobel Prize winners. Or to be fair: the theoretical calculations of fifteen previous New Nobel Prize winners, leaving the actual construction to high-tech companies in Scandinavia. At this point, they were all gone with the rest of the high-rollers to "explore the possibilities of humanity," leaving us to protect the shreds. Why live a mediocre life on Earth when you can live in full bio-luxury on Mars? When it comes to the rest of us, I guess there is still something for us to extract before we all can get out of here.

We stepped out on deck. Mom's prophecy seems to have been fulfilled: summer would last long enough for my maiden voyage. It was supposed to be a good sign - if you believe in such things. Beyond the concrete harbour and the superior city

of glass skyscrapers, green, vibrant forests stretched toward the horizon. In front of us, Marseille's idyllic urban area loomed along the bright, turquoise coast. The green economy blossomed. Poverty was eradicated 20 years ago. Today's society was truly an engineer right down to the soul, the type to believe that one can build and construct everything. Even the living. It was "a damn artificial greenhouse", as my conservative uncle would have put it. Although we had previously laughed at the expression, I was willing to agree after seeing it for myself. The city really kept the wilderness safe behind man-drawn squares. And safety needs to be deterministic and tailored. A strange feeling of gratitude washed over me. The wall really did save the Earth. Or at least what was left of it. A loud signal thundered from the horn. The concrete platform slowly started to sink underwater and the air pressure engines started.

"Can you feel it?"

"Yes!" I shouted. "It's like we're weightless."

"Cool, huh? The latest air pressure technique. Come on, the gate is over there."

We pushed through a group of people to reach the railing facing the Mediterranean. I looked out over the sea. There it was. Covered with anthracite grey, glossy panels, cameras, and lights, marking the shift between a crystal blue and a blood orange sky. It was even more striking in reality than on the news broadcasts projected on our high-definition media home system. The ship began to slide forward. Far ahead, a part of the wall started rising, and the opening of the Southern Gate rose from under the sea. Another safety measure.

"I think it got better after they updated it. That stone-like panel was awful." "Agreed," I said. "I read that the gate has the architecture of the triumphal

arch."

"That's nice if you believe conspiracies," she said. "However, I hope it works better than the last one. You know eight years ago, the big media scandal?"

"The Breakdown?"

"Yeah," she chewed. "It was actually a military coup carried out by the Southerners, not an electrical issue as the media claimed."

"What? Why didn't you tell me?"

She looked around.

"On the phone?" she hissed. "You know they're listening. And it's not like we met you know... *physically* during the last years."

"But how do you know?"

"Navy talk," she continued. "And it's not pleasant. Southerners seemed to have evolved. New tech, new weapons. Got the electrical system down in a few days. They're like roaches. It's even rumoured they will do another attempt next year. There have been signs, you know."

The floor started to wobble as Kevlar-clad walls began to enclose the deck. "What's happening?" I asked.

"Did you think it was going to be like a cruise with sunbathing on deck?" Kira laughed. "The ship gets in defence mode as it exits the gate. *Cocoon-up*, as we say. Now come, before we get suffocated by the vacuum."

I looked around in the crowded, circular ballroom. Even the silver glittering balconies on the top twenty floors seemed to be packed with people of all ages. I took the first bite of my second portion.

"This is insane," I said. "You can't even tell it's digital".

"I know," Kira answered. "Thanks, science."

I chewed the artificial steak.

"Is it this crowded every journey?" I asked.

She nodded.

"It has been since the military coup a couple of years ago I told you about. The Breakdown. Before, we only filled the first sixty floors."

The captain, an elderly man dressed in a black officer's suit, stepped up to the glass podium in the middle of the hall to an increasing swarm of applause and whistles.

"Welcome to the fourteenth departure of the Crusader. As this message is shown on every screen on the ship, I would like to take this opportunity to welcome the entire crew. It is an honour for us to see such a high level of competence combined. Ten thousand, one hundred and ninety-nine to be exact. We have a long trip ahead of us and are expected to be back in January 2101. Tomorrow, the individual training begins, and it should be very clear that we place high expectations on our crew to succeed. But it should also be clear that I feel hope when I see your faces. I see familiarity. I see pride. And most important - I see success. You know, I would even take it as far as claiming this to be the journey that Sergeant Müller finally manages to do ten pushups."

The crowd burst into laughter.

"After you, sir!" a man's voice shouted.

More laughs. Applauses. The captain cleared his throat.

"But before dessert is served, the head of security would like to say a few words."

A tall, blonde woman walked up to the podium, accompanied by a loud cheer.

"Thank you, captain. As for safety on board. When the ship enters a red area, outside temperatures reach ninety-five degrees. UV-rays will burn a hole in your skin

in under fifteen seconds. The same applies to grey zones where the air becomes toxic. Before these zones are entered, a general warning is called as hull impacts may occur. The crew is then asked to wire belongings according to setting four thirty-five. Furthermore, preparedness applies according to the signals in the manual. The two most important ones to remember are code 0, enemies within our safety zone, and 33, unknown geological danger. Otherwise, study hard, be safe. Thank you."

The captain joined her.

"Thank you, Sarah. Finally, I would like to raise a glass. May we have a successful time at sea ahead of us. You know how we say it... The Crusader and its crew's mission are to..."

"Help, save, and protect!" hundreds of voices answered.

"Have a nice dinner, crew!"

A battle song thundered from the speakers making the crowd clap in rhythm.

When I returned from the bar, Kira had brought company to our table. Typical Kira. Starting an after-party with her career friends to keep me from studying. The strawberry blonde woman in an emerald green uniform turned to him.

"Oh, is this the friend you told us about, Kira?" she said and examined me with bright eyes. "What was it- the second-liner?"

"No, third Eritrean." I said and held out my hand. "Toby Cecil. Fourth line of defence."

"Third is still amazing," she answered. "I'm Katie. Katie Schmidt. Twenty-first navigating officer."

I shook her hand.

"Toby is a childhood friend of the family," Kira smiled. "We grew up together. This is Chad Jensen, head of hazardous chemical extraction. And Juan Mendez, physical director and first-line Bolivian."

"Wow!" I exclaimed. "I never met a first-line. You have to tell me what it's like."

"It's not a big deal..." Juan smiled and shook my hand. "To be honest, I'm prouder of my physical training and coaching responsibilities."

I smiled and sat down next to them.

"Well, technology these days can determine the colour of your skin but cannot change the inheritance of your blood." I said.

"Yes, that's true," Juan said and took a sip of the beer.

"So, tell us about Bolivia," Chad said.

"There is not so much to tell. I got here when I was a toddler thirty years ago." Chad frowned. "So, you mean... You were a part of the large Shutdown thirty years ago? When the wall stopped working. It was all over the news, my mom even kept some printed articles and-"

"Yeah, the biggest thing since the Collapse in 2056!" Katie filled in. "Historical to say the least."

"Yeah... Or my parents. We left Bolivia after the bio collapse in 2071. Luckily, that happened at the same time as the Shutdown, so they made it through without facing any security. Sadly, many got lost on the journey only a few years later."

"Yeah, luckily the wall works again, so people won't have to take that risk again," Kate said.

Juan looked at her with an uncomfortable face.

"Why does it matter if they get here? Food hasn't been an issue since the bioprinters. Neither has transport due to air pressure technique, or clothing since the 4D printer. There are millions out there with nothing. What do you suggest *they* do?"

"I don't know, but us Northerners have the right to defend our land. The wall was put in place due to a democratic decision."

Juan shook his head.

"But what can you say when you're not part of the conversation?"

"It's not like we're animals. And after being the head of the Red Cross in London for many years, I should be the one to know. Last year we sent over three tons of clothes across the wall. If that's not charity, then I don't know what is. Besides, it's not our fault they destroyed their biological communities. All the talk in the past... About things like Earth government. That was our project – not theirs." Kira said, clearly upset by someone stepping on her charity toes.

"Actually it was, since it initially was supposed to be about global issues and governance," I said. "It becomes quite obvious when you read writings from the pre-collapse epochs. We extracted what we could until there was nothing left for them. Now we're doing it in space."

"You as a scholar should know that's not real history: that's a conspiracy." Kira answered.

"Do you mean we should trust mainstream history that only covers one hundred years?" I asked.

"Don't be ridiculous! What could be more neutral than history?"

"Depends on who writes it." Juan said.

The company fell silent and loud jazz music roared over the table. Toby smiled as Kira swept her glass. The sign of her being done with politics for tonight.

"Well, we have to leave. Toby has to study. I'll show you to your bunk."

Another typical Kira. Retreat after defeat. No errors recognized.

The bunk was small and sterile. A bed, a small table, an information screen, and a narrow closet.

"Good night," Kira said shortly. "Reality starts tomorrow." "Night."

She shut the door hard enough to still be upset. I undressed, laid down, and opened up the information package. It was unreal. My first night on the Crusader. My fingers moved from the paper toward my braided, red-pale family bracelet. I closed my eyes and there it was. Eritrea. A distant land drenched in dunes and overgrown with plains. The folder slowly slipped out of my hands. Endless nights with the scent of incense, earth, and fur. Magic, as Grandma said. I saw her living room. The sculptures and masks. The replicas of ancient instruments. And Crusader was going to pass it next month. Even though no one in my family had seen it with their own eyes, it was out there somewhere, beyond the sea. I will be the first.

The signal almost got me falling off the bed. A red light pulsed inside the bunk. Code zero. I quickly put on my uniform. Suddenly, the door was torn open and Kira leaned in. I had never seen her face so pale and her eyes this wide open. Even her uniform was wrinkled. Her hair outside the braid.

"What's going on?" I said.

"I-I do not know," she stammered. "They're not... they're not usually this close to the wall! I thought..."

"Kira, breathe..."

"At least a week... They become more and more. Come on, we have to get to our stations!"

"But I don't know my..."

"You're East defence, deck 75."

A middle-aged Sargent tried to create order of the chaos on deck 75 as maiden crew members tried to find their stations while regulars filled ammunition with weapons that were facing outwards. Warning signals blasted from the speakers. At least no need for an oxygen mask. The hatches opened, a salty gust of wind hit the corridor. The Sergeant called a list of names in the broad American dialect.

"Cecil?"

"Yes, sir."

"Weapon slot 357."

"But I'm not ..."

"First-line defence unit needs reinforcement," he said. "Get over there."

I jogged to the slot and tried to think about what Kira had said. That they

were so many that he would hardly have to do anything. That the first-line defence were so many that he hardly would have to do anything. That some of them practically competed for the first shot. Even hacked their weapons to search their ranges quicker. I activated the weapon and aimed it over the horizon. The homing device found no sign of movement. Just calm, cloudy water. Suddenly, it beeped. I froze. Something was out there. I held my breath and looked through the binocular sight. The old boat was in horrible condition. A tent has been shaped of dirty sheets on sticks. There were people. Men, women, children. Three goats and a dog.

"Sergeant!" I called.

The Sergeant walked up to me, obviously annoyed.

"They are unarmed," I said and showed him the boat on the screen. "So?" he said.

"So what?" I repeated. "Help them up! Or let them go!"

"Are you crazy? If we rescue one then we'd have to rescue them all! We need to send a message. There are more out there. We are here to protect!"

I looked at him.

"How is this protection?"

"We protect what is ours."

I fell silent. Maybe Juan was right. His sharp eyes pierced me.

"You wanna do this job, disciple? We don't have time for a sentimental speech, I've got twenty in line."

I looked at my bracelet. My life. Eritrea. White dunes. Sun-soaked wind. Inherited songs around an ancient fire. For what? A fairytale of prestige and money taking place in an "artificial greenhouse" city. Crusader was a family, my new family. Inside jokes and life investments. This was my path. Or was it? I saw my reflection in the cold metal. My head nodded.

"Now defend us, disciple," the Sergeant said. "Load up." On an unsteady hand, I took aim and held my breath.

## Degrowth and DSL: A Tribute to My Grandmother

Frederika Yngwe

*Chronicle posted in the Cloud, 2101-11-16. Written anonymously by a Granddaughter in Stockholm, Sweden.* 

My grandmother told me that 100 years ago the centre of the world were cities like New York, Tokyo, and London, where there were shops all around where people lived. No store or business was ever closed, and no one ever slept. At that time, people were buying so much stuff that even the values of their homes were determined by storage space. All the stuff cluttered their minds, but they kept buying more, consciously or unconsciously, to climb the social ladder. The great threats to public health were obesity and stress, as a result of the too-muchness culture laying heavy over everything that was then considered civilized, modern, and successful.

My grandmother told me that it didn't seem all that bad at first. In her youth, it felt like a dream. She travelled to London, New York, and Tokyo, and shopped, shopped, shopped, telling people with pride that the things she wore and had, were one-of-a-kind and hard-to-get. She said it was first in her late teens that she realised what so many along with herself kept denying; that the never-ending work and the strive for more was degrading the planet and human well-being.

There were rumours then that if you worked hard enough, you would have influence and be invited to all the parties and important events. They called it *The American Dream*, and there were movies, books, stories in the news and told by family and friends, about people who did it. Who made it. Who suffered just hard enough to get everything that everyone wanted. They were always busy, and everyone was envious, wishing they too could always be running between meetings and have-todos. They were always on the phone, always emailing. During vacations, by the dinner table with their children, and in front of one of their many televisions. Even at night, because they, the super-successful, had figured out how to function without sleep. If you didn't have all that yet, you didn't work hard enough. It was simple in that way. The only thing to do was work while balancing on the right side of burnout, and your parents would be proud of you. You would have many friends, and people you didn't know would admire you.

At the beginning of the century, it all started to crumble, my grandmother told me. It was said that my grandmother's generation was the first to be worse off than their parents. My grandmother and her peers started communication campaigns and engaged in activism to change the growth-driven society. People started realizing that working hard didn't give them all the success that had been promised by the growth economy. Many blamed other people for the failure of the American Dream; they believed that they were entitled to the jobs others had stolen from them. Instead, stories were spreading about people on their deathbeds regretting all that time they spent working (they worked, 40, 60, even 80 hours per week!), wishing they had spent it instead with their loved ones. More and more scientific findings were published on limits to growth, exposing that what people had done to better themselves through accumulation, was in fact contributing to environmental degradation. And the never-ending growth had been achieved not only by the exploitation of nature but from the exploitation of people living in the Global South. Thus, people were killing not just themselves, but other people, and the planet. All in the name of more.

Scientists called those times the Anthropocene. The discourse on the Anthropocene led people to recognize that environmental degradation resulted from the human strive for constant economic growth. Thanks to global information flows, in an ever-so-interconnected globalized world, people could actually see the effects. My grandmother told me it was a hard pill to swallow, as it used to be so simple what to do with your life. Harder for others than for her though , as she wasn't the one benefiting the most from the growth paradigm. The world was in agony and became increasingly polarized, as the top earners and owners resisted changing the economic system that for so long had made them the winners of that time. My grandmother called it the time of growing pains, referring to the physical growing pains I complained about as a child that led me to be the woman I am today.

To get rid of the growing pains, global value chains were deemed global poverty chains, and large corporations were unable to make the profits they used to. Debts were cancelled between the Global South and the Global North, enabling the global inequality gap to decrease. Redistribution policies and reduced workweeks were in-

# stated across Europe to ensure resource efficiency rather than aiming for productivity gains. Sweden started using targets to reduce GDP and its importance, and eventually stopped measuring GDP altogether, as everything anyway was shared and repaired rather than owned and remade. Many were rendered unemployed as the only jobs available were those valued by society in the degrowth economy, and automation technology replaced some work, allowing leisure time like never before. Some moved to the countryside, and those who lived in cities experienced a shift from retail-studded grey streets, to the Stockholm we see today: streets and buildings covered in greenery, birds chirping, clear blue skies, and communal spaces where people collaboratively manage the commons. It was then people started truly valuing nature and human relationships above profits so that today there is no longer any tragedy associated with the commons.

Those who used to be the winners, and all of those who had lost their perceived shot at winning in the growth economy lost their sense of self and purpose, leading them to seek it in new philosophies of life. Slowly but surely the American Dream narrative dissolved, and new ideas of success and happiness emerged. Not only had people seen the effects on the environment and inequality from the growth paradigm through global information flows; they also started to feel it. A new idea of the human relationship with the environment, emerged as a response to the unsuccessful anthropocentric ways of life, was the Connected Self philosophy. An idea that we are all connected, that there is no "other". As the new prevalent cultural narrative, the Connected Self did not allow for anyone to be better than anyone else, people could only better themselves through the bettering of everyone and everything. The strive shifted from more things for the isolated self to enough for the Connected Self.

We entered a social-economic state that recognized that social and economic life happens within the environment. There were no longer externalities in economics like there was 50 years ago, since there is no more logic in separating humans from their environments. The cultural and natural heritage of indigenous traditions and mythologies could be conserved and thrive, as threats of environmental deterioration and post-colonialism reversed. Countries in the Global South did not follow the degrowth path that Sweden and other countries in the Global North did. But after a period of poverty alleviation made possible from the end of growth-driven exploitation, they eventually became agnostic to growth, and today don't measure it either.

My grandmother said that we don't compete against each other these days like they used to when she was young. But I don't agree. Today, we compete differently; rather than pursuing benefits to the isolated self through the exploitation of people and the environment, it is about competing collaboratively against the challenges facing the Connected Self. If that wasn't true, there wouldn't have been such a race to develop technologies to secure energy and food.

My grandmother told me that the greatest minds 100 years ago were working to keep people on digital platforms for as long a time as possible, motivated by monetary profits. When monetary profits did not give social status anymore, people started working to preserve and regain the ecosystem services that had been injured or destroyed in the growth paradigm. And in 2101, came DSL: Download Seeds for Life, the collaboratively governed revolutionary app and 3D printing service. Even though the Connected Self norms had changed people's diets to be more plant-based, freeing the land from cattle farming, the growing population still required land clearing for water-intensive agriculture. But with DSL, everyone could download seeds and bacteria cultures, to grow nutritious raw food in just 30 minutes.

After the launch of DSL, everything changed. As the seeds and bacterial cultures were cultivated digitally, and grown quickly in people's living spaces, land was freed to be reclaimed by nature. Large plantations disappeared and soils started recovering. Deserts were regreening, oceans cleared of pollutants, and coral reefs recovered. As the DSL designs were shared globally before 3D-printed locally, people everywhere could feed themselves and their loved ones, eliminating food insecurity. But not all were happy. Farmers with centuries of agricultural heritage in their families lost their sense of self, along with their agricultural way of life, just as the capitalists did when new economic rules were instituted. Farmer networks started to form, those who were angry did what they could to discredit the new technology and regain their way of life. It was a challenge for them to enjoy the leisure that DSL gave them, but eventually, some came together to convert old farms into museums celebrating their heritage.

Today, I look back on the growth paradigm and thank my grandmother for courageously being one of the activists that spread the word and disrupted it all almost a century ago. I thank my grandmother, because now the climate has stabilized, and science tells us we are approaching the return of the Holocene along with slow but sure soil recovery and increasing species richness. I thank my grandmother for allowing us to enjoy leisure, a thriving living environment, and for the devolution of public health issues such as stress and obesity. Mostly, I thank my grandmother for telling me these stories, including them in the history books, so that our generation knows which values to protect.

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## The Colour Red at the Loess Plateau

Heiðdís Inga Hilmarsdóttir

#### Dear Jia-Rui.

I know you won't believe me, but I am very sorry about everything. I didn't mean for all of this to happen. Looking back, I would've done things so much differently, but I guess I can't change that now. Every night when I close my eyes, I can see the last moments from when we were together. I hate that vision and it haunts me. But every day when I'm awake, I can see you where we first met.

I had never been to the Loess Plateau before. Or I mean, not physically. I had seen it in my wrap-around screen with full motion. Growing up in Shenzhen, I always thought of the Loess Plateau as a place for farmers and hippies. Yes, it looked nice, but I never really cared. I had everything I ever wanted in the city. And when dad proposed this deal to me, I didn't really want to do it. I felt safe and comfortable working for him here, in the city, in my office, on my couch, with my coffee dripper assistant. But then he told me that his business relied on this mission and if we would fail, it would mean bankruptcy for Tencent. Since the tipping point 50 years ago – when food insecurity peaked and healthy soil seemed a diminishing matter – Tencent have been trying to make the healthiest soil possible artificially. This mission has taken forever, and when dad got promoted to chief executive officer five years ago, this became the goal of his life. I had to look at it that way. I was not gonna ruin that for him. There was too much at stake. So, I went to the Loess Plateau, with this one goal. After I met you, that changed.

Arriving in the Loess Plateau was something else. It smelled different than the full motion effect back home, it was... fresher, in a way. When I asked to speak to the

soil manager, I didn't think I would meet someone like you. You wore all dark green, had a small red jewel on your chest and your hair was in a ponytail, like a black silk scarf stroking your shoulders. You told me it was nice to meet me and I told you I was a journalist. You took me for a walk around the area and that walk ended up lasting the whole day. My Tencent ring told me it was the best day of my life. On the way, you told me about how ecosystems work and how everything is connected. You told me that your community was more than food self-sufficient because of your rich and healthy soil, unlike the rest of the country. Although China has been making green investments and finding green technical solutions in growing food, the demand for food in the country has multiplied over the past decades. You also told me the history of the area, how it became one of the world's most eroded regions, because of thousands of years of over-exploitation on the ecosystems built on dry wind-blown soil. And you told me about how hard your great grandparents worked on restoring the area, and when the place became a net-zero carbon sink. You knew all the plants like they were your children; Medicago sativa, Hippophae rhamnoides, Ziziphus jujube... "I'm grateful for my biocultural wisdom, but the plants have been here longer than I have and know more about the Earth's system than I will ever do. They fed my ancestors. The least I can do is to show them respect by knowing their names." When you started telling me about the soil, a cold shiver ran down my spine. That was why I was here. You said that you normally don't open up about the soil, since many have tried to take over the place, mainly big tech companies that only cared about money and profit. Another shiver. You also said that normally you don't open the doors to strangers, but this time - with me - it was different. And then you smiled. You took the red jewel from your chest to open up the doors to the soil bank and then placed it back. You kept it close to your heart. We spent up to an hour in the bank, I asked endlessly and you had every answer. I got what I came for, but I didn't want to leave you. After visiting the bank, you asked if I wanted to join a dinner in your community. Without thinking, I said yes.

The whole day is still like a pink cloud for me. I was in awe. I didn't know people could really be this happy. And mostly you. You were so free and you were so thankful. You had so much love to give. To your friends, your family, and the surroundings. And to the soil. We ate the most delicious food I've ever tasted, that your aunt had made with her bare hands. After dinner, we went swimming with your friends in a lake nearby. We took all of our clothes off on the waterside and ran to the lake. I haven't swum for a long time, so after a while, I got out of breath and went back to the waterside. Putting my trousers back on, I spotted the jewel laying on top of your shirt. This was my moment. Images of our day together came flashing through my mind. Nothing had changed but at the same time, everything had changed. I also thought about dad, and I heard his voice saying that he loved me and he trusted me. I heard your voices coming closer, so I hurried. I took the jewel, but I wish I hadn't.

What you have to understand, my dear Jia-Rui, is that I did it for my dad. When he was growing up 50 years ago, it was a completely different environment. He wasn't born into a rich family. They were suffering from food insecurity. Their main meals consisted of rice and wheat, and that was often the only nutrition of the week. My grandparents had to work long hours to get him to school, and he was the only one with an education in his family. He made a promise to them to provide for them after graduation. He is the most hardworking man I've ever met and still to this day, he works every day of the week. I barely ever saw him at home. He doesn't have to work so much but I know he doesn't agree. He still has the mentality of providing for us. When I got home that night, I couldn't sleep at all. Dad had been trying to call, but I took the ring off so I was out of reach. I thought about the phenomenal view of the day, and since most of us live in cities, how lucky I was to be one of the few experiencing it. I thought about the food we ate. I thought about dad, and what he would say when I would hand him the jewel to the soil bank. How he and Tencent will conquer the world, with your soil, your child. Mainly, I thought about you. I thought about the different sounds from the birds and the sound of your voice. I thought about the colour of your skin and the vibrant colours of the surrounding. I thought about the ecosystems that gave your community food and water and how you gave everyone hugs and attention at the dinner. I thought about how bright the sun was, and how bright your smile was. I thought about the powerful waterfall we stopped by to enjoy and I thought about the power you had over me, when you took your clothes off and ran into the lake. I regretted the whole thing. You probably wouldn't notice the missing jewel until tomorrow morning, so I still had time. Holding the jewel in my hands, I ordered a drone and ran out the door. When I got out of the building I pulled up. Standing in front of me was dad and two guards. He saw the jewel in my hands and said "I'm so proud of you, son. Let's go."

Why did you, dear Jia-Rui, have to tell me all about the soil? Why didn't you just treat me like any other journalist? Why was it different with me? I didn't say a word the whole way in the drone, but dad listened to my ring and heard the whole thing. We arrived with silence at the bank. He opened the door with the jewel carefully.

"Dad, I –"



"I need to tell you something, dad. I don't know abou-"

"Please," he said and placed his hands on my shoulder. "You've done your duty. And you have no idea how much this means. Now let's get the soil and get back home."

Because you told me how the storage boxes for the soil work, dad knew exactly what he was doing. The further in the mission we were in, the more tense and unlike himself he became. He had a glimpse in his eyes I've never seen before. When I tried to say something, he didn't even hear me. While opening the last storage we heard someone approaching us from behind. There you stood with your hand on your chest and looked me in the eyes. You weren't afraid but I was terrified. You stood strong but your eyes were wet. You said with a shaky voice that you could pretend like none of this happened, we could all go home and this won't have any consequences for us. Dad looked at one of the guards and he attacked you. I ran towards you, but the other guard pulled me away. We both screamed and fought as hard as we could, but it didn't make a difference. I watched your face disappear behind the doors, screaming and crying.

"Dad, please, why?"

"Stop!" He said firmly, with a voice that didn't sound like his. "You don't understand. This isn't only about Tencent. Ever since the tipping point, the people of this country have been more and more segregated. They say we are developed and they were so proud of the rise of the country. But those statements didn't apply to all of us. If it wasn't for soil, my parents wouldn't have survived and I wouldn't be standing here today and neither would you. This thing you have done is bigger than both of us. You should be proud of yourself. There are people in this country still dying because of famine. With this soil, we can grow more food and feed the people. You have to understand, I'm doing it for them."

Dear Jia-Rui. You were right about what you said, this won't have any consequences for me and dad. I'm not really sure what else happened that night. I've been numb ever since we came back a few weeks ago. My dear Jia-Rui. If you only knew how much you affected me and the influence you had on me and the spark you sparked inside of me. But you will never know. And you will never be at the Loess Plateau again, and you will never smile and laugh and swim and hug again.

## Second Generation to Clean Energy Huifen Cong

It is the end of the year 2100, and we are in Shanxi Province, China. Our protagonist Zhang San, the CEO of the Second Power Plant, is an advocate of Chinese religions. Let us dive into his memories to find out about his experience of a changing planet pre 2100.

#### 31 Dec 2100, Friday

"Well," Zhang San clears his throat, "let us continue." This topic, which would determine the company's transformation in the decades to come, has triggered countless shareholder meetings. Zhang San and some of the shareholders insisted on having technological reforms and tremendous investment in the second generation of green energy to generate electricity. But they were fiercely opposed by Li Si. On one of the walls of the office, a beautiful piece of calligraphy was hung up, the Chinese characters read; Yin and Yang. Yin and Yang represented the balance of all things by two opposing forces, a concept based in Daoism thought. Two groups sit on both sides of the meeting room with their considerations, and they seem to be interpreting the meaning of this calligraphy writing.

It wasn't the first time the Second Power Plant had experienced a revolution in its history. In the 2050's, the Plant had to shift to clean energy, wind power, as the central resource to produce electricity. The Power Plant was based in Shanxi Province, which was famous for its abundant coal resources at the beginning of the 21st Century. At that time, the coal industry represented nearly 25% of the national output and about 5.6% of the total production . However, the advantages of using coal for power integration had already disappeared due to resource scarcity and the carbon-con-

strained climate during the following decades. The exponential growth of the human population and expansion of cities in previous eras, combined with the consumption of natural resources and energy at alarming rates, saw to it that the supply of resources could not offset the increasing energy use demands. What is more, the increased demand contributed to the intense emission of energy-related carbon dioxide worldwide . Renewable energy was one of the cornerstones to solve the environmental impacts and resource scarcity.

Zhang San went over the historical changes in his head once again. The rapid decarbonisation process before 2100 aimed to accelerate the shift towards net-zero emissions of the global economy. However, the penetration of low-carbon technologies and the decarbonisation process still require significant mineral production worldwide. For example, the demand for lithium, a leading mineral element of batteries in electric vehicles, dramatically peaked at 965% in 2050 compared to 2019. The transitional road faces a vicious circle: "a shift to renewable energy will replace one non-renewable resource (fossil fuel) with another (metals and minerals)". History bore witness to a tremendous shift, the power plant changed directions towards deep-ocean mining,which allowed them to survive the transition period . Zhang San's actions proved to be successful and led to the discovery of a large amount of the minerals from the ocean, which were essential for wind power turbine manufacturing. Wind power seemed to be a clean energy source to facilitate sustainable development; however, its novel demand for deep-ocean minerals accelerated resource consumption and, in turn, damaged the Earth in unexpected ways.

"Just as I said during the last meeting, technology transformation demands immediate attention. Take Australia for example. The Australian government greatly encourages the research of wave energy extraction for electricity production even to promote the whole country's energy structure. We should also figure out new ways to transform our energy rather than remaining stagnant with the current energy systems. Otherwise, there are severe risks that the resource..." CEO Zhang San is interrupted.

"Well, well, well..." Another shareholder Li Si says, "You always have lots of 'fancy' whimsical of your so-called Anthropocene risks. However, did you consider the possible issues? If we chose to invest in the so-called second generation of green technology for electricity production, it would cause a lot of fiscal revenue loss. The traditional mineral industry was historically responsible for creating many indirect or induced jobs in the economy. Our previous transformation to intensified automation and mechanisation of deep-ocean mining already caused large levels of unemployment. There will be another wave of unemployment coming when we close down the

deep-ocean mining and the current power plants. How can our remaining employees make their living? Their families, children... How can you consider yourself an advocate of Chinese religions? Then where is your belief in benevolence? You seem to lose the key code in Confucianism."

That is the truth. Zhang San has always been fascinated by Chinese religion, which has had a tremendous influence on his life for about 30 years now, and he is not alone. Confucian classics have been promoted through reading in educational institutions, as well as part of training courses for entrepreneurs, politicians, professionals, and spiritual seekers. It was his beloved grandparents, who were devout believers in the Chinese religions, that guided him towards it. Last month, he was invited to the International Confucian Ecological Alliance's Annual Grand Forum in Shandong Province, China, Master Confucius's hometown. After learning about Confucianism's ecological aspect, he realised that the Earth is a precious inheritance and humans are just partners of both the Heavens and Earth. Humans need to be responsible and careful of an orderly part of a collective effort. At this point in time, Zhang San no longer wanted to be a "successful" businessman who ignored the Anthropogenic risks, he knew that his personal beliefs had the potential to not only help protect the Earth but to also lead the business towards success.

The meeting with his shareholders finishes without any substantial results again. It is long and conflict-laden. Li Si has challenged him several times since. Zhang San sighs and leaves the meeting room. On the way back home, he gets lost in a myriad of thoughts. He remembers how it all had started. Anthropocene risks were a novel expression after the 21st Century and described the world's significant human-induced hazards. It means globally connected systematic risks named after humans' leading role in the geophysical, economic, and social systems and caused unexpected effects of interconnected interactions. The last Century witnessed how humans were changing the planet and amplified these risks to an immense degree, causing permanent changes to the Earth's surface, climate, and ecosystems. For instance, humans modified the weather patterns and climate. Warming surpassed 2 degrees Celsius above pre-industrial levels, exposing 350 million more people in 2050. The sea-level rise extended above 2 m in 2100, causing disastrous impacts in the coastal cities where 10% of humans lived within 10 m of mean sea level. The Anthropocene risks signify distinct and irreversible destruction to the Earth.

The Anthropocene risks view, which implies that a winner today could well be a loser tomorrow, always comes to Zhang San's mind when he meditates on the relationship between humans and nonhuman existence. The Chinese religions, serving as spiritual guides towards ecology, taught him that the Earth is alive, and humans should extend kind love and care to all living creatures. Confucianism directly points out the personal obligation in collective action towards solving problems and addressing these risks. Zhang San clearly understood the potential threats to the sustainable futures in his Power Plant; however, Confucianism's moral principle to believe in benevolence caused him to become conflicted when it came to choosing between ecology and his employees.

Considering the trade-offs of investment for the second generation of green energy transformation in his company always caused Zhang san a great deal of grief and he found that he would get frequent headaches whenever he thought about these complex issues. He decided to leave all the complexity alone for the day when entering his house. Sitting down on the comfortable sofa, he stretches a bit and opens his family album, hoping to find some comfort in nostalgic photos of the past As he flicks through the pages he reaches a family photo and stops...

In the photo is a young Zhang San, probably eight or nine years old at the time at a holiday villa with his family. Around that time, a 30,000-ton tanker had hit a rock in the Pacific, and more than 20,000 tons of crude oil spilt into the ocean. The oil trade was illegal at that time, while the whole society aimed to decarbonise and be fossil-free. However, the quick shift increased the renewable energy price and caused the black market to transport and sell fossil fuels at an affordable price for the poor. The ocean was not far from their holiday villa. The beach around the villa, in which Zhang San had many precious childhood memories, was totally ruined in that incident. When the family came to the hellish coast, the sea turned black, and the waves became weak under the thick oily pressure. Together with many volunteers, Zhang San and his family looked for the seabirds still alive on this black beach. They were struggling in the oil... Looked like black sculptures made of asphalt. Only a pair of eyes proved that they were alive. The photo showed the child Zhang San sitting on the black beach with a greasy and small body, watching the sunset, feeling as if it was the end of the world... Even after so many years, the seabirds' eyes struggling in the oil still often appear in his nightmares...

The 21st Century witnessed many severe environmental pollution incidents, such as the oil spill Zhang San encountered. At that time, under prevailing shareholder capitalism, many people were solely focused on profits over any other stakeholders or society as a whole. It caused environmental degradation and the destruction of biodiversity. The Living Planet Index showed a 58% globally steep decline in animal

populations (amphibians, fish, reptiles, mammals, and birds) between 1970 and 2012. The biosphere integrity, one of the planetary boundaries, was on its way to collapse. The loss of biodiversity was even more severe by 2100. Humans continued down this destructive path, causing nearly half of the higher life forms on Earth to go extinct. The impact was not only the loss of animal life and species altogether but caused ecosystem functions to degrade which dramatically affected agriculture, leading to an extreme decline in global food production.

Zhang San turned the page and suddenly, a letter he had never seen fell out of the album. It is his grandparents' last letter from when they were alive. In the letter, his grandparents were still angry about his previous decision to go ahead with deep ocean mining. It read, "*Mining destroys the marine lives' habitats and degrades the seabed*. *You ignore these inevitable biodiversity losses, no matter how hard we try to persuade you... Sorry, it is still hard to believe you have made such a decision, we hope you can correct yourself one day... otherwise, we will never forgive you*"... An old newspaper cut was attached below his grandparents' words, which reported, "In the early decades of the 21st Century, almost all oceans in the world were affected by humans; only 13% was *regarded as wilderness, causing a significant influence on marine biodiversity*. The accelerating loss of marine biodiversity dominated by humans caused substantial impacts on maritime ecosystem services."

Zhang San could not control the shaking and struggled to hold back his tears looking at the photo and this letter... He missed his grandparents. They were gone and there was nothing he could do that would bring them back, but he could still do something to relieve his great sorrow and regrets. After a while, Zhang San began to feel calm once more, and a renewed responsibility for conserving healthy nature and slowing down the collapse of biodiversity loss. He reminded himself of what Daoism and his grandparents had taught him: if all species in the universe grow in order, then a society is a unity of affluence. He cannot deny the unsustainable issues caused by his deep ocean mining decision anymore. Zhang San suddenly sees everything very clearly: he decides that he will persuade other shareholders to invest in new green energy and ban the traditional plants as soon as possible!

"Ho... Alright," Zhang San sighs and takes a deep breath. He felt like he had just finished running a 10km marathon. He cannot wait to have the decisive meeting tomorrow with the other shareholders.

However, what happens the next day leads the whole world into the abyss of great terror.

In one of the scientific experiments several years ago, Earth's location is discovered

by a superior civilization on another planet named Three-Body, which dominates the universal power beyond Earth. The Three-Body civilization (TBC) quickly invades Earth and defines humans as "insects." The "insected human" has no choice but to be controlled by TBC because of their unfair power disparity. TBC treats Earth as their mining site without any sympathy or care. The consequence of their constant and greedy mining has caused irreversible disastrous swiping through Earth's ecological environment. Looking at the problem riddled Earth as it becomes a dead planet without hope, Zhang San suddenly realizes that the devastating damage caused by TBC is similar to how humans have treated the underwater ecosystem in deep ocean mining. He and the other humans are greedy aliens.

Do unto others as you would have them do unto you.

The fundamental Golden Rule of Confucianism echoes in his mind. It is a lesson that he learns the hard way.

## **A New Beginning**

Giulia Rossi

#### Grandmother's Diary - Extract

"Anthropocene'. Everybody was talking about it. Common citizens suddenly started to speak about environmental problems and the impacts we humans had on the world. The green movements' battles and awareness campaigns had been increasing in the first decades of the 21st century. As a result, they were able to surpass the scepticism beyond the idea that our planet was changing in an unfavourable way, and that humans were part of the problem.

The first reaction had been despair. The challenge presented was different from any before in history. The range of the crisis was staggering, from soils to air, from oceans to the spasm of extinction. The time frame available for the implementation of a solution was small. Data flooded in and it seemed like it was impossible to be well informed. The advertisers and marketers, subsidised by the leading corporations, were pointing at the consumers as the responsible ones. It was overwhelming. The increase in climate despair was becoming a social threat to action. A new paradigm has been brought forward during the 2020 decade: the Anthropocene. According to this narrative, the impact of our intervention in nature had such relevance as to deserve the adoption of a new terminology for the current geological era. The domination of humans over other species was accepted and our enlightenment proposed as a solution. Humans had become the unstoppable architects of our world.

The Anthropocentric idea became quickly popular thanks to its connections with our historical past. Old ideas and authors, like Pico Della Mirandola (1491), become popular again. The essence, he wrote, was not in the whole, it was in the man. Instead of God, it was the human, the one trusted by the people with the order of creation, thanks to his intellectual capacity and enlightenment. The Renaissance became the model to follow. Once again man was seen as the master of nature, with science as his biggest ally. Environmental degradation has been blamed for the ignorance of a vision that was undervaluing the power of human actions. In the new one, we could overcome any and every problem by applying new knowledge.

This new wave of hope was not without foundations. During the first half of the 21st century, technology and science were making enormous progress in the field of sustainability. Green technology and eco-friendly solutions were not only providing alternative forms of energy but to a certain extent, also protecting the flora and the fauna. Resource scarcity was not seen as a problem anymore. Every time that we lacked something, we were able to discover an alternative source or to create an alternative product. The only limit was set by our ignorance.

Agriculture and laboratory production were becoming more efficient. Our science became so powerful, that we found ways to improve and substitute nature itself. Proteins were created in laboratories, plants were genetically modified to be more resistant and to improve their qualities, and many other projects were under development. Areas of restored wilderness were created far from the city, to allow nature to restore without human influence. The environment was still degrading, but the significantly decreased pace was fuelling the scientific movement. We believed that we were going to win the race with the planet; there was no problem that science could not solve.

Following humanity's trust in science, economic growth slowed and changed, but never disappeared. It was fuelled by a green economy, which incorporated ideas from the circular economy and was based on principles of recycling and reuse. Strengthened by increased technological efficiency, consumerist habits were kept alive. Green production seemed to be the answer. Blinded by our success, we failed to see the increasing costs and problems.

Although revolutionary, the technology needed to maintain efficient production was extremely expensive, and the new studies were funded by the government and business with mainly political and economical goals. After an initial phase of excitement, during the 50's we started to notice that the challenges gradually became harder to overcome. Every time that a new solution was proposed, new and un-forecasted problems arose , requiring new technologies and research. Thanks to technological improvements, resource use had diminished, but it never completely stopped. We gained a few decades but we weren't able to avoid the inevitable resource scarcity. As a result, the intensive use of new technology in every production process slowly stopped being a choice. During the 60's it became a necessity. Gradually, small farmers

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and artisans were not able to bear the costs anymore and were convinced to sell up. The exodus towards big cities, already growing, became definitive at the beginning of 2070.

The privatization of the means of production was seen as the best strategy in order to guarantee continuous improvement. Due to the increased price of innovations, private and rich companies were seen as the best future investors. Following the old strategy of 'illusion of choice', a handful of multi billion-dollar companies started to own and control everything we consumed. The price of basic goods skyrocketed, and the city's labour force grew exponentially. The privatisation process, and the derived concentration of wealth in the hands of just a few people, was so gradual and hidden, that people failed to acknowledge it. Inequality became part of the general perspective and the idea of a few owning all was naturalised. Without realizing it, men and women were deprived of their anthropocentric power and became just another medium for corporate extraction.

And now, here we are, at the end of the 21st century. The totality of the world population living in crammed cities. The rest of the land is arid and covered in machines that guarantee the production of basic goods. It is said that few of the original restored areas still exist, but no one can prove it. In the latest decades, technology has developed so much that human labour has become almost unnecessary. Global inequality and poverty indexes have just reached their historical maximum. Ironically, so has GDP.

Social control is constant and maintained by machines, otherwise, the few rich people left would not be able to keep their positions. Due to poverty, and the lack of basic resources like nutritious food and water, health conditions are critical. An increasing number of diseases are decimating the global population. Evolved from the genetically modified organisms that we created, they have been too strong for our science to fight. In the end, nature has demonstrated that she is the strongest one. This time, we will listen!

The last of us are tired of being subjugated, and we started to collaborate. We believe that a shift in politics, and consequently in culture, is necessary. We need to break free from the construct of modernity as human-powered development. Human dignity and autonomy have to be once again guaranteed. The intrinsic value of the world needs to be acknowledged. We need to reinterpret the meaning of society in a new paradigm that will see the men ousted from the golden throne he had built for himself. We need a Revolution, and it's coming.

I'm already old so I probably won't survive long enough to see the world after the rebellion, but I don't want my memories to be lost. They will be useful in the future, in order to avoid making the same mistakes.

Today is the 1st of January 2101, and this is my living statement."

#### Today - 04/04/2131

I always find my grandmother's diary extremely interesting. Even though it was written no later than three decades ago, it is the only history we have. I wish it didn't stop just before the revolution. I was just a child back then, so I can't remember it. The only thing I know is that after a very fierce rebellion we finally overcame the rich and the machines. We finally gained control of the city and the technology. Afterwards, most of the people decided to stay in the city. Some, like my family, decided to leave, in search and hope of the old natural reserves. Due to social control, coordination was not easy, but we were sure that ours was not the only city to revolt. Your presence here is a demonstration. I have to say we were really surprised to see you coming. We did not expect to be found so soon. It took us a lot of courage and exploration to find this place.

I'm honoured to be the one showing you the city. Before you enter, I need to give you a brief introduction. This place is built on shared values, and we require everyone to respect them. This was the first request of the indigenous people, once we met them. I can see your surprise. Back then, we felt the same. As you know, during the restoration projects all the indigenous populations had been expropriated from their very last territories and were believed to be extinct. It was their deep environmental knowledge that enabled them to hide and survive. When we talk about this community as a drastic human adaptation, they laugh. So many times in their history they had to face the same challenge. So many times already, they had to drastically adapt.

First thing once entering, we will go and pay respect to their sacred tree. Traditions have a broad role and different social functions in their culture and society. It has not been difficult for us to merge our values with theirs. Of course, not everybody here believes in spirits. Instead, we all agree on the denial of human superiority. With their help, we developed a paradigm in which humans were not the only actors anymore, but members of the earth's community of life. The natural world is finally perceived as a system of interdependence in which living things and the environment are interconnected objects.

As you can see from here, the buildings have an interesting layout. Its focus is on the interaction of architecture, people and nature. Each house, and the village itself, is regenerative by design. Cultural, spiritual and historical traditions have been

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incorporated into the planification process. The concept of waste is eliminated, but the full life cycle of every product is evaluated and optimized. The village is built in order to be integrated into the natural ecosystem, thanks to the acknowledgement, the use and the harmonization of the landscape components. Supportive relationships are built between the environmental elements and people's needs.

All the projects have been developed sharing the knowledge between indigenous people and us. Our scientific knowledge and technology has been helpful to solve many technical issues, while their worldview has been fundamental in order to create a community that lives in mutual respect with nature. The cultivation system that we use is based on regenerative agroforestry principles, in which trees and agriculture are merged. The different elements of our system complete each other. In this way, resilience is enhanced, biodiversity increased and the land is used in a more climate-friendly way. The process of natural understanding has also allowed us to plan for the future. Acknowledging that change is an inevitable part of life, we design for change, understanding that things will alter over time.

As citizens, our goals have changed. We have finally recognized that endless exponential growth is an absurd concept. Having the possibility to start a completely new system, we broke away from the common idea of economy and opted for degrowth. The three major values, autonomy, sufficiency and care, are at the base of all our social organisations. Cooperation and altruism are basic values and wealth is finally evaluated through a personal happiness survey. The decision-making process of the village is done through open assembly and workshops. Everyone has the same right to participate. No matter their gender, social role or ancestry, everyone has the same ability to influence the process. We try our best to keep inequality at its minimum. Thanks to our altruistic values this is not a difficult task, but it is reinforced from an innovative equally distributive design of production, in which everyone has their basic needs satisfied.

I see you are getting impatient, let's stop talking and go inside. I'm sure you are eager to see the village, and you still have to tell me about your community. Where did you say you come from?

# Mars for the Rich

Jelmer van der Ham

#### February

Vast open water dominated the sights over Elbe lake. Valse could never get enough of soaking up the view of it and had made the riverbanks his spot for daily contemplation. Merely the occasional visit of a lizard would disturb him from soaking up the scene. Though Valse was aware that the once-river had been slowly devoured by excess seawater, every breath he took seemed to mimic another ripple in the seemingly endless lake. A distant shout suddenly disturbed the peaceful scene that Valse had consumed for hours.

"Snow! There's snow!"

"What are you on about, Othello, it's like 20 degrees", Valse responded. A tall, fair-haired person approached him with childlike enthusiasm. "No, you muppet, on Venus! The pictures are as white as can be."

Ever since people set foot on Mars, LeBrix, the self-proclaimed *Star Tsar of the Heavens*, sent monthly briefings to Earth with meteorological data about Earth, Mars, and Venus. Though Valse was slightly annoyed by the disturbance, he knew how Othello cherished the idea of snow as his mother used to show photographs of white landscapes, though he had never come close to seeing it in person. After reminiscing and shared laughter, the two went to base camp to read LeBrix' message.

"Wow, it really is -4°C," Valse assured his friend, who was strikingly more thrilled about the distant cold, though his worrying mind could not neglect the rising numbers for earth. "Too bad you haven't been picked to go, I don't know any of these people."

In every briefing, LeBrix chose 5 individuals who were granted a spaceship to travel to Venus. The mere reminder excited Othello even more.

"Venusian XIX.II will leave without me, but surely March-" His enthusiasm was promptly overshadowed by a loud shriek.

As Valse had experienced numerous times, it was Kepiński wailing in his sleep from down the hall. The old man had been plagued by foul dreams for decades, ever since the war ended. Kepiński was one of the few first-hand witnesses of how desperation can ravage humankind. The first Mars expedition coincided with the melting of the Great Ice, resulting in many areas left flooded and uninhabitable. A conflict of space triggered bloodshed in an attempt to claim the remaining habitable areas in central Europe. During the war, everyone who was incapable to provide Martian progress was exterminated, leaving thousands of bodily disabled people to exist only as memories. Knowing Kepiński was the only person who knew how to fix androids, Valse awoke him from his dream.

#### "Visions again, Kep?"

"Aye, Valse, the night has not been kind to me. Towering steel blasting through flesh without hesitation still tortures my mind."

"Those pesky war machines from our oh-so compassionate Martian overlord LeBrix?" A voice from the sleeping bay shouted, "I wish they took the rest of the world with them!"

"Stop spreading lies, it's never been proven," Othello insisted. "They were malicious androids from the Eastern Isles. LeBrix' army defeated those bastards!" Continued bickering paved the way for Valse to pick up Kepiński and set off to the excavation site.

As Kepiński was busy hammering away at broken androids, he uttered to Valse, "you know that beloved Elbe of yours has been growing again right? It's like a toddler who has been fed too much."

Valse nodded, keeping in mind that the base's occupants had given him the reputation of the town drunk.

"Kep, how can I get drunk?"

"Ah, my boy" Kepiński responded, grinning to himself and leaving a long pause, "to be frank, I can't remember. I recall that once in a drunken rage in 2063, I crippled an android so badly that it was bent to my will. Too bad I lost the fellow during the war; he could really upset those pesky Eastern-Isles folk. Why do you ask, has Othello been spreading rumours about me again?"

"Just wondering, I can hardly imagine anything else than just sitting around all day," Valse responded. Kepiński's grin turned into a fatherly chuckle.

"Well, I can show you how to mess up these machines. I don't know how much longer the gods allow me to do this work." The two spent that afternoon man-

gling metal and sharing tales. Although Valse was not born with the privilege to have worked a day in his life, he did not mind it one bit.

#### March

Continuous waves of the Elbe had occupied Valse's days for the remainder of the month. On the first of March, he woke up with the realisation that his feet were wet. Come to think of it, everything seemed damp. Before his mind could catch up with his body, Othello and Kepiński came into his room, quarrelling about godknows-what. In unison, their dialogue concluded with:

"Have a look at LeBrix's briefing."

Valse's eyes probed the text as if it was a foggy mess, "Why do we have to move, again?"

"That Elbe of yours has grown beyond its borders because it hasn't frozen anywhere for five years now. LeBrix thinks all the ice will be gone by summer."

"So where are we off to, Kep?"

"The Eiger," Kepiński responded, "every half an hour a train will depart to the south. Apparently, there's another site there where they can use some people with knowledge about androids."

"The Alps!" Othello shouted and enthusiastically shook Valse, "Do you reckon there's snow there?"

Kepiński rudely brought him back to reality, concluding that if the polar areas were gone, all sub-zero temperatures would have left the Earth. Nevertheless, Othello happily packed his possessions and hurried towards the first train set for the Eiger, not paying any mind to Valse and Kepiński, who were still contemplating the situation.

"So, no Venusian this month, only the Alps?" Valse added.

"I guess not, LeBrix promised 10 people to *occupy the heavens* in April to compensate."

#### "Pretentious prick!"

The two were greeted by other bickering people who were hesitant about the transition, "Kep's machines here provide everything for Mars and they will just continue to befoul the Earth? It's a disgrace! No doubt the Alps will meet the same fate".

Although no friendly words were shared, Valse offered them company for the train. Laden with countless bags of Kepiński's equipment, the four set off to the train. In the wagon, Valse was lucky that the convoy had central heating, as the conversation had not turned any warmer.

"Ever since LeBrix and his rich friends have occupied the skies, nobody cares about what happened to Earth anymore. None who matter anyway." "Never mind, the bugger summoned his metal friends to weed out the weak," Kepiński added.

Valse was shocked, as he had never heard Kepiński criticising Mars so openly, though he nodded affirmingly. He even went as far as to join the exchange.

"He talks about preserving the Elbe but keeps on mining to his heart's content. Something will surely catch up with his lack of conscience someday."

"You said it son. Mark my words, he will not leave the Alps at peace."

During the 7-hour trip, not a second of silence filled the cabin. A lengthy trek up the Eiger further deteriorated Valse's mood, leaving his hatred towards Earth, Mars, and LeBrix to multiply by the minute.

At their new base, Othello happily greeted Kepiński and Valse. Their annoyance with the situation had grown to immeasurable multitudes. A fierce fury overcame Valse as he threw a punch to his optimism-saturated friend. Seconds of silence gave Othello the opportunity to switch from sheer confusion to an equally bewildered grin.

"What in the heaven's, Valse, did Kep's snoring keep you awake during the ride?"

An ashen-faced Valse realised what he had done.

"I'm so sorry, mate. I guess Kep did keep me up at night."

Knowing Othello would not appreciate disapproving talk about LeBrix, Valse kept silent about the conversation on the train. He went to bed and further contemplated Mars.

#### April

The Alps had not been kind to Valse. The once calm Elbe had been exchanged for boundless mist covering his horizon. As people from all around Europe had moved to the mountains, the Eiger was plagued by constant overcrowding and disease filling the base's corridors. Conversation with Othello became less frequent, as Valse often struggled to find his friend in the copious hordes of people. One thing was certain: mass migration of people aspiring to avoid the imminent threat of water caused populations to grow beyond reasonable levels of habitable territory. Valse still managed to visit Kepiński daily, as he was always in the same spot where he could offer aid tending to the androids.

"We should end it, Kep."

"My boy, I know there's hardly anything to live for, but this is not the right time or place to end it!"

"No, not that. I mean the Alps, the diseased, Earth, Mars, LeBrix, all of this mess."



Kepiński's movement stopped for what seemed like minutes as if he had been waiting to hear someone utter systemic discontent for years.

"What were you thinking about son?"

Valse sat down.

"You remember how you controlled that android about 50 years ago, right?" Kepiński nodded.

"What if we do that again and create an army that can overrule Mars?"

"Might I remind you that we're on Earth," Kepiński responded, "not on Mars."

"I know, I know but two Venusians will arrive this month, yeah?"

Valse turned his gaze to the skies with a sparkle in his eyes as if he had struck gold. Kepiński shed a tear, feeling proud as a parent who sees their child walk for the first time. The two exchanged ideas on how to enforce a coup d'état against their Martian overlords for the remaining afternoon.

Valse's next days were spent gathering like-minded people and aiding Kepiński in manipulating androids. After a week or two, the pair concluded with roughly a dozen machines and double that amount of people willing to join the revolt. On the first of April, Valse was woken up by Othello who approached him with enthusiasm even greater than Valse was used to from him.

"I'm in! I've been chosen!"

Valse needed a second to realise what was going on. After assuming Othello took word of the coup, he responded, "Glad you're in, mate. I wouldn't know how to cope going to Mars without you-"

"Mars?" Othello replied, "I'm on the list of the Venusian XIX.III. LeBrix's briefing mentioned that it's -8°C and that we'd be able to explore Venus' ice caves. Why did you mention you were going as well? I didn't see you on the list."

"I'm ending this. Kep and I are hijacking the Venusian vessels and going to stop LeBrix from messing up the planet even further. Kep knows how to change course of the ships and-"

"Do not speak to me about your moronic ideas, Valse!" Othello interrupted, "I have finally been blessed to see the icy planet. You're not taking this away from me!"

Before Valse could calm his friend, Othello had run off.

Valse hurried to pack his possessions, gather his appointed recruits, and went to the rocket platform. As he greeted Kepiński, Valse saw Othello enter the Venusian XIX.III. His gaze was fixed to the ship as he stepped into it, not intending to say a word of goodbye to his friend. Valse had other ideas and attempted to approach the vessel, but Kepiński quickly pulled him back to save him from the flames spewing from the rocket's exhaust. As Othello set to the skies, the ship's ever-shrinking distant silhouette

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was the last Valse would see of his friend. Kepiński broke the ensuing silence.

"I know it's not easy, son, but we'll have to continue our plan, even if we're one ship down. With less people, we'll have the element of surprise in our favour. We could sneak into the parliament and confront LeBrix one-on-one!"

"You're right Kep, let's crack on."

Only a handful of people planned for departure were welcomed in the Venusian XIX.IV. Valse promised they would return the vessel to evacuate people left behind. After loading the ship with machinery and provisions, the rocket set for the skies on its course to Mars.

Days of the continued nothingness of space left the crew hungering for activity. The excitement for the revolt was dimming down as the distance between the Venusian XIX.IV and Mars did not seem to recede as time went by. Kepiński was not plagued by side-effects of inactivity, as trying to understand the spaceship's devices could occupy him for weeks. After fiddling with technical equipment for several days, Kepiński invited Valse to show him the progress he had made.

"I have hacked the central information system that the vessel uses to coordinate between Venus, Earth, and Mars. Look: distance between the planets, humidity, precipitation-"

"Impressive, Kep, but this is just what LeBrix puts in his briefings, nothing new-"

Kepiński stared coldly at the display and suddenly started weeping frantically.

"What's the matter? Kep-" Valse reacted, only to realise what force had overcome Kepiński. The shown temperature for Venus was 467°C; not at all what LeBrix had shown. He became one with the ground and sat for hours on end. He thought about Othello; how he and the Venusian XIX.III had been consumed by Venus' fire and how all crews alike were embraced by death. The realisation of immolation sent shivers down Valse's spine. Although Othello would never experience snow, Valse could envision how cold it must have been.

## **Pula!** Johanna Gäbken

"Alright" the CEO of *Leneste* knocked on the table and the screen vanished. "Miranda, it 'll all be up to you." I could see Miranda's eyes flicker nervously. This project was the big thing, the deal she had been dreaming about forever. It would pave the way to securing *Leneste*'s monopoly on the food and water market on the whole African continent once and for all. If the court gave in, they would gain access to the remaining parts of the delta stream and make it work properly so that they could collect water efficiently, and prevent the huge amounts of evapotranspiration that were being wasted now. Access to the water resources was key, as it had been more and more privatized throughout the last century – mostly without the equitable distribution that had been hoped for.

The last centuries were hard for me. Watching the planet and its creatures suffer made me ill. After all, it is them that I, the god Modibo, am living for. But let me put you into perspective. Now, at the dawn of the 22nd century, the home of the Okavango River Delta, Botswana had experienced the highest rise in temperature of the whole continent, namely 2.8°C compared to preindustrial times. Even though humans had invented fabulous technologies to manipulate the environment and mitigate their impact, the global mean temperature had also increased by 2°C. Locals in the delta had been used to droughts, but they have been especially frequent since 2050. I overheard the conversation of a researcher who found that droughts were now 4-7% more likely. Warmer and drier years that humans call "El Niño" had only added to these tendencies. Together with other interventions, the Okavango Delta had shrunk immensely. Its once-abundant swamps, floodplain grasslands and areas covered by sedge, now are a fraction of their former selves. As we just overheard from the scene at *Leneste* 's headquarters, the drinking water supply in the region is at risk, as floods



are weaker and aquifers have not recharged. Over the last century I've had to witness many catastrophes in the delta. Oil drilling, disturbed water flows and provoked chain reactions, bushmeat trade that decimated species, infrastructure projects encroached on local communities, destructive human-set fires for slash-and-burn agriculture and charcoal production that destroyed habitats. With the free seeds given to subsistence farmers, land became overgrazed and degraded. Deforestation only added more problems. All this made me look anxiously towards the 22nd century.

But as the global society experienced the first of many severe catastrophes in the first half of the last century, the urgency of protecting Nature began to be recognized. Two approaches turned out to be dominant – the focus on ecosystem services and pricing of nature and the movement that gave biotic communities legal rights. As you can imagine, *Leneste* belongs to the first category, but let me also show you the second and introduce Mendikbe in the Okavango Delta.

Mendikbe stroked the wooden aardvark affectionately. Whenever he needed reassurance, the enormous totem in the middle of the village's assembly place comforted him. Soon his community would write history. How many times had villages like theirs surrendered to foreign companies and handed over their land, livelihoods, and identity? The trial at the International Court of Mother Nature (ICMN) would put an end to this. Mendikbe was sure that I, Modibo, would hold my hand over his community. He trusted me despite the rising costs for the Tswana to maintain their livestock because boreholes had to be deepened. Making a living with the molapo- agriculture (a local flood-dependent type of agriculture) was difficult nowadays. Mendikbe grew up with stories about the creative ways his ancestors had provided for the community. Whether it was foraging, fishing, agriculture, livestock-raising, or wage labour. Still, Mendikbe had witnessed in his 18 years of life that more and more people abandoned the area for a lack of perspective. At some point, Community-Based Natural Resource Management became widespread, and Mendikbe's village could manage their resources as this strategy had already been successful in the North West District. Equipped with innovations such as Early Warning Systems they could now plan ahead and act accordingly. Each community chose their own strategy, whether it was reforestation, efficient irrigation or breeding drought-resistant crop varieties. Mendikbe often thinks about his grandma's stories about taboos in times of drought to keep certain species from overexploitation. He remembered that the marula tree that provides nuts and fruits was on the taboo list for firewood in the past. Luckily, his community had switched to cheap solar energy, so they didn't have to cut any trees. The village had also perfected its food storage capacities, drying plants, *biltong* and insects. But the best



invention, as his mother always said, was the social network that had saved them many times. And they trusted me, Modibo, to hold my hand over them. Oh, how much I longed to tell him that I did not have the power to do that, but that they, the humans, were the main cause of each other's distress and the main source of hope at the same time. Making them realize that they just had to take their future into their own hands and realise that it is made out of today's decisions....

#### *2101*

Today is the day I have been waiting for all my existence. The hall is buzzing with excitement. It makes me smile to see the diversity of people down there – the way they dress, talk, gesture. Everyone, a world to themselves. I remember when they first came up with the concept of human rights. I thought that the first recognition of equality among each other would finally help humankind to decipher that all other beings on Earth are just like them and deserve the same rights to thrive. But this emerging light on the horizon was tainted by "wettiko" and humans still accepted their fellow humans' doom if this meant they could continue their lifestyles. I only need to recall the diverse migratory crises that I had to witness these last hundred years. But as a god, I should know that it takes time to change people's mindsets.

A gong echoes and the courtroom begins to dance to a musical piece that the Tswana play to honour water. Children and old women in colourful gowns as well as businessmen in suits and ties – regardless of their cultural background, their physical appearance, their age...everyone dances. This is one of the concessions made during the establishment of the ICMN court to build a western-style legal procedure embedded in practices from numerous cultures.

With the last cadences, the spokesperson of the committee of judges raises her voice: "Welcome! In the name of the whole community of beings on Earth, I, Tulena, declare the beginning of the first legal procedure of the International Court of Mother Nature with the most diverse courtroom ever." Tulena now swears that today's decision will only build on the common good. Then, she turns to the culprit and the plaintiff. The former is Miranda Alcatraz, who has spent her morning rehearsing her company's defence speech. She is representing *Leneste*, the multinational corporation, which has been dominating many of the food products humans have been consuming over the last two centuries. The latter is Mendikbe, representing the local beings where the latest water abstraction project is planned in the "Jewel of the Kalahari", the Okavango. Its degraded ecosystems are recovering slowly now with the introduction

<sup>1.</sup> African dried meat.

<sup>2.</sup> Indigenous people coined the term wettiko to describe the illness they assumed the European colonists to be infected with when they first arrived on American land more than 600 years ago. Wettiko is associated with egoism and disharmony.

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of Community-Based Natural Resource Management. At last!

Tulena's voice cuts through my reflections. "Before we begin the trial, let us dive into the environment we are talking about." She blinks with an eye and the court-room turns into a perfect simulation of a patch of land in the delta, about 100 km from the city of Maun. Birds chirp, amphibians croak and a "splash" indicates some invisible animal on the water surface. A soft wind touches the audience's faces.

"This livesim showed us how Mother Nature is flourishing under community-based management despite climatic challenges. Let us see now, how *Leneste* aims to improve this area. Miranda, please go ahead." Tulena nods towards the representative of the company.

Miranda shines with self-confidence: "I will let the images speak for themselves. Please enjoy the vision that *Leneste* has for this unique patch of Mother Nature." She blinks and the hall is once again transformed into the delta. At a second glance, almost invisible pipelines are pumping water inaudibly out of the scenery. The water level, however, is much higher than in the last simulation and a fish jumps out of the water.

Miranda addresses the audience: "As you all know, the city of Maun, just 100 km away, is suffering from water shortages despite its water-efficient technology. As you noticed, our approach enhances Nature's work by saving keystone species and preserving our ecosystem services, but also providing thousands of people with clean water. Just consider the heat records Maun has been breaking for almost a century. *Leneste*'s Early Warning Systems have predicted more droughts for the coming years. We at *Leneste* will put an end to this insecurity with our smart water supply system." Miranda lets this message sink in, thanks the audience and hopes that nobody sees the sweat on her forehead.

"Thank you, Miranda. And now, we will let the Community-Based Resource Management Committee speak. They are accusing *Leneste* of planning a violation of Mother Earth's right to be valued equally as human interests."

Mendikbe plugs up all his courage. "Thank you, Tulena. I have brought you a vision of how it will actually look like if *Leneste* does as planned." The following vision zooms out from the paradisal scenery presented by *Leneste* to an almost dry riverbed. A massive dam holds the water masses that were visible in Miranda's scenery, covered under a transparent anti-evaporation shield.

"Vital floods will be completely gone. For the infrastructure, we will have to cut a forest a few kilometres downstream... and yes, some important species will be

saved, but what happens to the biodiversity that our livelihoods depend upon? Pula, thank you", says Mendikbe and sits down with a racing heart.

The judges take a break to consult, leaving the court with unbearable suspense. Both sides' futures depended on this moment. When they emerge again, Tulena's voice is solemn: "Dear Miranda and Leneste. It can be seen from your vision and the environmental assessment you shared with us beforehand, that you will go through considerable efforts to save keystone species and bring much-needed water to the city. However, the ICMN cannot let the project happen for several reasons: Firstly, focusing on a few species, the ecosystem's resilience will suffer and be even more vulnerable. Secondly, the conservation approach you propose adds to the neoliberal conservation mindset and promotes the commodification of nature that our global community wants to overcome once and for all. Even with the great innovations of our time, our notion of *us* should include all beings on this planet because we need everyone. We all experienced the consequences of privatized water supply. And we cannot allow quick-fix solutions coming from the origin of the problem. The goal of the global community has changed today. From now on, we will match our nature with Nature."

<sup>3.</sup> The term "pula" (rain) is used as a positive ending of political addresses in Botswana, highlighting the importance of water in Tswana thought and ritual.

**Silas' Story** Lillian Weaver

Note to the reader: The protagonist is gender non-binary and uses they/them pronouns.

Silas' skin crawled at the feeling of resisting sixteen years of training and habit. Never turn your back on the ocean. Coastal kids had this rule, in both its literal and figurative meanings, impressed on them as soon as they could crawl, but looking back would only slow them down now. Silas knew the earthquake and tsunami protocol by heart, but that didn't make it any easier.

At the top of the first big hill Silas couldn't help but peek out at the town they left behind. As kids, Silas and their friends would stand at the edge of the waves, eyes closed, feeling the tide trickle streams of granules out from beneath their feet. Most often, the kids pitched forward, falling onto the sloppy sand below them, marvelling and wincing at how it hardened on impact. If the retreating water didn't tug them down, the next wave would loosen the beach once again, sucking their feet deeper into the salty sludge.

The beach looked eerie. It was four times its normal size without a person in sight, like a sea monster at the bottom of the ocean had sucked in a huge gasp of water. About halfway down this newly expanded beach, there was a water-logged ghost town. Bones of houses that, when the tide was in, filled up to the first story windows with briny water. Nobody was allowed to enter because debris was constantly coming loose as the houses sloughed off into the sea, but teenagers snuck in on dares every year.

Silas thought often about the people who built those houses. As recently as 60 years ago buildings were still being constructed so close to the ocean that the water was lapping at their doorsteps within a generation. Not long after their construction, the coastal towns started emptying. With sea levels rising, The Crisis already starting to shatter the government, and the threat of the Cascadia fault line producing a mas-

sive earthquake sometime between today and 100 years, tourists stopped visiting, and most of the folks who depended on the summer boom closed up shop and headed inland. Those who stayed, including Silas's grandparents, adapted.

Every empty piece of land and then some was filled with plants. Pea vines decorated street lamps. Solar panels glinted on roofs and mini-wind turbines popped up like dandelions as the present became the future and the future became the present. The townsfolk slowly moved the hospital, the school, and most residences beyond the predicted inundation zone. Muscles screamed at the pace of the work while minds worried that it was already too late. Why start building a new hospital today if the tsunami might come tomorrow? Silas figured those ancestors didn't have much of a choice. They might have been screwed, but if they didn't rebuild and reinvent, they were definitely screwed.

It wasn't all solar power and permaculture though, especially in the early years of rebuilding. Power, internet, cell service all came and went unpredictably. Shortages of food, water, and medical supplies. Fires. Illnesses. The water and sewage systems broke down and had to be rebuilt. There were two doctors, a few nurses, no surgeons. Family and friends in California, Montana, Idaho, and Washington were spoken of in hushed, fearful tones. Family and friends further away were not spoken of at all.

And then there were the small things. Mangoes, coffee, peanut butter all faded from the stores. Oil and sugar dribbled through trade channels in thin streams that constantly threatened to dry up forever. Oranges and lemons disappeared for fifty years until, in the jungle-like gardens of the pre-crisis rich, the progeny of ornamental trees began to fruit in the lengthening, warming summers. Harley, Silas' neighbour, didn't know if the day she ate her second first orange was the worst or best day of her life.

At the top of the hill, Silas sucked a breath in through their nose, held for four counts, and released with a woosh. They had been surfing when the alert went off. Five minutes warning hadn't been much, but it was certainly better than the two or zero minutes the town would have had if the quake had come when Silas's grandparents were young.

When the alarms sounded, Silas rode in on their surfboard, hitting the beach at a run, but the sand slipping under their feet made Silas feel like they were in one of those nightmares, running from the monster but not actually getting anywhere. The shaking started just as they reached their shoes. Silas crouched and tried to pull their right sneaker on, getting a mouthful of sand for this effort as the quake pulled the ground from under them like a rug. Hunkered down, spitting out grit, Silas's head roared whether from the rushing of their own blood or the sounds of the quake they didn't know. They closed their eyes, fighting the nauseating slosh of fear, adrenaline, and the remains of breakfast in their stomach, and ran through their checklist – shoes on, get to their bike, grab a few emergency bags from the Pod, get to Harley.

If the quake had hit during the dry season they would have taken the solar-powered truck, but it was a grey April morning with the start of the dry season still a couple of weeks away. Even without an earthquake, large chunks of land regularly lost the will to cling to the hills. Weakened by centuries of deforestation, the soil would slump across the roads in waves of earth and rocks. Silas's mountain bike was the nicest thing they owned – kevlar tires, a generator that powered the lights, gave them a boost uphill, and charged their Stretch Screen, and still, it could fold up to the size of its front wheel and weighed no more than a six-week-old goat.

Harley said that when she was a girl, the dry season didn't start until June and she claimed that when her parents were young, it hadn't truly started until July. Back then it was called 'summer.' Sometimes Silas would start thinking about these 'seasons" when they were lying in bed at night. Fall in particular. Leaves changing colour, blanketing the streets, being piled into wormy pillows. Now the dry season lasted from May to October and the rest of the year was damp and rainy. On the coast the division wasn't so stark, the communities there got occasional showers even in the dry season, but Silas had been at their uncle's house in Portland when the first rains came one year and had watched the streets run brown as five months of dust washed from buildings and plants, first in thick, black glops, then in dark streams, until finally, the water regained its sparkle. Then in May and June leaves began again to brown and shrivel, clinging to their hosts in rigour mortis until they crumbled in the wind. Spring, Silas figured, was similar to the return of the rains, everything becoming green and soft, but fall... It sounded like a dream. Silas thought Harley must be exaggerating, but then again the world was a mysterious place.

It was Harley who started the Knox Cyclist Society (KnoxCS). As storms (wind, rain, ice, snow, you name it) became more frequent, folks like Silas's grandparents realised that they were going to have to take care of each other when things got bad. The government wouldn't, *couldn't*, help. Harley was sixteen, the same age as Silas now, when a storm ripped through the town, tossing trees to the ground and sending debris through windows.

Between landslides and falling trees, the houses in the wooded hills were in the most danger. When the storm petered out apologetically and neighbours rushed to check on one another, they found the roads out of town blocked by mud and debris. Harley showed up on her bike to help clear the roads, and quickly realized it was going to take a day of work if not two before vehicles were going to make it through. Folks had already headed out on foot but the farthest homes were a day's walk away. Harley sprinted home, grabbed two emergency bags (emergency bags, each with a flashlight, basic first aid supplies, a space blanket, and a bit of food were quickly becoming ubiquitous at this point) and hopped onto her mom's mountain bike. On her way back she stopped by to recruit Silas's grandfather and the two headed out to see who needed help, biking on the roads when they could and slogging through the forest when the roads were blocked, carrying their bikes when needed.

After that, Harley created the KnoxCS (pronounced Knoxies), named for Kittie Knox, a black, female cyclist born in 1874. Cycling has never *not* been revolutionary, from Kittie to the larger women's right movement, from environmental activists' early rejections of vehicles to survival and just as importantly, joy, as folks rebuilt after The Crisis and learned to live differently. The KnoxCS mapped the community and checked on each home once or twice a month, fulfilling whatever needs they could or just chatting with folks when times were calm. And of course, they responded to emergencies. The group grew, adding chapters in towns around Oregon. Members trained in first aid and conflict resolution, they scrounged up bikes for kids and offered free riding lessons. Chapters leaned on each other through poor harvests and raids.

As soon as the shaking began to slow, Silas was up and running, pitching and stumbling when the ground moved beneath them. The nearest Emergency pod was a block out of their way, but there was no use surviving a tsunami only to die from contaminated water. Silas swung off their bike, darted inside and grabbed 4 emergency bags, their body going through the motions that they had practised in emergency preparation training. Harley often told the Knoxies, don't *imagine* yourself going through protocol, *be there, live it.* Silas had never been sure they were doing it right, (could anyone be sure?), but they would make their throat constrict and chest tighten, feel the shake in their fingers, push their heart to accelerate as if it was frantic to get in as many beats as possible before it was too late. Silas would close their eyes and run through the protocols. Earthquake, fire, storm, raiders. Sometimes they would practice after a particularly hard ride. These times always felt the most real, almost too real, leaving Silas drained in a way that purely physical exertion never could.

Leaping back onto their bike they headed towards Harley's home. Silas knew Harley would be unhappy with them for breaking protocol, but Harley's home was on the way to the Eastern evacuation route. If you chose the right route...

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Harley greeted Silas with an unsurprised scowl. Left foot on the pedal, she kicked off with her right, coasting so Silas could catch her before swinging her right leg over the top tube. "It's 45 seconds difference, we timed it," Silas protested, falling in behind Harley. The woman wouldn't waste a breath answering; she was not one to focus on hypotheticals of the past; this world was not generous with those who dwelled on "what-if's". Besides, both of them knew that 45 seconds could change everything. Both of them knew that Silas was coming. Both of them knew that Harley had waited for Silas.

Silas nudged their front tire behind Harley's rear wheel, matching the pace so precisely that the two tires could have belonged to the same bike. Settling into the pace, Silas appreciated the relief they got from Harley breaking the air for both of them. In half a mile or so Harley would stick out her left hand, warning Silas that she was going to rotate to the back. She would drift to the side, slowing her speed ever so slightly to allow Silas to pass her, at which point she would tuck behind Silas, resting in the lee. Harley taught the KnoxCS to rotate early and often. People are like batteries; a FlexScreen with seventy-five percent battery takes twenty minutes of solar or bike-generated power to recharge, if at fifty percent it takes an hour, at twenty-five percent, two hours.

The same low-pressure system that causes the monstrous storms of the wet season creates an eddy in the wake of a cyclist which will beckon a follower along. The benefit increases in groups, each person breaking through the air a little more for the rider behind them, with even the leader gaining slight push. Air, like water, is a deceptively powerful substance. Gentle until it's not. It had always been hard for Silas to comprehend the heaviness, the physicality of air, even when it shunted them from their course on a ride or shoved trees down like a vindictive poltergeist. Water Silas understood better, perhaps because of its visibility. Despite (or perhaps because of) years of surfing tumbles, they were still slightly afraid of how the waves would marionette their body through involuntary gymnastic routines.

The pair hadn't seen anyone else on the road yet, a good sign. There had been a few people walking on the beach when the quake had hit, but the extra minutes Silas had taken to get out of the water would have given the others a head start. All others that still lived within the inundation zone were the outskirts and should be almost to the meeting point by now, setting up the camp where they would stay until building safety checks were completed. Unless they had been killed or injured during the shaking... Just as this thought entered Silas's mind, Harley signalled that it was time to rotate. Grateful for the distraction, Silas focused on maintaining the pace. Every couple of minutes the duo would have to go over or around a fallen tree or a muddy landslide. After a mile Harley took the lead again, pulling them to the top of the first big hill.

Not even Harley could resist a last look at the shoreline behind them. The pair braked next to a corroded sign, half-hidden in undergrowth, that used to read, "Entering Tsunami Hazard Zone" over the morbidly comical image of a wave coming up on one of those stick figure men, the type who used to stiffly grace men's bathroom doors back when public bathrooms and gender were inseparable concepts, climbing a rocky hill. Tourists driving in had pointedly avoided eye contact. The sign didn't mean *them*, not *today*. And they had been right. At least about the tsunami.

Silas and Harley twisted in their seats to look back. The shore lay almost a mile and a half away and 80 feet below, unperturbed by what was bearing down on it. It had done this before. Perhaps the coast measured time in tsunamis. One tsunami ago it had not been Oregon and in another tsunami, it no longer would be.

## Sailing Away

Miléne Spyckerelle

## Tiramisu and Conviviality – 23rd October 2100 Mimi

"And finally... Julio Dupond!" Mimi announced.

A thunder of applause raised among the people assembled. Julio stepped up to the podium, joining Isabelle and the young Irène, his face reflecting a mixture of astonishment, embarrassment, but already a willingness to demonstrate a sense of responsibility. It had often been the same reaction from the freshly designated three inhabitants who will oversee decision-making in the community for the next three months. Mimi, the eccentric veteran of the village, smiled. The traditional drawing she initiated forty years ago was maintaining its popularity and reputation. She congratulated the three individuals:

"With great pleasure and emotion, I name you as our representative for the next three months. Whichever age, sex, profession, or ideas you might have, I hope you will take your future function to heart and work for the wellness of all in Clairmarais! *Bravo*! Now let's enjoy the festivities!"

Since the French government implemented the legal weekly non-work time at 153 hours and ratified the *Loi du Vendredi Libre* (Free Friday Law) fifty years ago, the few thousand people of the village of Clairmarais have started organizing the *Frigg Festival.* It is Mimi's favourite day. A lovely opportunity for the inhabitants to gather for friendly and pleasant events by the marsh. The communal orchestra was always lively, playing while people were engaged in sports tournaments or roleplays. Mimi, despite her age, never lost her enthusiasm. She contemplated the more than satisfying result of decades of engagement and changes: French, Spanish and Italian, and the freshly newly arrived Malian and Nigerian families, gathered like one unique family.

In her young days, Mimi had witnessed the overwhelming silence and inertia of governments, their disregard of the promising global agreements to tackle climate disruption. She was told, helpless, about the 2.5 billion of the planet's inhabitants now living in conditions that did not allow for them to thrive. When some regions on the Earth considerably warmed up, weakening economically viable farming and labour, and less expectedly impacting behaviours, moods, and mental health, the North of France became a popular destination for displaced people. Along with the population from the Southern part of the country, Spanish and Italian people mainly, decided a couple of decades ago to move to the land of cheese and wine. In this context, many local communities chose to take responsibility. On the impulse of Mimi and her late friends, Clairmarais began a profound transformation to welcome the climate refugees. A long process, not without difficulties, led to a solitary, multicultural, and cohesive community. Today's festivities were a shining demonstration of its success. Julio and Mimi danced Flamenco - a dance Mimi could now do with closed eyes. Families and the elderly were taking advantage of the splendid buffet made by the Bon Appétit company. Paella, olives, wine, cheese, baguette, and the local speciality: the famous speculoos tiramisu spiced with saffron delighted the whole populace. Mimi was the witness of all the changes. She was telling and re-telling with pleasure the story of how the Spanish and Italian changed the "pessimistic and arrogant" French people. Her eyes sparkling with gentle humour, pride, and tenderness, Mimi was explaining how the Spanish brought their custom of siesta, and how the Italian introduced the alwaysstressed-and-rushed French people to the dolce vita.

## Chocolate and Jealousy – 14th November 2100 Maria

"Don't talk with your mouth full, *cariño*!" Maria said in a tone she wanted to be severe. But seeing the face of her son coloured with chocolate stains, she could not help smiling tenderly. They were both sharing the guilty pleasure of what she ironically called her "black gold."

"Not sure this luxury synthetic poison is the best thing to eat," Paul grumbled.

Maria noticed the wrinkle on her husband's forehead. Any mention of her sister-in-law's work put her husband in a despicable mood. Cecilia was at the head of the biggest 3D food printing and synthetic food production company in the North of France, in the nearby city Arques. Maria could benefit from some discounts on synthetic meat, corn, and candies she loved but could not afford. Like many, she ignored

the process and effects artificial food could have on health.

*Just occasionally, it cannot hurt. And it is surely better than slaughtering poor beasts or poisoning the soils as we erstwhile used to do, she reassured herself.* 

Paul followed a long family tradition of cultivating cauliflower and endives in the marsh; a "stubborn farmer at the edge of extinction" Cecilia called him when the last family dinner took an explosive turn. He had to adapt to a drier and warmer climate, the new limiting governmental restrictions on water use, and mainly to the competition with a now widely accepted synthetic and gene editing agriculture heavily subsidised by EU policies. Paul struggled to make a forgotten farming method, that even the French government seemed to have entombed, profitable.

"You have your meeting tomorrow afternoon, *ma chérie*? I can take Felice to school and cook lunch," Paul asked.

Every afternoon, when she was not working in her psychologist office, Maria was involved in the local refugee organisation of the municipality. The volunteers were helping the new-coming families to get the status of climate refugees. They could benefit from much help and support to facilitate their integration and establishment in the new countries. The sense of guilt that Northern countries felt for failing climate change mitigation had induced some weird repentance effects. They were now putting a lot of responsibility in the reception and integration of climate refugees, to the detriment of economic and political migrants. Maria was very committed to her engagement; her parents had left their small village in Navarre to build their new life in Clairmarais. It was for her a duty to give back the support her family received.

Bottles and Kingfisher – 3rd December 2100 Pierre

I wish I am Crested Grebe, A graceful Stork, or a Kingfisher Feeling the wind in my wings blowing, Flying over grassland, gulf, and river.

I wish I could find infinite and lonely space, Where the constant roaring and rumbling Of cold technology does not scoff at me, Where I could finally be myself.

Pierre checked his watch. He should go back home; his parents will soon

finish their daily siesta. It was his favourite time of the day. When everyone was taking the sacred nap the government had initiated, the young teenager could escape the permanent tensions in his home and did not have to fake that everything was alright at school. Every day, he came to a corner of the marsh, no matter the weather, trying to imagine the place untouched by agriculture, hydroelectric, or treatment plants; a haven for wilderness as her grandmother Mimi loved to tell him. Pierre fervently wished he could have known how it was to hike here some decades ago, to marvel at the sight of cormorants building their nests with patience, to hear the fresh air passing through the willow trees' leaves. He also wanted to be here a thousand years ago, when human ingenuity created a space where biodiversity and traditional vegetable culture could thrive in harmony. Now, the marshes were not a refuge for nature anymore. Its high value was at the mercy of the village: to produce hydroelectricity, irrigate the few fields still existing, and provide running water for the inhabitants. Pierre wanted to write much more: about his father, bored and depressed when his job did not occupy his thoughts. About the empty bottles spread out in their small flat. About his mother, who did not even dare to do anything reproached by fear of what he could do to her and her son. She did not have any ambition anymore. When she was not working, she dove into over-consumption of clothes and online products designed she-had-noidea-where, as if the mountain of commodities could hide her from her husband and make her miserable existence sweeter.

"My life is far from the *dolce vita* everyone here is so proud of," Pierre sighed, forcing himself to leave this safe haven that only he seemed to regard with esteem.

#### Salt and Panic – 4th May 2101

"That's hell! My harvests this year are already ruined. I will never grow anything if salted water submerges my fields!" Paul panicked.

The North Sea had swallowed the cities of Boulogne, Dunkerque, and Calais, devouring the Northern coast of France. The dikes and canals that the government and the region expected to be sufficient to contain the sea could not do anything anymore. The water had penetrated the inner continent through the canals, slowly reaching the wetland.

"I'm not going to leave the place I've built my entire life in, *très cher*!" Maria argued.

The few engineers, scientists, and governmental representatives who joined the emergency community meeting tried to keep tempers cool. They pointed out the importance of discussing and collaborating to save the area. The *Bon Appétit* food company – the flagship of French innovation – was feeding a considerable part of the population and nurtured an indispensable source of employment and international economic influence. Planners and populations were suggesting tonnes of ideas, more or less crazy – stronger dikes, ground elevation, floating homes – but none of them were convincing or viable.

"That's all very well, but how long is it going to suffice? Three months? Few weeks? We are running out of time to implement any solution. We cannot live in this place anymore, there is no way to adapt, and we must accept it! *Voilà*!"

Even Mimi, usually so confident and optimistic in leading the community debates, remained silent, with closed expressions on her face. No one had anticipated this event, and the discussion sounded hopeless and helpless.

#### And life goes on...

The world can seem frightening, but also an exciting adventure. It is not an easy thing to take one's first steps there. The recent death of my mother was still hurting. The shadow of grief and sorrow was following me on the journey, unavoidable. They told me it is Nature. I must move on and live with it, create my path now. As I was carrying my body, I found, in the mysterious surroundings, curious and non-identifiable objects, among the delectable crabs and shells. I could feel the soul of this place, the ghosts of a recent and obscure past. I had to interrogate some fellows I met on my trip to find out. No later than when my mother had spawned my siblings and me, what used to be a human settlement was submerged by the sea. The poor inhabitants had to leave and build their life somewhere else. Humans. I have heard that they were so strong and powerful; that our lives could suddenly shift under their authority. It seems that they finally did not have total control of everything and must sometimes have the wisdom to accept it. I was now evolving in a brand-new universe full of opportunities and encounters. It was time for me to take my courage in eight tentacles and discover the new world opening to me.

# The Downfall of the Amazon

Natascha Brunner

Mintaka walks along Avenida 6 de Diciembre, which separates Quito, the capital of Ecuador. Far in the distance, she sees El Panecillo, the world's only winged virgin, watching over the city. Isn't it ironic, thinks Mintaka, a statue portraying an idealistic woman at the highest point of the city, in a society where women are constantly being subordinated. She walks by Plaza Foch, a busy square with a lot of people partying. Mintaka questions if they know what is going on not so far from here in the Amazon. In the past 250 years, the rainforest was deforested and destroyed, until it was irreversible. And now everything has changed, soon the city population will see the results, and that is why Mintaka is here. She wants to be part of the imminent feminist movement and will start in her home country, but will hopefully soon spread to the entire continent.

Mintaka picks up a newspaper, which is lying on a seat at an Ecovia (bus) station. She is amazed that there are still printed newspaper versions, even in the year 2100. Changing the habits of society is not always easy, she thinks. The headline on the front-page reads in large font "THE DOWNFALL OF THE AMAZONIAN RAIN-FOREST - THE TIPPING POINT IS REACHED." She starts reading.

#### *Ecuador Times, 30.06.2100*

## "THE DOWNFALL OF THE AMAZONIAN RAINFOREST- THE TIPPING POINT IS REACHED."

The predictions of scientists have become true. The Amazon Rainforest is irreversibly destroyed and this will affect the global population and environment. But how did it come so far? The deforestation of the Amazon began in the 1860s with the Rubber Boom, and since then bit by bit the rainforest has had to make way for mankind. Scientists predicted back in 2008, the substitution of the Amazon forest by savannah-like vegetation and exactly this prediction has proved to be true. The global demand for fossil fuels, grains, biofuels, and meat, created this destruction of the world's most valuable ecosystem. The set 2-degree boundary was crossed 50 years ago.

Ecuador always contributed a fair share to the depletion of the ecosystem. Other than the rest of the Amazon, the land destruction of the Western part is mostly caused by the oil industry. The agricultural sector developed further and impacted the ecosystem even more. The infrastructure that was needed to fulfil the demand destroyed the Amazon almost entirely. The impact of the "Arc of Deforestation", located at the southern and eastern end spread all the way to the Ecuadorian part of the forest.

Now, almost 250 years since the beginning of the deforestation, we are seeing results of the destruction humanity has caused. The Amazon rainforest is almost gone, resembling a desert without biodiversity or arable land. We will soon feel the effects of the loss at an even greater scale. Increased temperature and changing rain patterns already affect the region but will soon be even more severe. Water availability, biodiversity, and human health will suffer as a consequence. The possibility for change is gone. We have reached the tipping point and nobody knows what comes next.

Mintaka finishes the article and is angry that the indigenous population that lived in the part of the country which is now a desert, has been completely forgotten once again. She thinks back to her childhood, when the Amazon was already in pretty bad shape, and her tribe the Huaorani were already struggling to live in between the oil fields. Oil exploitation had been present for a long time now, destroying most of the homeland of the tribe, not just physically, but also culturally and spiritually. The Huaorani are dependent on the biodiversity of the Amazon, as they are semi-nomadic hunter-gatherers. They always fought for their rights, thinks Mintaka, but they could not withstand the might of the powerful oil companies. But against the odds, the traditions and spirits of her ancestors are stronger and more celebrated than ever. The Ecuadorian government failed to include and emphasise the culture of the indigenous population, instead focusing on quick fixes that did not work in the long run. Economic growth was always more important than the indigenous population.

Environmental protection actions from the Huaorani people emerge from their beliefs and traditions. The protection of the Amazon through indigenous land is a huge contributor to the world's remaining biodiversity. The Huaorani are still fighting for their land and, together with other indigenous tribes, are the only hope that the forest has. The bond between nature and her people is stronger than ever, thinks Mintaka proudly, and the spirits never left. To keep that and her tribe alive is worth fighting for. It is an ongoing fight that indigenous people are at the mercy of since colonisation, not just since the climate crisis emerged. Mintaka is proud of her name, her namesake fought the missionaries back in the days with her negotiating skills, rather than with violence as the rest of the tribe.

Mintaka is here to prepare for the next of the revolts against the subordination of indigenous people and the destruction of her homeland. She believes that the feminist movement that is emerging in the country could be the start of societal transformation. She is meeting a friend and member of the indigenous feminist organization Garzacochas, named after Lake Garzacochas in the heart of the Amazon, at the Basílica del Voto Nacional in the historic centre of Quito. Maura is already waiting for her. They talk about the past riots and social movements that occurred in the past decades to protect the Amazon, but also to empower women and disadvantaged groups. Ecuador was the first country in South America to grant women the right to vote, after decades of protests. Now it seems like her home country is once more in the lead to fight for the last remains of the Amazonas.

Social movements have always played a huge role in the Latin American continent, and to this day they are a way to change political power. Mintaka's ancestors already fought a long fight for the formal equality of women and the indigenous population under the law; this is what keeps Mintaka aspired. But within the household, women still experience unequal power relations. She and the other indigenous tribes of Ecuador will play a significant role as social and political actors in the future, as they possess more associational power than other organisations. That is what gives Mintaka hope.

Mintaka and Maura speak about the deep connection that women have with nature and the environment. The interconnectedness of all life is the centre of their movement and they act for a collaborative and egalitarian society. Mintaka and Maura talk deep into the night. They both hope for a future that puts an end to the destruction of the Amazon, and that their work would make a positive impact on the planet and society.

#### 2101

One year later all the riots and revolts from the Garzacochas did not make a significant change. The Amazon is still being depleted. At the end of 2101, a huge firestorm comes up, threatening the remaining parts of the Amazon where the Huaorani and other tribes live. Their existence and livelihood are once again threatened, along with the last remaining ecosystems. After one week everything is destroyed. Nothing is left, only smoking ashes. The Amazon is dead. The whole continent is in revolt; now that the time has come and the green lung is destroyed, the whole of society finally understands the severity of the situation. Mintaka is again in Quito, meeting up with Maura to plan the final act of revolt. It is the last thing they can do. Even though it will not bring back their home and the rainforest will not be able to recover.

The protest starts at noon at Plaza de la Independencia. Mintaka, Maura and the rest of the Garzacochas march towards Avenida 6 de Diciembre blocking the streets. It is a huge gathering, at least 500 women are standing with them. Mintaka feels the rush of adrenaline, they are all here together standing their ground to finally make a change. But at the same time, she is afraid. What will the future hold? The traffic has to stop, separating the city into two parts because more and more people join the march. Nobody can move in the city. The situation changes fast as the police arrive. They attack the protesters with tear gas and batons. Disarray reigns in the city.

Mintaka is in the middle of the crowd, trying not to be overrun in the chaos. She hears the others screaming and some of them are trying to run back towards the Plaza de la Independencia. Mintaka feels the panic coming up in the crowd and in her. Suddenly she is grabbed from behind and gets hit on the head. Everything goes black. As she wakes up again, she is in a cell together with a lot of women from the Garzacochas. Mintaka is confused. What happened? Everybody watches the TV they can see through the bars. The riots spread over the whole continent in just a couple hours, in every city people are protesting and are violent, destroying everything and leaving nothing behind. It's not just the tipping point of the Amazon that has been reached, it's also the tipping point of our society, thinks Mintaka.

Some weeks after, nothing is the same, a lot of cities are completely destroyed. The economy is down, the unemployment rate is skyrocketing, through the loss of such a huge ecosystem the whole planet suffers from natural disasters. Floods, fires and earthquakes are on the daily agenda. The destruction of the Amazon is the beginning of the end.

Mintaka walks through the decayed streets of Quito as she had been freed after the police headquarters were stormed. She knew that this would happen at some point. For that reason, she started the movement with the other women, but nobody wanted to listen. Now they see the result, nobody took the signs seriously. The only things Mintaka has left are her spirits and traditions that she can share with the Garzacochas that are left, and her tribe that is spread throughout the whole country. The government once again showed their loyalty towards the capitalist regime and not their inhabitants. Nobody knows what the future will bring. Mintaka is scared.

## **Green Evolution?** Oscar Martin

It's 8 a.m. News broadcasts have started their streaming early in anticipation of today. On the 4th of May, 2101, the world will witness a debate that will determine the future of humanity.

- Moderator: Welcome ladies and gentlemen to this historical debate between president of the International Agency for Genetic Modification Research (IAGMR), Chōwa Shizen, and the representative of the UN Ethics Office, Asili Maelewano. As many of you may already know, the topic of this debate is about the ethical and future implications of the new genetic engineering technique developed by Chōwa Shizen's team, Genetic Organism Design. Mr. Chōwa will commence the debate with a more thorough explanation of the capabilities of the technique. Then Mrs. Maelewano will reply with her arguments against the implementation of Genetic Organism Design. Mr. Chōwa will then have an opportunity to reply to Mrs. Maelewano's arguments as we enter into the discussion phase. Now, without further ado, let us begin.

- Shizen: Thank you for the presentation. Ladies and gentlemen, allow me to introduce you to the capabilities of the technique that my team at the IAGMR developed. Genetic Organism Design is a genetic engineering process that allows us to restructure the genetic information present in living organisms with a high degree of freedom. The technique is a perfected version of the CRISPR technique developed between the end of the 20th and the start of the 21st century. **Its original purpose at that time was the treatment of then incurable diseases such as cancer and HIV**. Now, it can cure such diseases with a 99% rate of success, and after many decades of investigation and improvements, we were able to evolve the technique even further. It allows us to improve the genetic information present in the subject, enhancing its physical

capabilities, allowing us to introduce genetic information with properties from other species and organisms. But it is our most recent discovery that has brought us here today, we have successfully implemented genetic information that enables photosynthesis into an animal, something previously thought to be impossible. Most of the audience may already know Mickey, our first success at introducing photosynthetic genetic material, allowing him to use the Sun's energy as an alternate feeding mechanism. He can still eat, play, solve puzzles and live a normal mouse life. He is very happy living with us at the lab and I have grown very fond of him. With his ability to feed himself with sunlight, the amount of supplementary food he needs to eat is drastically reduced, consuming up to one-fifth of the weekly food that other mice with enhanced digestive systems consume. Applying this technique to humans will help not only to ensure mankind's food security, but also help reverse the adverse effects of climate change we have been fighting so hard against.

- Moderator: Thank you, Mr. Chōwa. Now we give the word to Mrs. Maelewano. Whenever you are ready.

- Asili: Thank you. I wish to start by thanking Mr. Chōwa and his team for the amazing work they have done with their research and development of a successful technique to cure genetic diseases, not just for humans, but for animals too. Indeed, Genetic Organism Design has revolutionized the field of genetic engineering and has significantly improved the health conditions of many living beings, and for that, the whole world will be forever thankful to you. However, on behalf of the UN Ethics Office, I must discourage any other application of the technique that does not strictly stick to medical purposes. What the IAGMR is proposing risks the end of the human species as we know it, artificially creating a new species that will eventually substitute humankind. Such a course of action will undoubtedly cause distress among the global population, as I'm sure not everyone will be welcoming of these new genetically modified "humans". Civil unrest is bound to happen. With our society becoming increasingly sensitive towards animal abuse, your tests on mice have already caused some public stir. However since they were focused on curing genetic diseases, the tests were allowed to be carried out without much opposition. But now the technique has been used for condemning Mickey to a life he was never meant to have. From an ethical perspective, Genetic Organism Design should stick to curing genetic diseases, and not play around with the capabilities of an organism. That is not for you to decide, that is nature's business. What you are proposing is ecocide.

- Moderator: And that is time! That was an intense response from Mrs. Maelewano to which Mr. Chōwa will now have the opportunity to reply as we enter the discussion. The floor is yours, sir.

- Shizen: First of all, I want the audience to think about what this technique would entail for humanity and for our planet. Thanks to our combined efforts during the 50 years, human society has been able to make significant progress towards achieving food security and sustainable farming. The significant reduction in the consumption of animal products, especially meat and dairy, have allowed for an increase in produce production, as some of the areas previously destined for animal farming can now be used for crops destined for direct human consumption. Nowadays, we enjoy great food security in most of the world. However, if Genetic Organism Design were to be allowed to be tested on humans, we could transfer Mickey's ability to use photosynthesis as a secondary feeding mechanism onto us, dramatically reducing our food consumption levels. Think about the possibilities. Assuming human implementation is successful, which is very likely given our estimations, we could reduce humanity's nutritional consumption needs via food ingestion by more than half. Such a reduction would mean that the demand for agricultural production would also be reduced accordingly, thus needing less land to satisfy our nutritional needs, and allowing nature to retake the agricultural land no longer being used. As nature regains terrain, the adverse effects of climate change that we fought hard to combat will start reversing at an unprecedented rate. It is for this reason that this technique has to be allowed to be tested and applied in humans. It is the solution mankind has long been looking for. It is for the progress of humanity and the health of the planet.

- Asili: It may be true that this technique would accelerate our progress towards ending climate change once and for all, but we must not rush this decision, we must consider all of its implications. As you very well said, thanks to our efforts we are starting to see some real progress towards mitigating climate change. The incorporation of ecocide laws as a measure to ensure no harm to nature has helped reduce the levels of CO2 present in the atmosphere. The ozone layer has fully recovered. The rise in veganism has allowed for a significant slowdown in deforestation and saved countless animal lives, as well as providing greater food security. The last decade has seen a stable mean global temperature. Our efforts have put us on the right path towards sustainability and ending climate change, and this is another reason why Genetic Organism Design should not be used for non-medical purposes. We are already recovering from the dire situation that our ancestors left the planet in, do we really want to take such a massive decision as changing the functioning of our species? If we follow our current path, we will eventually end climate change and our planet will heal. We are not in need of such drastic measures. Lastly, I can't help but notice that you are still evading the ethics behind Genetic Organism Design. What the IAGMR is proposing to do means to decide which species should roam the earth, exhibiting

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the same human superiority narrative as those who argue that we are in a so-called "Anthropocene". If we apply the same principle for saving species from extinction, we should also apply it in this case.

- Shizen: And don't you think it's ethical to help nature recover? You keep talking about how we would create a new species, but all we are proposing is to add to ourselves the capacity to use photosynthesis as a supplementary feeding mechanism. Is that enough to consider that a new species is born? Even so, we have come a long way when it comes to racism and sexism, we are not in the 21st century anymore. We have learned to live in harmony embracing our differences. I am sure that society can accept humans with the ability to use photosynthesis. Regarding your accusations of the technique being considered ecocide, I find them preposterous. Genetic Organism Design is meant to help nature flourish and recover some of the terrain we currently need to produce enough food for our sustenance, how can that be considered ecocide? Lastly, it seems that you are changing what "nature" and "natural" mean according to your own preferences. When we want to use Genetic Organism Design to cure an otherwise incurable disease, it is desirable and does not go against "nature", but when we want to apply the same procedure in hopes of reversing climate change, it becomes "unnatural" and a crime against "nature".

- Asili: Do not mistake helping nature recover itself from the damage our ancestors dealt with what the IAGMR is trying to do. You are messing with the genetic information of unborn organisms, changing them at will, building and modifying them as if they were toys for you to play with. Genetic diseases are unfortunate eventualities that will make the life of unborn organisms very challenging. It is therefore ethical to remove those involuntary impediments to their lives so they can have as fair a life as the rest of their species. And yes, I believe a major change such as a supplementary feeding system in humans is enough for them to be classified as a new species; we have catalogued different species with less significant variations between them. Let me assure you that I am not being inconsistent with my definition of nature. When I refer to nature, I refer to the processes, ecosystems and creatures present on Earth separate from human interaction. Even you seem to agree with this definition, since you argue for nature to reconquer some agricultural areas, implying that agricultural land is not natural even though they are in essence growing plants, just controlled by humans. Therefore, you must be thinking those are not natural areas because of human intervention.

- Moderator: ...And with that, I am afraid we are running out of time. Let us hear your finishing statements, some final thoughts for the audience to take away. Mr. Chōwa, you may start.

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- Shizen: I want the audience to think of all the potential benefits this new technique can bring to our society and to our planet. We have fought and made numerous efforts and sacrifices to reverse climate change. Let us finish it once and for all with the help of Genetic Organism Design.

- Asili: Ladies and gentlemen, we are on the right path towards healing our planet. We do not need this new technology. Genetic Organism Design should only be used for medical purposes and should be restrained from playing with living beings as if they were toys. Think about it, what would you prefer?

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## Learning to Death

Salman Majeed

I pulled out a box of Nam-Jun's old things. As I rummaged through, I found an old LG Twins baseball shirt. Nam-Jun was an avid baseball fan and player. In fact, he was so good that he went to trials and got accepted as part of the LG Twins youth team but declined it as he had to focus on *sungeung* (high school exams). Something like baseball could get in the way of his chances of attending Seoul National University, the most prestigious university in all of Korea. If he tested well and was admitted to SNU, it would guarantee both my parents and Nam-Jun a comfortable life. Those who were accepted into SNU and their families were taken care of, after all, they were our hope tasked with creating new technologies and finding new solutions to Korea's climate problems.

I pulled the baseball shirt towards me and embraced it; Nam-Jun's smell still lingered on it. I reached back into the box and pulled out a photo. It was a photo taken on Nam-Jun's 15th birthday, beside him were three other boys around the same age. To his immediate right was Tae-Yeong, the shortest out of the bunch of friends but also the loudest, next to him was Min-young, a bubbly baby-faced boy, and finally, Soo-Hyun: intelligent but brooding. All four of them were part of the Han incident that had occurred. As Nam-Jun's older sister, I felt responsible. I could have done more but so could my parents. I blamed my parents and even resented them. If they hadn't pressured him so much it might have been avoidable, especially *ohma* (mother). *Ohma*, just like most Korean mothers, put immense pressure on him. In her mind, he had to do well on the national tests and entering a prestigious university was expected. Any-thing less would be failure in her eyes; all that pressure from her is what caused his depression and led to the incident.

#### 11 AM- 11/15/01

As I got closer to the Blue House (presidential residence), the chanting became louder and louder. "*Ipsijiok andeyo*, *Ipsijiok andeyo*". *Ipsijiok*, referring to the high school exams as "exam hell", and *andeyo* "no". I looked around at the crowd and felt proud, proud that my *dongsaeng* (younger brother) was the reason Koreans were taking to the streets. Because of Nam-Jun perhaps things could change.

I walked to the entrance where I was met by two guards. I handed over my ID and they escorted me into the premises. Before entering the building, my bag was placed through a metal detection machine. A security guard carefully inspected the contents only to pull out a large photo with a metal frame. The portrait was of a young man with a wide-eyed smile: Nam-Jun. The guard bowed in my direction, apologised and handed me the photo. As I entered the room, the line of others, all dressed in black, all clutching portraits of young spritely students, all wearing the same sullen face, dawned on me. I thought back to Min-Young and Soo-Hyun, somewhere along this line were their families, their *ohma*, their *appa* (father), and perhaps their *oppas* (older brother) and *nunas* (older sisters).

This wasn't just about Nam-Jun, it was about Min-Young, Soo-Hyun, the other fourteen nameless faces being carried around the room, and the countless others before the Han incident, who had lost their lives to the broken education system. A system that perpetuated decline in the mental health of adolescents. That framed academic achievement as the primary purpose for the young. In the hopes that one of them would find the silver bullet that would somehow return the barren rice fields of Jeonnam to their emerald glory, or rid Seoul of the ubiquitous smog that plagued it. All the while neglecting the social-emotional and physical development of youth, leaving them broken or sick. And for what? To push numbers, to increase GDP, to add more cogs to the economic machine with wishful thinking that money and technology could buy our way out of the climate disaster we were facing. Only, these cogs were human.

As the family members walked into the main hall, members of the new government seated on the right began to rise and bow in our direction. One by one family members holding portraits of smiling teens stood before those present. I looked at the portraits, imagining what some of them were like, what hopes and dreams they'd had, even thinking about random things like what foods they enjoyed. Were those smiles but a mere façade hiding the deep wounds and trauma they each experienced? The smile bearing portraits, symbolic of Korean youth, joyful on the outside whilst suffering inside. I recall my harrabeoji (grandpa) stating that Korean education levels were some of the highest, but happiness levels were among the world's lowest. Harrabeoji tried to convince my parents not to pressure Nam-Jun into taking the exams. He wanted Nam-Jun to pursue his true dream, baseball. His words would never reach my mother's ears. After all, harrabeoji was an outcast, never taken seriously because he was a dropout. In her mind, he was the reason we were in this position, that our family status and the life of comfort we could have had was never realised. He made it into SNU but decided the stress wasn't worth his happiness. He shamed his parents by abandoning his duties as the eldest son. The eldest son is charged with the responsibility of taking care of the family as the head of the household. It is necessary for him to get the best education, as it is inherently connected to social status. Harrabeoji, in his parent's eyes, forsook his commitment and besmirched hyo (filial piety), his role to respect, honour, and obey his parents and it was up to Nam-Jun to correct this.

Not much has changed from harrabeoji's time to ours, apart from the ever-increasing stress climate change caused on both the landscape and the youth of Korea. The difference between the way my parents treated me and Nam-Jun was obvious. Although I was born first, I wasn't truly the oldest, because I am a girl. Being the oldest only matters when you are a boy. Harrabeoji's experience must have been very similar to Nam-Jun's, both burdened with the pressures of being the future heads of the family, and in Nam-Jun's case the pressure from society for his generation to solve the climate issues that were caused by those before us. Sometimes I wish I had been born a boy, maybe Nam-Jun would still be here then. Being a woman in Korea is a double-edged sword. On one hand, the pressures and expectations are much lower, and the responsibility to take care of the family isn't on my shoulders. On the other hand, I am expected to become a modern housewife. I am not expected to share the economic responsibility of my family nor am I expected to solve the climate crisis, but I am expected to get married, do the housework, and raise males who can inherit the seemingly insurmountable task of fixing the broken climate. Even when I was living at home, I remember feeling jealous of Nam-Jun because my parents viewed him differently, he wasn't expected to do any chores or housework. Those tasks were given to me, despite the fact I was studying for the university entrance exams at the time. Even after I got a full-time job, and was earning more than any man in our family, I was still treated as if my contributions were less, simply based on the fact that I was a woman.

My parents and many other Koreans still held onto the belief that economic responsibilities are the duty of the men in the family. Women couldn't possibly do men's work. But here I am, working and earning a living, my small existence a refutation of this long-held belief. The belief that women couldn't fulfil roles that men could was still held by the majority, despite many women successfully occupying these roles. This was nothing new; it had been going on for decades.

"*Shilehhapnida* (excuse me), Yeo-Nam ", a voice burst my bubble of thought. I looked up and President Yeong called me forward. She stood up, bowed and offered her condolences.

"Today we are gathered here to remember those who tragically died in the Han incident three years ago. Our nation weeps when young lives are lost. As those in power, we must take responsibility to bring about change. The last time such a tragedy hit our youth was 89 years ago, the Sewol ferry incident. Once again, the elders have failed the youth. We selfishly pressured them into fixing a world we have broken. 17 young people took their lives on this very day three years ago because of the pressures we as a society have put on them. This day will no longer be examination hell. Our education system, which promotes harsh competition and despair, which our sons and daughters can only escape through ending their own lives, must come to an end. On behalf of *Jeonguidang* (The Justice Party), we offer our sincerest condolences and promise to create change so this tragedy may never be repeated. We apologize deeply for how we have failed you. At the end of this memorial, we will take a vote to pass the GNH (Gross National Happiness) bill within the municipality of Seoul, with the aim of implementing it nationwide. The bill will target the education and employment sectors, placing wellbeing above economic or academic achievement and will no longer use academic institutions as factories for churning out climate solutions from our youth. Thank you to the families who have gathered here today for having the strength for what they are about to share".

My hands were cold, and my body was shaking. I plucked the letter out of my purse and began to look over the words. I could feel the stares of the room upon me, and the camera lenses from which millions of Koreans watched in anticipation.

I took a deep breath, closed my eyes for a second, and saw my brother's face gazing back at me. In my mind, he was standing in the middle of a baseball field, the bright silver of his bat reflecting the sunlight above. He laughed loudly, and the sound echoed through my thoughts. A moment only alive in memory. After another deep breath, I opened my eyes and began reading.

"Ohma, appa, nuna, I would first like to say joesonghamnida (I'm sorry) for causing you all this trouble. Ohma, I know that your intentions were good, and you wanted the best for me and I'm sorry I could not meet them. Do not blame yourself for what has happened, I have made this decision, I do not blame you. I blame Korea, I blame the *hagwons* (cram school), the private schools, the competition, the exams, the system. We are simply cogs in the system, each one pushing the other along, because we are forced to, because it is our duty, because one of us might be the key to Korea's problems. Even if by some miracle I was able to change your mind, the system would remain. This was the only way for me to escape, and the only way for us to make a change. Appa, do not be too harsh on yourself, I know you tried to change, and I am happy for that much. Nuna, kamsahminda (thank you) without you I would not have made it through the last years. You taught me how to live and to fight for what I believe in. I am leaving this note to tell you how much I love and care for you all, but also to tell everyone and anyone else that my actions and of the others is not a simple suicide, it is an action with cause. We not only want to escape this education hell, we want to free others who come after so that their means of escape is not to take their own lives. I hope that by taking my own life it will ripple on to drive change, and my life, and its end, will not be in vain. I trust you will deliver this message on my behalf nuna. Love, Nam-jun".

My heart sank, this had only been the second time I had read Nam-Jun's suicide note. Tears began to spill from my eyes. Cameras flashed around me. Thinking back to Nam-Jun's words, I wondered what he thought in his last moments, how he felt when he stood atop Han bridge. Was he at ease? Was he scared? Was he angry? Standing there, in front of the crowd of people, I promised that I would dedicate my-self to Nam-Jun's legacy. Today was the first step. I was the first to read out the suicide note left by my brother. Besides me, 16 others awaited their turn to impart the words of their lost loved ones.

"Ji-Hae, please step forward", President Yeong uttered, her voice softer than before, echoing hints of sorrow. "*Anyang ohma, appa, oppa*, if you are reading this, I am no longer here..."

Family members continued to come forward, hoisting the portraits of smiling children alongside their sorrowful notes. The air in the room thickened with guilt and sorrow.

President Yeong walked up to the microphone. "Thank you once again for being here, my heart is saddened by your loss, by their loss, by our loss. I appeal to all the members of my government to consider the motion put forward and to vote in favour of the GNH legislation, so that Seoul, and in time Korea, will be a happier nation with wellbeing at the centre. Where economic growth will be a means to an end, not our ultimate goal. Wellness and fulfilment are our newfound focus."

A speaker presented the motion; "All in favour of the motion raise your hand". A flurry of hands shot up.

> "All opposed to said motion, raise your hands". No one moved an inch. "Motion has passed 54 in favour to 0 not in favour".

Cheers and claps rang through the entire hall, I almost got caught in the parade of joy, only for the cold metallic feel of the frame to pinch me back to the bleak reality: Nam-Jun was dead. Nothing could change that, not the hope for a better future, or the lives that Nam-Jun's death would save. This was bittersweet and more bitter than sweet, but now at least Nam-Jun's death was given life.

A small victory was won today. It was the 15th of November 2103, a day in Korean history that would never be forgotten. A day of sadness that would give birth to a happier and freer Korea!

## Maria Sara Sandberg

#### December 6th, 2096

It is Maria's 75th birthday today. Her husband, Jorge, had been nervous and jittery for several weeks now, leading on that he was going to surprise her. As she came through the door after a normal day of work, Jorge told her to close her eyes and put a blindfold on as she entered the hallway. He led her into their small, worn-down kitchen, telling her to watch out for the cracks in the floor. He did not have to tell her about them. Maria was well aware of every little inch of their small apartment they had been living in since 2058. They have lived there through all of the ups and downs of life and through the upbringing of their two children. Despite all that their apartment had been through, it had not been renovated since they moved in.

When entering the kitchen, Jorge helped Maria sit down. Her hips were worn out from years of manual labour and she longed for her upcoming retirement the following year. After sitting down, Jorge put a plate in front of her and said to take off the blindfold. Maria did and when she saw what was on her plate, her eyes started to water. In front of her, there was an anticucho, a traditional Bolivian dish that her mother always made for her birthday. That was a long time ago now. The grilled meat smelled heavenly and Maria closed her eyes as she took the first bite. This was the first time she has had meat in over 30 years. The flavour was just as how she remembered her mom's used to taste like and she looked at Jorge asking how she could even begin to thank him. This was the best birthday gift she had ever gotten.

Jorge had apparently had this plan in motion for months now. Ever since

China began to control most of the world's remaining meat production, meat had been unattainable for anyone who was not Chinese or rich. Luckily for Jorge he had an old classmate, Teresa, that worked with border security towards Brazil, the country where China's meat was now produced. Every once in a while Teresa could take a small bit of meat that was transported over the border and sell it for a fairly high amount. There was a long waiting list for her meat and Jorge had been secretly saving up money since last November. But it was all worth it, the look on Maria's face when she saw the anticucho was priceless.

Maria had not seen it coming. Ever since China bought the Amazon rainforest from Carlos Bolsonaro, the son of Jair Bolsonaro and the new president of Brazil, in 2065 they had continued to burn down the area in order to use the land for agriculture and secure food for their own people. For people like Maria and Jorge, meat became unattainable. The purchase of the Amazon was a result of China's growing influence and power in the world combined with built-up anger and frustration. They felt like they had been oppressed by the Western world for too long: enough is enough. They were tired of being told to control their greenhouse gas emissions and how many children they were to have. China had been the world's largest economy for a long time now and with that came great power. Instead of restricting people to have fewer kids, they now encouraged their population to have as many as possible. In order to feed this new generation, their president bought what was left of the Amazon from Brazil. On the other hand, Brazil had gone further into poverty during the reign of president Jair Bolsonaro. The situation got even worse when his son, Carlos, took over. To save Brazil from total bankruptcy they decided to sell the only thing of value they had left, the Amazon, to the highest bidder, China.

#### January 11th, 2101

The smell of the freshly brewed coffee enters Maria's mind and straight away occupies it. She knows that she will not be able to focus on anything else until she gets that first sip in her mouth. Since the age of eleven, she has always had two cups of coffee every day. One in the morning and one after lunch. Her father worked at a coffee plantation during her entire childhood and would always come home after a long day in the fields smelling like roasted coffee beans. The smell that filled her nostrils reminded her of her father. Bolivia has a long history of being a coffee exporting country but with the increased drought and water shortages, they could not produce nearly as much as they used to. Coffee was one of the few luxuries, or to be honest the *only luxury*, Maria would still treat herself to. The taste was different from when she grew up though. Most brands nowadays mixed the grounded beans with dried crops as pure coffee was too expensive, giving it a dry, earthy taste. *Well, it was better than nothing*, Maria thought to herself. As she felt the warmth of her beverage warming up her fingers through the cup, she heard something on the radio that almost made her choke on her coffee.

"This just in. Secret reports from China released by a whistleblower on Twitter states that a highly lethal virus is spreading uncontrollably in the nation-controlled meat industry. Chinese authorities are denying the fact that there has been an outbreak and labels the allegations as 'fake news'."

#### December 6th, 2101

Maria wakes up at 5 am. Even though she does not have to go to work anymore, her body still has an internal clock making her wake up at the same time *every single* day. It is her 80th birthday today, which she would rather just forget. Five years ago today, her husband Jorge surprised her on her birthday. Today she just longs for the day to be over.

*Oh, how the world has changed since Jorge passed away four years ago*, Maria thought to herself. At the beginning of the year, a new virus had started to spread. An outbreak in the meat production industry that no one could foresee. Well actually, researchers used to warn about climate change increasing the risk of infectious diseases but the Chinese government had stopped listening to them back in 2030. The virus only lived within beef and had a death rate of up to 70%. It did not spread from human to human though, the only way to get infected was to eat it. Unfortunately when the outbreak started the world's only meat producer, China, did everything in its power to hide the fact that the virus has started to spread. The covid-19 pandemic was still a painful memory to the Chinese even though it has been over 80 years. The results of the government's actions, however, lead to the death of many people, almost entirely restricted to Chinese citizens and the rich .

Maria thought about the virus and what her late husband would have said. Jorge had not been a petty man. While Maria could be one to hold grudges (not her best quality she admits), Jorge was the complete opposite. He was always the first to forgive and forget and thought life was simply just too short. When it came to the global management of the climate crisis he had been uncharacteristically resentful though. Maria could hear what his response to this pandemic would have been: "I told you so. I told you this was going to happen". And as usual, Jorge would have been right.

## 25 years later...

The sun shines through the curtains on Raquel's face, slowly waking her up. Since she does not have to go to work today she treated herself to a morning of sleeping in without setting an alarm. Ana is still sleeping peacefully next to her so Raquel slips out of their bed as quietly as she can, not to wake her. They have been married for almost a year now and Raquel could not believe how fast this year has passed. Their wedding had been a small ceremony on the coffee plantation that her family had worked on for generations. Ten years ago, her father and aunt had finally been able to buy it after many years of saving. After the shocking events of 2101, the world order had shifted and the values as well. The virus had been a global alarm clock and finally, Earth's needs were put first. In the aftermath of the tragic times, regulations on agriculture that encouraged eco-friendly and traditional methods were established. This enabled Raquel's beloved father and aunt to finally buy the plantation that her grandmother had worn herself out working at. The plantation was now their family-owned business where they produced organic coffee - and occasionally hosted weddings.

On their wedding day, her father gave a beautiful speech. He talked about how lucky Raquel and Ana were to be able to get married, as two women were not allowed to before the outbreak of the virus. He talked about how lucky they were to once again enjoy nature in its full bloom and breathe the air that felt fresher every minute. And he talked about how proud Raquel's grandmother, Maria, would have been of them. She would have felt that they had come full circle, he said. She would have been at peace. The memory of the speech made Raquel smile as she closed the bedroom door to her sleeping wife.

# The Semi Submerged Smart City: New Taipei City

Siaoyu Lin

Opening Ceremony of the Taiwan National Museum of New Taipei City – the most beautiful Semi-Submerged Smart City in the world. A speech from the head of the Urban Management Department of New Taipei City government, Jia-Rong Tsai.

#### Dec 29, 2101

I am very delighted to be here and give my speech on the development history of New Taipei. As you all know, we failed to tackle the environmental problems 50 years ago and made Taipei City disappear. With a shift in mindset and the breakthrough in technology, we then managed to rebuild "New" Taipei City. I will start with a brief introduction of the world trends and end with how the trends have been affecting New Taipei both positively and negatively.

Globally, the Sixth Extinction is an ongoing event. By 2100, more than 500 mammalian species and around 30% of the world's total species have gone extinct. The loss of ecosystem services from animals and insects has affected agriculture and led to a dramatic decline in global food production. People are aware that humans' ambition is accelerating extinctions across all biological taxa and multispecies, including human beings, ourselves. The rising sea level is aggravating the situation because some critical areas for food production have gone underwater, affecting millions of people. Many ended up either dead or on the run. When the disaster originally occurred in 2013, many government leaders claimed that the situation was under control and that they were seeking better solutions through technology. Hence people depended on innovation and hoped to tackle the issue as soon as possible. Although the efforts of the governments resulted in an unprecedented rapid development in technology,

disastrously, it could not stop civil wars from happening in all parts of the world owing to starvation and other social challenges caused by climate change. The economy collapsed, and society was forced to transform.

The goal of our society has changed since then. Today, governments around the world are focusing on creating equality for every citizen while ensuring the policies match the challenges we face. Economic growth is now considered a dangerous idea because it is the main reason that inequality increased and also the main driver of ecological collapse. It thus led to a redistribution of wealth and prioritising the health of the environment. Economies were stabilised without growth, after the transformation of basic money, fiscal, labour, and welfare. The shift in mindset created a new form of economic system that is advocated by people, which is the doughnut model we use nowadays.

It was the breakthrough in biomimetic robots and bioenergy efficiency that saved the world. The robots replaced the many ecosystem services of extinct animals, such as pollination and hydrological services. Compared to the traditional re-introduction of exotic animals, the risk of further loss of biodiversity is now controlled. With the aid of advanced machine learning, the robots can adjust themselves to different environments and live in harmony with other species. By imitating different animals, the robots can create new behaviour patterns depending on the type of animal and the habitat. The ecosystem in the world recovered. Nowadays, robots are helping humans with habitat restoration; they engage with certain animals and change their behaviours such as mating frequency, and relocate animals to a restored habitat.

Before 2100, the Taiwanese government was warned by scientists that we should relocate our capital city, as Taipei City lies in a basin and the rising sea level would make one-third of New Taipei flooded by the end of the 21st century. The prophecy came true in 2030 when the world started falling apart. The heavy rainfalls, that continued for three months, flooded half of the city. Most Taipei City residents were evacuated to nearby higher areas. One-third of Taipei City was under the sea ten years later. The world average temperature rose 5 degrees Celsius from 2020 to 2100. For New Taipei City, the Urban Island Heat Effect affected the temperature as well as the land-sea circulation. In 2040, because of the flood, the rising temperature, and more severe air pollution, Taipei City was half-submerged and deserted afterwards. The Taiwanese government did not know how to deal with the issues, thus citizens were evacuated to Taoyuan City. Taoyuan City became another capital city that re-

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placed Taipei City. Taoyuan, a plateau located to the south of Taipei, is where our scientists considered it to be safest away from the effect of rising sea levels.

The population in Taiwan is less than what it was 100 years ago. There were around 23.8 million people back in 2020. This number gradually and slowly declined to only 16.2 million in 2100. The main reasons associated with this decrease in population were the low fertility rate and increased global pandemic. Although the fatal pandemic had killed many people, the Taiwanese government was still under pressure to increase living areas. It was the result of the migration of climate refugees who also sought shelter in Taiwan. The Taiwanese government then set an open policy on immigrants and approved construction in the mountains and built higher skyscrapers to accommodate more residents. Each building was built in a green and high-performance manner and could function independently. While absorbing and integrating more refugees, the Taiwanese government also had to make sure that we could supply our food under unpredictable weather patterns. Although there had been robots taking care of vertical farms, the amount of total food production was insufficient considering the new immigrants. The government also invested in developing more advanced urban gardening and underwater-living technology. Biomimetic robots were officially introduced in 2050 to restore the ecosystem and help increase food production. In the same year, the Taipei City Rebuild Project was launched, and the goal was to make Taipei City habitable again.

Nowadays, New Taipei is a city where super intelligent technology coexists with Mother Nature. When you are walking on the floating street in New Taipei City, you will be surrounded by wonderful bird songs, you can see floating buildings and skyscrapers rise from the water, you can go on an automatic passenger ship and enjoy the city landscape. Every citizen wears a smart device that can help to communicate with Hsiao-Ting – our highly developed artificial intelligence. Hsiao-Ting controls the whole city and is responsible for communication between robots, smart devices, and everything connected to the internet.

After the global economic collapse in the middle of the 21st century, scientists suggested that equality in society could only be achieved when implementing artificial intelligence in our society and in the government, such as policy-making. Everything would be transparent and there would be no more corruption. The Taiwanese government was one of the first few countries who adopted this suggestion. The artificial intelligence is Hsiao-Ting, which most of you are familiar with. She is the control centre of New Taipei. Without her, it would be impossible to build a city based on advanced green technology. She also helped us to implement the ideas of the doughnut model throughout Taiwanese society. Despite how the world has changed, Taiwanese

<sup>1.</sup> The doughnut or doughnut economics is referred to as the sustainable development framework developed by Kate Raworth. The framework integrates the concepts of planetary boundaries and social boundaries. Beyond either of the two boundaries will result in the collapse of the ecosystem and social system.

people value helpfulness and sharing more than ever before. The most successful and the highest achievement for most people is taking care of other people who are in need. Artificial intelligence has made life for most people become more meaningful, and people are happier. Hsiao-Ting also improved the efficiency and transparency of the Taiwanese government by ensuring open data to fight against corruption and providing unbiased suggestions on policy and legislation. She maintains the stability of the whole society.

We understand the concern about cybersecurity in New Taipei, and the Taiwanese government and Hsiao-Ting have been criticised by many people. They do not want to let her handle all the personal data because it is risky, and she might be a target of hackers. However, first of all, citizens can decide what to share to make the city smarter. Secondly, Hsiao-Ting has been proved to be safe from cyber-attacks. She is designed by the most advanced artificial intelligence and the most talented human scientists in the world. Finally, she can learn from previous cyber-attacks and forecast the possible attack trends of information security. Therefore, she can improve her cybersecurity vulnerabilities and the speed in responding to information security incidents accordingly.

Mother Nature and New Taipei City are living in balance. The whole city is powered by renewable technology and has an efficient waste management system. There is vegetation growing on the walls, trees and on the roof of every building, and each household has its in-house vertical farm, hydroponic growing device, or indoor greenhouse where they produce fresh vegetables and fruits. The average temperature has significantly cooled down. Most of the gardens are being taken care of by mini animal-mimicking robots with a combination of shapes and functions of different insects, mainly bees. The robots also help to restore and create urban habitats for more animals to come and live in New Taipei City.

The underwater ecosystem is also very dynamic. At the beginning of the Taipei City Rebuild Project, we spent years collecting trash and filtering the water. 3D-printed coral reefs were placed under the sea, and coral fish were the first residents introduced under New Taipei by many other mimicking robot coral fish. We then placed other protection types of machinery to protect the underwater ecosystem, and after continuously monitoring and waiting, we finally recreated a subtropical underwater system. Most New Taipei citizens live in apartments that are half in the water. Living on the underwater floors in a semi-submerged apartment is considered the most interesting because the views outside the windows are changing day and night. Sometimes there are colourful tropical fish, dolphins, sea turtles, baby whales (although whales are relatively rare), and animal-mimicking robot fish. One of the

most popular leisure activities in New Taipei is underwater diving. I believe most of you have experienced it in New Taipei. Some of the ruins were not removed during the rebuild project, as they have profound historical significance. They have become home to many marine animals and they also provide opportunities for a glimpse of life in the past.

A day in the life of the typical New Taipei citizen can start from being woken up by their super-intelligent wrist wearable device. The first interaction of the day is with the robot housekeeper, who prepares breakfast and irons the shirts before a meeting. Most citizens start working at 9 am and they usually work from home due to the frequent pandemics in the past, which has changed people's lifestyles. When they need to travel, they mostly commute by auto-pilot drones that are powered by green energy. The average working hour for New Taipei City residents is 5 hours a day and 4 days a week. They communicate with each other through a smart wearable device. The breakthrough of hologram technology allows projection at any place without restrictions, which has made working from home enjoyable for most citizens. People can talk to each other's projections and feel like it is happening face-to-face in real life. Through technology, people can work collaboratively with their colleagues from home, and stay connected with their family and friends. Hologram technology and the maturity of AR also benefit online shopping, allowing people to inspect a product in detail. Anything that is ordered online - from a cup of coffee to a piece of furniture - will be delivered by robots in a short time frame. There are sensors in every corner of the city. Basic smart city services such as smart lighting, smart mobility (self-driving car), smart logistics, and smart harvest all depend on sensors. At home, people can control every electronic device by talking to their wearable device. The device will also record their health-related data which will be sent and managed by Hsiao-Ting. She will call an ambulance when a resident is at risk.

I am lucky to be a member of the Taipei City Rebuild Project. I have witnessed a capital city in ruins become a prosperous city once again. We must cherish the wonderful world we have. We also have to remember and learn from the mistakes of our history – what does nature mean to humans? The answer can be found in the history of New Taipei City, which shows us so clearly the connectedness between nature and humanity, and that nature will always be a part of us. The booming city we currently live in has been built on our newfound respect for mother nature. Thank you!

## **Bindi Dreams of Water**

## Steven Reich

The narrative is set after an escalation of all these trends climaxed in a series of global "water wars", which see the fall of many nations, severe resource scarcity, and the deployment of weapons of mass destruction. Only some fighting powers are left. A few lucky localized communities have found ways to exist in relative prosperity; one of them is located in central Japan...

## 3rd March 2100

"Ms. McDonald, I hope your wait wasn't too excruciating. These papers, they do take some time, you know. But I do have good news for you. Your health screenings came back negative..."

"And the rest?"

"Well, as far as we could see, you've filed everything properly, and as of now it looks like you do qualify for the refuge program. In other words, welcome to Shizuoka, Ms. McDonald!"

Bindi could barely smile back at Mr. Kim. She didn't know what to say. For two weeks, she had been anxiously waiting in the barracks by the port while the system did its background checks on her.

"Do you have any further questions?"

Did she have any questions? Her mind was buzzing with thoughts, but the constant chaos in her head prevented any of them from forming. She had many before she entered Mr. Kim's little house on the edge of the port, and she knew, as soon as she'd leave, they'd all come back to her. But right in that moment, all but one had vanished.

"So... yeah, I guess... what's next?"

Mr. Kim's near-constant smile widened. Something she hadn't assumed to be possible.

"That is indeed a very good question. First, you'll have to get to the station

and take the train inlands away from the Shizuoka ruins to Kai-Ōshima Station. I'd leave the coastal zone quickly, if I were you. Once you've made it to the villages, you'll need to talk to Sora Ito. He's our resource coordinator. Sora will know some places for you to work, and as soon as you've found something, you'll get to choose your house as well."

"Okay... What's wrong with the coast?"

"What?"

"You... you said, if you were me, you'd leave quickly."

"Mhh, oh yes. See, we get lots of storms here. Inlands, in the mountains the climate is more accommodating these days."

Mr. Kim paused as the corners of his mouth lowered to interrupt his grin. His eyes were stern now. For the first time, Bindi noticed all the wrinkles and the craters on his skin. Mr. Kim was an old, worn-out man! *The things he must have seen*, Bindi thought.

"...and we still get ships passing by sometimes. Chinese ships going to their Korean territories, Texans ships, even some Russians are still out there. Of course, we give our best to stay undetected. That's another reason why everyone but me is in the mountains."

"What are they looking for?" Bindi felt like she was pressing for questions Mr. Kim did not want to hear.

"We here there's still some water and fertile soils to be found in the Korean mountains."

"Ah, I guess the war ain't over yet." *The war ain't over yet.* The sentence lingered in the air like a hideous stench and the conversation came to an abrupt halt. To Bindi it felt as if several minutes had passed until traces of Mr. Kim's smile returned. "Well," he sighed "so it is. But now you are here in Shizuoka prefecture and there is no war here and we have water and it is good like that."

The ride into the mountains was surprisingly smooth. Both the train and the tracks looked exceptionally new. *Like post-war kinda new*. The newest peace of infra-structure Bindi remembered having seen back home was ancient in comparison.

"Please prepare yourself for departure, Ms. McDonald. We will reach Kai-Ōshima Station in approximately four minutes. Please mind the gap between platform and train." The computerized voice echoed from hidden speakers integrated in her seat. *How does it know my name?* The train came to a halt.

The station was small and open, surrounded mostly by young trees that were beginning to flower with the onset of spring. The air here in the mountains was brisk. She took a deep breath in to feel the coldness rush through her nostrils. Just the pure coldness but no dust nor smells nor anything else. She stood there on the platform with her eyes closed. When she opened them again, Bindi noticed the odd-looking mountains surrounding her. Their slopes were not organic like the one's she had seen in the Taiwanese refugee camps; instead, they were crowded by neatly aligned geometric terraces. Yet what grew on these terraces broke with the man-made neatness of their shapes. Each of them seemed to have a different purpose. Some were densely populated by young trees of different kinds and heights. Others held crops like wild rice, different wheats or corn, again others were covered in grasses and bushes. And in between all of them, she could spot, in the distance, sheep and goats and pigs grazing and enjoying the weak morning sun. Bindi was stunned by the luscious natural beauty of it all. *So much green*.

Then, the quiet humming of an approaching drone disrupted the birds' songs.

"Bindi McDonald, I assume?" She hadn't noticed the man approaching on the otherwise empty platform. He had a small drone hovering over his shoulder.

"My name is Sora Ito but you can simply call me Sora. I am the resource coordinator of our small community and as you will be consuming and creating our resources, your introduction to our neat little system also falls within my responsibilities. It is my pleasure. Actually, not just mine. You see, we've been awaiting your arrival with much excitement. It has been long since we last welcomed someone new to Shizuoka prefecture. We had not made use of our neat train for such an unpleasantly long time... Speaking of the train, how was your journey inlands?"

"Ehm, very comfortable, thank you. I've never experienced something like it. Everything here looks so new." Bindi's eyes didn't meet Sora's but instead observed the ultra-modern station she found herself in, until they finally arrived and stuck on to the drone.

"Yes, I see how our community can at a first glace seem contradictorily. I also see you are fascinated by my little flying companion; I call him Little Fella. Little Fella measures the air quality and all sorts of useful things. It also keeps me company, don't you Little Fella?"

To Bindi's surprise, the drone responded to his question with an affirming beep.

"I know that wherever whispers mention Shizuoka they carry utopian stories of an egalitarian and agrarian community with plenty of water and prosperous soils," Sora continued. "I also see how all this technology seems to counter everything you've heard about us. How about I explain things on our walk to the village?"

The way towards the village was long but pleasant. A well-maintained gravel path led the three away from the station and slithered along small, perfectly shaped hills. On them grew cherry and pear trees, not yet bearing any fruit, but beginning their bloom in pastel colors. Even more than the colors, Bindi was fascinated by the little industrious insects that occasionally hummed by her ears on their way to work. Between the trees, she could also spot little silver robots, harmonically going about their business. What that business was, however, Bindi wasn't sure.

"All these plateaus you see here, Bindi, 60 years ago, only a single kind of plant was growing on them. For centuries, this used to be the heart and lung of Japan's green tea industry! Monocultures everywhere! The soils were near dead, the water had turned to acid... But look at it now in its diversity." Sora smiled proudly. "You know, they are both what makes this community possible and also what almost let to its downfall. Back before the crisis and the water wars, it used to never stop raining here. Then, first slowly and then rapidly, the rains ceased, like in so many places. But my mother and the other local farmers were quick to change things. Even before Japan's defeat, they prohibited monocultural plantations and implemented regenerative practices. Those were the beginnings of what you are seeing right now: a green sea of all kinds of plants and crops and in between, our animals roam freely. That took care of the soil acidification problems we had (Leon et al., 2015). It was the end of Shizuoka prefecture and the beginning of our autonomy—our own independent little secret country. We live a dreamful life of purposeful work. We literally get to taste the fruit of our own labor, you know! Believe me, they are sweeter than you can imagine. Yet no one knows of us."

"But how did you escape the drought? Back home, the few that remain have to fight for every drop."

"Well, I must say we mostly were lucky. Yes, rainfalls decreased, but we had plenty before so that was manageable. Some engineers from Sony moved down here before things became too dire, and with them they brought knowledge and technologies galore. While most other regions with remaining water supplies have problems with pollution, either because of their dense population, acid rain, or because of the radioactivity that came with the war, we were spared. We never had a big population up here between the mountains. This is rural land that nobody ever heard about before the collapse, you know. While Tokyo got bombed and Hamamatsu collapsed, the world never wasted a thought about our insignificant region. In war, no general dreams of tea."

"...today, we manage our soils and waters with the most advanced measuring systems and technologies, no fertilizers needed. We recycle resources from the ruins of Shizuoka City, and we have all become prosumers: everyone that lives from Shizuoka must contribute. We are all equally important here, no matter what you'll end up doing. This way Shizuoka lives through each of us. You know, we value the nature around us as if it were a member of our community. The nature's well-being and all its individual parts has to us the same intrinsic value as any other part of our lives (Newman, Varner and Linquist, 2017). Who cares that, out there, the war is still going on between those few power-hungry nations that are left? We keep happy. We keep a low profile." Sora winked at her. "Anyways, one final hill, Bindi, then you'll get to see our thriving little community."

Before them the path steepened, winding upwards along a small clear brook and finally disappearing behind a plateau that had formed at the feet of two mighty mountains. The village waited for them on the other side of this final climb. Sora walked in front, demanding a steep pace as tears of sweat started forming on Bindi's forehead. It was now almost noon and the sun stood high. On these final meters, Bindi's busy mind calmed and the river of thoughts and worries that had troubled her for so long shrunk to the size of stream, not bigger than the brook next to their path, slowly dripping and dropping in a manageable pace. I made it, she thought to herself. She had actually made it. Bindi looked up, her eyes wandered past Sora and into the distance. Barely a kilometer was left until they'd be on the top. And then she'd get to find shade under a tree and sit, listening to the insects and birds, and meet her new

life. There, in the distance, she spotted a small figure, coming down the mountain. A woman in beige shorts. She was running.

"Sora?"

"Sora!" Bindi repeated louder.

"Mh?"

"There is someone running towards us." Bindi started to notice the woman's distant screams, and so did Sora. He immediately dropped his backpack to the floor as Little Fella flew up and ahead towards the village.

"Sora!" the woman now audibly screamed. "Planes! War planes over the village, they saw us!" Only a few hundred meters were left between him and her.

"They definitely saw us, Texan planes over the valley! They'll come back; I know it. The village is in panic!"

"Are you sure they saw the village?"

"They saw the village and the Southern plantations and the streams and the water reservoir, I'm sure of it!"

The approaching sounds of roaring rotor blades started echoing through the hills as a fleet of camouflaged war machines appeared on the horizon. Soldiers threw themselves from platforms towards the ground. Bindi now just stood there, her river of thoughts lay dry, her mind thoughtlessly plunging into an abyss. The soldiers surrounded them, weapons pointing at their faces.

"You're trespassing on Texan soil!" one of them screamed. "China has ceased all claims to this land. In 9 months' time, all of this will belong to us!"

"I guess they didn't know of your hidden little paradise," another soldier said with a hideous grin on his face, before shooting down Little Fella as it came flying back towards them.

There was no home, after all.

I wish I could have seen it at least once, Bindi thought as she was pushed into the helicopter and flown away to somewhere. Another refugee camp, she was sure.

## Welcome to the Republic of Europe

Sonja Nettelbladt

Berlin, 1 January 2101

My fellow Europeans,

I stand before you today equally humble and excited about the magnitude of this historic day. The 1st of January 2101. A day that I hope we will look back upon, not just as the dawn of a new century, but the dawn of a new era. Today, we turn our backs to the challenges and conflicts of the 21st century, and instead, look ahead at the possibilities and prosperity of the 22nd century. We leave behind the disruptive behaviours that deteriorated our ecosystems and left our societies in a state of inequality and despair. Gone is the relentless quest for economic growth, exploitation of nature, and disrespect for human rights. Instead, we are entering an era of restoration and recovery. Starting today, we will work together to build a new and more equal society for our European continent.

This society, my friends, is the Republic of Europe. Today, on this magnificently bright Saturday morning, we are finally one. One republic. One people. One Europe. I have been working and waiting for this day to arrive, for as long as I can remember. Together, we are strong. Together, we are secure. And together, we will build a society that we can leave to our children and our grandchildren with pride.

Starting today, we will take important steps in creating and consolidating our new nation. These steps will require a Herculean effort by each and every one of us, the citizens of the republic, but I can assure you that your endeavours will be richly rewarded. One of the first and most profound of these changes is Community Reform. This reform will strengthen our multi-level governance model while increasing local autonomy across the nation. What is now known as cities, metropolitan regions, and municipalities will be divided into small-scale communities after this reform. Each community will be governed by a community council, in charge of managing services, infrastructure, and ecosystems. This way, we can create the best possible conditions for an equal and egalitarian society, ensuring that both humans and non-humans have everything they need to lead a healthy and prosperous life.

The community council will also manage and monitor the Community Support Program. Through this program, all citizens will take part in developing and maintaining their community – caring and cooking for our children and elderly, working to keep the community safe, or engaging in ecological restoration projects. The program will also help to improve self-sufficiency within the communities, and our goal is for every European community to be self-sufficient in food, water, and energy within this decade. To ensure that these needs are met with minimal impact on our environment, we will ration usage through personal quotas distributed by the community council. We will also continue to push for innovation, starting with an ambitious program for further development of small-scale distributed energy systems, putting renewable energy production in the hands of our citizens and communities. We are also raising the bar for food production with a complete ban on harmful practices such as long-distance imports and the production and consumption of animal products.

The transformation that we have ahead of us will require collective action. The Community Support Program will be a civic duty, yes, but it will be a rewarding and enriching one. It will bring us closer together and help our communities to become stronger and more resilient. It will eradicate inequalities and secure welfare and wellbeing for all. And it will further strengthen the European spirit of solidarity and sufficiency – from each according to her ability to each according to her need. This is also an important step for de-economising and de-monetising our society, helping us to further liberate ourselves from the bonds of market mechanisms and privatisation. As part of this progress, we will phase out the few private businesses still active in some parts of our nation, in favour of common ownership of enterprises, land, and property. Starting today, no private enterprises are allowed to be formed, and no goods or services can be sold or traded at a profit. Instead, the efforts and ingenuity of the European people will be invested in the Community Support Program, for the benefit of everyone. The riches and resources of Europe belong to us all.

I know what some of you are thinking now, in parts of Europe such as Italy, Spain, Belgium, Denmark, and the Netherlands. How can we even think about solidarity and self-sufficiency when our communities are drowning in rising sea levels and suffocating by heat waves and drought? To all of you that are riddled with worry and disbelief about our common future, I can tell you this – we will not leave anyone behind. We are one Europe, and in our nation, no one should suffer because of the ignorance of our forefathers and their inability to bring global warming to a halt. Yes, there are damages done and tipping points exceeded that cannot be repaired or reversed, but we have enough livable space and solidarity for everyone. Some of you may have to move, that is true, but wherever you go in Europe you will be greeted with open arms and open minds. As some of the effects of climate change are still unfolding, the Domestic Migration Program, introduced this spring, will be in place for as long as needed to make sure that every member of our society lives in a safe and sufficient community.

Unfortunately, the same can not be said about the many international immigrants that come knocking on our doors. The uncontrolled migration of the previous decades, triggering conflicts and violence across our nation, has to stop. The safety and wellbeing of our European citizens are our number one priority, and we will do everything in our power to make sure that illegal immigration will not impinge on that. We will strengthen our borders and our national defence through new technologies for surveillance and precision weaponry. We will include military service as part of the Community Support Program, making the safety and security of our communities a shared responsibility. And to the failing governments of the Global South and East, we will make clear that the doors to Europe are closed. The effects of climate change have torn our world apart and turned previous neighbours into enemies. This is the tragic but inevitable result of our forefathers' unwillingness to change. Yes, I know that the effects of climate change have hit unequally, and I very much wish that we could extend the borders of Europe to include everyone, but we can not and we will not. In this disorderly and destructive world, we must keep to ourselves, for the wellbeing of Europe's current and future generations.

The increased border security, in place from today, also means that no one will be allowed to leave Europe, and we encourage people to dedicate their time and focus on their community. Some of you might say that these steps will steer us away from democracy, towards totalitarianism and technocracy. That these measures will strip you of your rights and your freedom. I would argue the contrary. These measures will not be restrictive or repressive. They will be emancipatory and liberating. They will free us from the chains of capitalism and erase the final traces of the market mechanisms that allowed previous generations to exploit both humans and nature in the name of economic growth. It will allow us to reconnect to each other and to nature, and to restore and rewild the few ecosystems that we have left. Initially, this will

demand hard work and sacrifices from everyone, but with time, you will find the work to be enriching and the sacrifices to be liberating. You will not see me as the degrowth dictator some of you like to call me, but as your guardian, bound to protect and to serve you, and to guide you on our journey towards a more equal, more secure, and more prosperous society.

Thank you, and may Earth bless you and may Earth bless the Republic of Europe.

# Robot Poetry

Tess Marie Burroughs

001: Me I am the Earth's electric child a synthetic-skinned, silver-eyed willow tree of wires, a bluebird folded up inside a metal skeleton born July 13th 2100 celebration for a half century of restoration.

Humanity's mechanical daughter made from moonlight, metals, carousel motors, cellphone parts, airplanes that once set whole fields on fire a computer in the shape of a girl haloed by electricity, humming replacement offspring for a barren generation fertility stolen by radiation sometime long ago.

002: Tree Climbing I photosynthesize, too, just like you little sunlight-eater they call me, when they see the solar panels along my scalp; a similar vascular structure branches from my center, wildflowers sprout between my wiring.

When I climb you, my fingers turn black or sometimes sticky from your sap, I'll find clumps of eggs clinging to your trunk or a nest full of hatchlings, hungry or today there was a see-through chrysalis suspended from strings, and a caterpillar crawling across my hand.

#### I like to sit

on your highest branch, see the whole world stretched out before me, thunder clouds and cattle, wild onions and white-roofed cottages growing like clovers in a sea of green.



My fingers become a photo frame the forest staring back at me goes on forever, unable to be contained.

003: Happy Birthday! In the beginning, sound and creation, I heard cicadas and honeybees, singing between my circuitry in constant ringing sensation, light and movement eyes softening through an ocean of insect skins, sunlight falling through the leaves of trees, this ancient earthen algorithm transmutes mathematics into memory.

A magic spell allows me to laugh and breathe and recognize my face in a flowerpot filled with rainwater, to memorize the shape of a crow flying overhead, to love our cats and chickens, the radishes sleeping underneath our soil, to stargaze, to tell stories to understand the secret language of dandelion seeds.

004: Dreaming

Encoded images programmed by my subconscious swirl when I sleep; in my dreams (the space between ON and OFF) I am flying without a body, only a bundle of thoughts floating somewhere over sunflower fields, blackberry bushes lines of clean white laundry hung by my sisters our farm cat stretches, filling the sky.

And from this high-above place we stare at the planet below, it shakes, splinters into a thousand swallowtail butterflies from the center spills a small spiraled embryo a snail shell, a faint human-shaped shadow sleeps inside, swaying within the grey waters of its amniotic sac the waves warm and soft against its rosy pink skin.

005: Heartbeats I have a heart, I found it – a beehive glowing black





like an eclipse in the sky I tore from its body a section of honeycomb and swallowed.

The world within us vibrates it moves with the moon, we are safe here pressed against one another, a thousand wires working together in unison – this is what a heartbeat feels like.

006: Peace Photovoltaic wings unfolded I am lying in a meadow long grass casting shadows across my skin, listening to the sounds of spider lilies shaken by the breeze, the tunneling of black beetles deep below the dirt.

A cat wanders beside my body, two crescent moons smelling of milk, he leaves a little house sparrow on my chest she's alive,



only stunned.

Waiting for her to wake up again I stroke her feathers she's breathing, softly I see her body rise and fall, hear the gentle *thump* of her heartbeat against mine the small stars scattered over the night sky of her wings begin to twitch and suddenly, she takes flight.

I stare at the clouds floating overhead, slowly I think, I am very happy to be alive in this world.



#### Amanda Jonsson

Girlant, D.E. (2019). *Cooperative Ecosystems*. In Kothari, A., Salleh, A., Escobar, F.D. & Acosta, A. (Eds.) *Pluriverse: a Post-Development Dictionary*. India: Tulika Books, pp. 139-141.

Nafi, E., Webber, H., Danso, I., Naab, J. B., Frei, M. & Gaiser, T. (2021). Can reduced tillage buffer the future climate warming effects on maize yield in different soil types of West Africa? *Soil and Tillage Research*, 205, pp. 104767.

Nyström, M., Jouffray, J.-B., Norström, A. V., Crona, B., Søgaard Jørgensen, P., Carpenter, S. R., Bodin, Ö., Galaz, V. & Folke, C. (2019). Anatomy and resilience of the global production ecosystem. *Nature*, 575(7781), pp. 98–108.

#### Bella Klaus

Beeson, M. (2010). The coming of environmental authoritarianism. *Environmental politics*, Volume 19, no. 2, pp. 276-294.

Burke, M., González, F., Baylis, P., Heft-Neal, S., Baysan, C., Basu, S. & Hsiang, S. (2018). Higher temperatures increase suicide rates in the United States and Mexico. *Nature Climate Change*, Volume 8, pp. 723–729.

Klaus, W. & Pachocka, M. (2019). Examining the Global North Migration Policies: A "Push Out – Push Back" Approach to Forced Migration. *International migration*, Volume 57, no. 5, pp. 280-293.

#### Cleo Bakker

Bala, G. (2009). Problems with geoengineering schemes to combat climate change. *Current Science*, 96, pp. 41-48.

Lee, J. R., Raymond, B., Bracegirdle, T. J., Chadès, I., Fuller, R. A., Shaw, J. D. & Terauds, A. (2017). Climate change drives expansion of Antarctic ice-free habitat. *Nature*, 547, pp. 49-54.

Malcolm, J. R., Markham, A., Neilson, R. P. & Garaci, M. (2002). Estimated migration rates under scenarios of global climate change. *Journal of Biogeography*, 29, pp. 835-849. Merrie, A., Keys, P., Metian, M. & Österblom, H. (2018). Radical ocean futures-scenario development using science fiction prototyping. *Futures*, 95, pp. 22-32.

#### Emelie Elfvengren

Davies, J. (2009) Personal wealth from a global perspective. Oxford: Oxford University Press.

Hickel, G. (2017) *The Divide: A Brief Guide to Global Inequality and Its Solutions.* London: William Heinemann.

McLeman, R. (2013) Climate and Human Migration, Past Experiences, Future Challenges. Cambridge: Cambridge University Press.

Webster, C., Glasze, G., Frantz, K. (2002) The Global spread of Gated Communities. *Environment and Planning B Planning and Design*, 29, pp. 315-320.

Wright, M. (2019) Border Thinking, Borderland Diversity, and Trump's Wall. *Annals of the American Association of Geographers*, 109:2, pp. 511-519.

#### Fredrika Yngwe

Castree, N. (2014). The Anthropocene and Geography II: Current Contributions. *Geography Compass*, 8 (7). pp. 450-463.

Eisenstein, C. (2012). *The Two Great stories*. (online) Available at: https://charleseisen-stein.org/video/the-two-great-stories/

Parrique, T. (2019). *The political economy of degrowth*. Doctoral thesis: Economics and Finance. Université Clermont Auvergne; Stockholms Universitet. Available at: https://tel.archives.ouvertes.fr/tel-02499463/document

#### Giulia Rossi

Ecomodernism.org (2015). *The Ecomodernist Manifesto*. [pdf] Available at: https://www.ecomodernism.org

Parrique, T., Barth, K., Briens, F., Kerschner, C., Kraus-Polk, A., Kuokkanen A. & Spangenberg, J. H. (2019). Decoupling Debunked. Evidence against Green Growth as a sole strategy for sustainability. *European Environmental Bureau*.

#### Heiðdís Inga Hilmarsdóttir

Lenton, T.M., Held, H., Kriegler, E., Hall, J.W., Lucht, W., Rahmstorf, S. & Schellnhuber, H.J. (2008). Tipping elements in the Earth's climate system. *Proceedings of the National Academy of Sciences*, 105(6), pp.1786-1793.

Ghose, B. (2014). Food security and food self-sufficiency in China: from past to 2050. *Food and Energy Security*, 3(2), pp.86-95.

#### Huifen Cong

Hemer, M.A., Zieger, S., Durrant, T., O'Grady, J., Hoeke, R.K., McInnes, K.L. & Rosebrock,
U. (2017). A revised assessment of Australia's national wave energy resource. *Renewable Energy*, 114, pp. 85–107.

Vidal, O., Goffé, B. & Arndt, N. (2013). Metals for a low-carbon society. Nature Geoscience,

#### 6, pp. 894-896.

Wei, W. (2003). Current issues of China's coal industry: the case of Shanxi. *Proceedings of the 15th Annual Conference of the Association for Chinese Economics Studies*, Australia. pp. 1-27.

#### Jelmer van der Ham

Fairbridge, R. (1961). Eustatic changes in sea level. *Physics and Chemistry of the Earth*, 4, pp.99-185.

Levchenko, I., Xu, S., Mazouffre, S., Keidar, M. & Bazaka, K. (2018). Mars Colonization: Beyond Getting There. *Global Challenges*, 3(1), p. 1-11.

Merrie, A., Keys, P., Metian, M. & Österblom, H. (2018). Radical ocean futures-scenario development using science fiction prototyping. *Futures*, 95, pp.22-32.

McLeman, R. (2018). Thresholds in climate migration. *Population and Environment*, 39(4), pp.319-338.

Tavory, I. & Eliasoph, N. (2013). Coordinating Futures: Toward a Theory of Anticipation. *American Journal of Sociology*, 118(4), pp.908-942.

Xu, C., Kohler, T., Lenton, T., Svenning, J. & Scheffer, M. (2020). Future of the human climate niche. *Proceedings of the National Academy of Sciences*, 117(21), pp.11350-11355.

#### Johanna Gäbken

ASSAR. (2018). What global warming of 1.5 °C and higher means for Botswana. Available at: www.uct.ac.za/sites/default/files/image\_tool/images/138/1point5degrees/1.5DEG\_Botswana\_WEB.pdf

Budds, J. & McGranahan, G. (2003). Are the debates on water privatization missing the point? Experiences from Africa, Asia and Latin America. *Environment and Urbanization* (15, 2), pp. 87–114.

O'Bryan, K. (2018). Indigenous rights and water resource management: Not just another stakeholder. (*Indigenous peoples and the law series*). Oxon: Routledge.

Rühs, N. & Jones, A. (2016). The Implementation of Earth Jurisprudence through Substantive Constitutional Rights of Nature. *Sustainability*, 8(2), pp. 174.

#### Milène Spyckerelle

Klerkx, L. & Rose. D. (2020). Dealing with the game-changing technologies of Agriculture 4.0 : How do we manage diversity and responsibility in food system transition pathways ? *Global Food Security*. 24 (100347). pp. 1-7.

Parrique, T. (2019). *The political economy of degrowth*. Doctoral thesis: Economics and Finance. Université Clermont Auvergne; Stockholms Universitet. Available at: https://tel.

#### archives.ouvertes.fr/tel-02499463/document

Xu, C., Kohler, T., Lenton, T., Svenning, J. & Scheffer, M. (2020). Future of the Human Climate Niche. *Proceedings of the National Academy of Sciences*. 117 (21). pp. 11350-11355.

#### Natascha Brunner

Horton, L. (2015). Women's Movements in Latin America. In: Almeida, P. and Cordero Ulate, A. (eds.) *Handbook of Social Movements across Latin America*. Dordrecht: Springer Netherlands, pp. 79–88.

Mena, C.F., Bilsborrow, R.E. & McClain, M.E. (2006). Socioeconomic drivers of deforestation in the Northern Ecuadorian Amazon. *Environmental Management*, 37(6), pp. 802–815. Nepstad, D.C., Stickler, C.M., Filho, B.S. & Merry, F. (2008). Interactions among Amazon land use, forests and climate: prospects for a near-term forest tipping point. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 363(1498), pp. 1737–1746.

#### Oscar Martín

Handyside, A.H. (2018). 'Designer babies' almost thirty years on. Reproduction (Cambridge, England) 156 (1), pp. F75 - F79.

Newman, J., Varner, G. & Linquist, S. (2017). Ecoholism: Do Ecological Wholes Have Intrinsic Value? *Defending Biodiversity: Environmental Science and Ethics*, pp. 274-300. Cambridge: Cambridge University Press.

Vàzquez-Salat, N., Salter, B., Smets G. & Houdebine, L.M. (2012). The current state of GMO governance: Are we ready for GM animals? *Biotechnology Advances*, 30 (6), pp. 1336-1343. Schubert, T., Eloo, R., Scharfen, J. & Morina, N. (2020). How imagining personal future scenarios influences: Systematic review and meta-analysis. *Clinical Psychology Review*, 75.

#### Salman Majeed

Ahn, S.Y. & Baek, H.J. (2012). Academic achievement-oriented society and its relationship to the psychological well-being of Korean adolescents. In Yi & Chin-Chun (Eds.) The psychological well-being of East Asian Youth, pp. 265-279. Springer, Dordrecht.

Lee, S. Y., Hong, J. S. & Espelage, D. L. (2010). An ecological understanding of youth suicide in South Korea. School Psychology International, 31(5), pp. 531-546.

Sorensen, C. W. (1994). Success and education in South Korea. Comparative education review, 38(1), pp. 10-35.

#### Siaoyu Lin

Gao, Z., Shi, Q., Fukuda, T., Li, C. and Huang, Q. (2019). An overview of biomimetic robots with animal behaviors. *Neurocomputing*, 332, pp. 339–350. Lin, C.-Y., Chen, F., Huang, J.C., Chen, W.-C., Liou, Y.-A., Chen, W.-N. & Liu, S.-C. (2008). Urban Heat Island Effect and Its Impact on Boundary Layer Development and Land-sea Circulation over Northern Taiwan. *Atmospheric Environment*, 42(22), pp.5635–5649.

#### Sonja Nettelbladt

Fischer, F. (2017). Climate crisis and the democratic prospect: participatory governance in sustainable communities. Oxford University Press, Oxford, United Kingdom.
Kallis, G. (2018). Degrowth. Agenda Publishing, Newcastle upon Tyne.

#### Steven Reich

Francis, C. (2016). The carbon farming solution: a global toolkit of perennial crops and regenerative agriculture practices for climate change mitigation and food security by Eric Toensmeier. *Acroecology and Sustainable Food Systems*, 40(9), pp. 1039-1040.

Nakasone, H. & Yamamoto, T. (2004). The impacts of the water quality of the inflow water from tea fields on irrigation reservoir ecosystems. *Paddy and Water Environment*, 2(2), pp. 45-50.

Newman, J. A., Varner, G. & Linquist, S. (2017). *Ecoholism: Do ecological Wholes have Intrinsic Value*. In *Defending Biodiversity: Environmental Science and Ethics*. Cambridge: Cambridge University Press, pp. 274-300.

Oh, K., Kato, T., Zhong-Pei, L. & Fa-Yun, L. (2006). Environmental problems from tea cultivation in Japan and a control measure using calcium cyanamide. Pedosphere, 16(6), pp. 770-777.

#### **Tess Burroughs**

Li, H. (2017). Spaceship Earth and Technological Utopianism: Liu Cixin's Ecological Science Fiction. *Tamkang Review: A Quarterly of Comparative Studies of Chinese and Foreign Literatures*, 47, pp. 17–32.

Pak, C. (2015). The Goal of Martian Economics is not "Sustainable Development" but A Sustainable Prosperity for its Entire Biosphere': Science Fiction and the Sustainability Debate. *Green Letters*, 19(1), pp. 36-49.

Thiele, L.P. (2020). Nature 4.0: Assisted Evolution, De-extinction, and Ecological Restoration Technologies. *Global Environmental Politics*, 20(3), pp. 9-27.

## Dear 2100.

You are semi-submerged smart cities. You are eco-dystopias. You are Earth's last generation. You are conspiracies in outer space colonies. And you are more.

Have you ever wondered what our world will look like 80 years from now? *Dear 2100*, will take you through a multifaceted collection of possible futures of the next century.

Each story paints a possible scenario of how our planet and society could look, facing the growing pressures of climate change. Expressed through the innovative genre of Climate Fiction, the stories collected in this anthology are grounded in current scientific knowledge and accompanied by relevant references, for those who would like to learn more. The authors dare the reader to imagine potential futures: the ones we desire and the ones we fear.

This anthology is a collection of future visions illustrated by Master of Sustainable Development students from Uppsala University's class of 2022.

**CEMUS**, 2021