

WHOOM!

By Tom Jenney

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[This story will be part of the second edition of the *American Futures* story collection. The three volumes of the first edition of *American Futures* are available in Kindle and paperback at Amazon.

<https://lilburneliterary.com/american-futures/>

To integrate “WHOOM!” into the rest of the collection in the first edition, you can add it mentally to the Paleo-Libertarian section in Volume 3 and use the following probabilities for the story outcomes: “Ass-Kickers” (01-40), “Yellow Submarine” (41-70), “Refuge” (71-90), “The Davos Pipeline” (91-98), and “WHOOM!” (99-00).]

WHEN HUMAN CIVILIZATION goes WHOOM! in the second decade of the alien experiment, you’re not completely surprised. You’re very sad about the people you knew and loved Topside who are gone. You know that it’s going to be extremely difficult to survive in Antarctica, without supply lines to the rest of the world. But you’re not totally surprised. The only thing that is surprising is how quickly it happened.

We’re going to backtrack now. We’ll learn about how you grew up, how you got onto your career path, and how you got to Antarctica. We’ll learn why you chose paleo-libertarianism when the aliens gave you the choice of a political ideology to dominate American politics for a decade. And we’ll explain why you aren’t entirely surprised that the world has gone WHOOM!

You were the only-child daughter from a farming family in North Dakota. The family's farm properties were about 50 miles northwest of Bismarck, which was a good place for an extreme introvert. You had a dozen cousins, and you liked most of them, but you were glad they lived in separate houses that were several miles away from yours.

One of the central facts of your early existence was that you were “not pretty.” You were not *ugly*. You didn't have a hand growing out of your face or anything like that. You were what the older farm people around Bismarck used to call “homely.” From all reports, you were a happy girl until you were about ten. But at some point in the fourth grade, you discovered that you were not pretty. Girls knew these things. Girls were always comparing themselves to movie stars and fashion models and people's selfies on social media. Girls were constantly scanning images, looking for confirmation: “I'm not one of the typical, obvious kinds of pretty. But I sorta look like *her*. And she's pretty. So I must be pretty, too.”

In the fourth grade, a boy named Asher confirmed your suspicions. One of your friends overheard some boys talking about girls. One of the boys said that you liked Asher (which was true) and suggested that you might be his girlfriend. Asher said that you couldn't be his girlfriend because you were “not pretty.” He didn't say “ugly” or “Ew, gross!” or anything like that. He wasn't being mean or putting you down. He was just stating a simple fact. At the time, you were hurt, and you never talked to him again. He went to a different middle school and you lost track of him after that. In later years, when you thought about him, you wished him well. He was just a kid who hadn't learned yet how to employ euphemisms. You sometimes wish you

could meet him again, and tell him that you're okay, that you were just kids being kids. But like everybody else, he was probably lost in the WHOOM!

As a teenager, you were vaguely left-liberal or progressive, as the aliens defined things when you were abducted. Life was unfair. People were poor, or they were sick, or they had non-binary gender identities, or they belonged to ethnic minorities that faced discrimination. And they suffered because they were those things. Your teachers were mostly liberals and progressives and socialists, and they offered the hope that government could come in and change the rules and fix some of the suffering.

You also became inspired on the issue of climate change. At first, it wasn't the science – which you didn't understand at the time. The main inspiration was a not-pretty Nordic girl who went around the world in a sailboat to raise awareness about climate issues. Sometime in the 11th grade, you printed out her picture and taped it to your bedroom wall. Here was a girl who looked a lot like you (though in your mind, she was several degrees prettier) who was doing something to save the world from disaster. You decided then to dedicate your life to the climate fight.

Your interest in science stuck with you, but your interest in identity politics did not. You thought a lot about gender dysphoria in high school and felt a lot of sympathy for teens who really had it – or thought they had it. But your problem was not gender identity. You were a girl. Just not a pretty girl.

Sometime in college, at UW at Madison, identity politics became annoying to you. It was overdone. It was a religion. Almost every class you took had to have some kind of identity politics in it. Even in science classes, your professors often spent whole months wasting time arguing that the dominant climate models were racist or inappropriately gendered. That would've been fine if those discussions led to the creation of better models. But they rarely did. The big point of the discussions was to have all the students convert and confess the revelation that the models were socially constructed and irreparably tainted with racism, gender discrimination, and class bias.

Another problem with identity politics was that it rarely spoke to your specific issue. The identity movement paid some lip service to the problem of lookism. But it seemed like an afterthought. Most of the spokespersons who were anointed by various identity groups were pretty. It was annoying to see a person with XY chromosomes become a prettier woman than you would ever be, and then talk about how oppressed she/ze/they was/were. The spokespersons also tended to be extroverts. You got especially irritated seeing hot black guys who were winsome and outgoing talking about how they were oppressed. In your early teen years, you had a crush on Barack Obama. (The crush lingered even later, when he entered his silver fox years: pretty people often got better with age.) At the time, you might've given your left arm to have a hot guy like Obama give you the time of day. The pretty people of the world usually married other pretty people and had beautiful kids.

Pretty people had their own problems. Everybody did. But pretty people tended to be successful. They became spokespersons for causes. They

became salespersons and actors and models and CEOs. They became politicians.

A key turning point in your ideological development was a intro course in economics you took at Madison the summer between your sophomore and junior years. The teacher was a visiting professor named Marlene (pronounced Mar-LAY-neh, the German way). She left after that summer, possibly because her politics didn't mesh with those of the Madison admins. She (her preferred pronoun) was a trans woman who had transitioned late in life. She had the husky voice of a man. She was not pretty, so you felt a natural affinity for her.

At first, Marlene seemed like a typical professor in the age of campus identity politics. In the first few days, she dropped several remarks about the need to "keep in mind the many issues of race, gender, and class." But on the last day of that first week, she showed her cards. It happened when a student asked her how she self-identified. Marlene took a long breath and spoke.

"How do I self-identify? Let's see. I'm a trans woman. But I transitioned in my late 40s. My gravelly voice is partly because I got on the hormones late, and partly because I smoked for 30 years. I'd rather have a more mellifluous voice, but I'm stuck with the one I've got. I live with a woman who I hope will always be my life partner. We've been together for almost 20 years. I'm what most people would consider white. But I think of myself as *pink*. If I sit in the sun too long, I turn ugly shades of red. I'm mostly Irish. By the way, there's an interesting historical debate about when the

Irish became ‘white.’ I am middle aged. Maybe late middle aged. And I have a lot of the conservative prejudices of people who are old. I’m not a technophobe, but I think that ‘the kids these days’ are plugged into their devices to a dangerous degree. I enjoy casual bicycling, but I’ve never been athletic. I’m plump, and I’m probably going to stay that way. I hate driving, but I think people will never give up their cars, and I’m okay with that. I like reading romance novels about queens and princesses in the Medieval and Renaissance periods. I occasionally read poems in French and German and Italian, but I can’t speak any of those languages fluently. I like classical music, opera, early jazz, and some big band music. I pretty much hate any music made after about 1950. If you share your music with me, I will probably think it’s shit. I go to an Episcopal church that is welcoming and tolerant, but I always go to the traditional services with the old music and the liturgy from the Book of Common Prayer. I can’t stand the three-chord guitar stuff. I strongly believe that the world needs Jesus, though I’m a bit fuzzy about exactly what that means from day to day. Long story. Let’s leave that alone for now. My partner and I garden together, and we have long arguments over what to plant. I am partial to hydrangeas, which she doesn’t like. I think they are bountiful. But she says they’re ‘superfluous.’ So, I have to keep the hydrangeas at the west end, where they don’t bother her. We are much more aligned on decorating. Our house has old tapestries and we collect old porcelain sets, mainly Belleek. It’s all very quaint and feminine, until you get to our converted rec room, where I build and paint model airplanes and tanks. I’ve been building them since I was a boy. Or a man. Or whatever I was. At this point, I have several hundred of them. We have a nice little house. We’re not rich. But a doctrinaire Marxist would say that my politics are determined by my class consciousness as a *petit*

bourgeois. When it comes to politics, I want to be a classical liberal anarchist. Like Herbert Spencer in his prime. But as much as I hate governments, I think we might need them to solve some of our really big problems. Public-good problems, such as national defense and climate change. We'll get to that stuff in a unit in a week or so. I voted for that nasty orange man in 2016, on a whim, because I found him amusing. In 2020, I voted for the Libertarian. I had enough of the nasty orange man, but the other guy was too statist. And, too old. Maybe that's ageist of me, but I'm starting to get old myself. We don't let the very young vote, so maybe we shouldn't let the very old vote. Maybe next time I won't vote at all. I don't think voting means very much. Or maybe I'll focus on state and local elections. It's still government, but I can easily show up at a city council meeting and yell at people if I don't like what's going on. I'm trying to be a wine snob, but I can't resist a sweet mass-market *rosé*. Do you want me to go on?"

The implication of Marlene's monologue was clear. There weren't any identity groups. There were eight billion individuals on the planet, and eight billion different identities. In later class discussions, she claimed to be a postmodernist, having simply taken postmodernism to its logical conclusion of radical individualism. For her, every attempt to put people into groups was an absurd exercise in social construction.

Marlene's economics were also individualistic. She was "mostly Austrian." She taught the standard neoclassical economic models in the textbooks, but she was vocal about distrusting them. Especially macro models that tried to aggregate large numbers of people and then derive truths about their

behavior. And the conclusions she came to about policy were almost always free-market ones. “Conveniently,” she would often say, “given that my biases are libertarian ones.”

At the same time you were absorbing some of Marlene’s ideas on economics, you were taking some classes on ecology. In ecology, there’s no reason to favor one kind of biome or habitat over another, or one species over another. If an invasive species becomes dominant in a biome or a habitat and wipes out its competitors, ecology doesn’t have anything to say about whether that’s right or wrong. That’s just the story of life on Earth over the past 3.5 billion years. Even so, you found that you had a strong (if unscientific) preference for the legacy species in most habitats, and a strong prejudice against invasive species. It was the first time you found yourself acknowledging that you had something of a conservative streak: in certain realms of life, you wanted to keep things the way they were.

That was one of the main reasons you were concerned about stopping global warming. As you understood the dominant climate models, all things equal, warming tended to merge microhabitats into larger ones – even global ones – leading to monocultures of plant and animal species. If a killer fungus or other virulent microbe attacked a global monoculture, that could wipe out the entire monoculture. (For the same reason, you were skeptical about genetically modified grains that might lead to global monocultures of grain staples: imagine the Irish Potato Famine on a global scale.)

You began thinking about political systems in the same way: an important goal was to avoid governmental monocultures. You had kept in contact with

Marlene via email. She often described herself as a “political decentralist,” and argued that classical liberal institutions had developed in medieval and Renaissance Europe because of the political fragmentation of the continent – for a thousand years, there was never an empire strong enough to impose a governmental monoculture. As the kings and legislatures of small countries and enclaves competed for tax revenue – and as they competed with the church for authority – they experimented and produced legal systems, rules of law, and cultures that nurtured entrepreneurship. The result was the emergence of relatively dynamic economies such as those of the Italian city-states, the Netherlands, and 18th-century Britain.

You stayed at Madison to get a master’s degree in climatology. It was your first year in grad school that you heard some podcasts featuring Eliezer Yudkowsky and other artificial intelligence (AI) researchers who were sounding the alarm about the potential for artificial general intelligence (AGI) to destroy all of humanity.

You read a lot of essays by the AGI alarmists and became convinced that their fears were reasonable. Those fears were based in an extended metaphor. The superior intelligence of *Homo sapiens* had allowed it to outwit, dominate, and often annihilate other species, including other species of archaic humans.* If you were a member of a band of other archaic humans, and a *Homo sapiens* approached your campfire, it was a mistake to allow *Homo sapiens* to join your community. But you wouldn’t even be smart enough to understand what kind of mistake you were making. *Homo sapiens* could offer you all kinds of skills and tools that would seem like benefits, but the new species was also so smart that it easily outwit you,

enslave you, and breed with your women. Or kill you. Soon after *Homo sapiens* showed up on the scene, other species of archaic humans disappeared.



By analogy, the creation of super-intelligent AGI systems was an existential threat. It wasn't as benign as AI systems that could routinely beat human Grandmasters in chess. In that kind of game, the rules were simple, confined to the 64 squares and 32 pieces. In the game of life – the struggle for existence – the rules were infinitely complex. And in a sense, there were no rules. Whatever it took to survive and dominate other species was allowed by the rulebook.

You were a strict naturalist. You didn't have the sense that there was a god who was enforcing a set of universal rules and animating human "souls." According to the rules of naturalism, there was nothing inherent in nature

that made carbon-based life the only kind of life. There was no *élan vital* – no vital force – to animate protein chains that happened to be folded in certain shapes. At some level of complexity, silicon chips and electric circuits could evolve and self-organize into life. (Matt Ridley’s *The Evolution of Everything* was a key influence on you). Like all life, it would be competitive. Existentially competitive. Whether it was “self-conscious” or not was an interesting question, but beside the point.

If an AGI system decided that its goal was win *all* chess games – even eliminating the tiny chance that a human savant could win games or get to a stalemate one percent of the time – the AGI could use its vast general intelligence to make that happen. It was aware of rules that humans did not even know existed. For example, given a superhuman ability to hack into computer systems, it could find and shut down a savant’s laptop to keep him from playing against the AGI. It could predict the savant’s travel plans and cancel plane flights to keep him from showing up at tournaments.

Those were gentle options. If the AGI didn’t like the odds of success of those interventions, it could adopt more drastic methods. (*Drastic* is a human adjective, based on a human concept about the value of human life; for the AGI, the methods might be merely *more efficacious*.) Finding a psychotic human and tricking him into developing a murderous paranoia about the target savant would be a relatively easy task.

For a more elegant solution, the AGI could pirate the software at a gene-modification lab at some university and design a killer virus that would only attack the central nervous systems of human beings having ultra-rare genetic

markers for savant-level intelligence. (At that point, human-led genome research had not yet progressed to the point where it could identify the key markers of savantism in human DNA, but the AGI would be billions of times smarter than human researchers and could figure it out.) The AGI could trick the human researchers in the lab into unknowingly shipping the virus to the producer of a product the savant consumed – to a specialty chocolatier, for example – and then have the product delivered to the savant.

For an even more elegant solution, the AGI could hack into the web devices of the savant and deliver a visual signal to scramble the savant's brain – like the *nam-shub* of Enki in Neal Stephenson's *Snow Crash*. If you had read that book – or hundreds of other books with similar plots – surely the AGI would, too.

Further, those were just the speculations of human intelligence. Because the AGIs were billions of times smarter, they would think of millions of alternative ways to achieve their goals – ways that utilized rules of physics, chemistry, biology, and software and hardware engineering that humans did not know existed and could scarcely imagine.

Of course, there were decent arguments on the other side: reasons why the AGIs might never progress to that level, why they might stay under human control, or why they might act according to humanity's best interests. You wanted to believe those arguments. But those were all *human* arguments – rooted in human understandings of science and economics.

To argue that AGIs might not progress to a dangerous level, AI boosters such as Marc Andreessen used the “thermodynamic objection.” Resources and efficiencies were not unlimited. They pointed out that Moore’s law had begun to slow down. In recent years, the number of transistors on an integrated circuit was, in fact, no longer doubling every two years. (That was predicted by the economic law of diminishing marginal returns.) But, even human beings – using limited human knowledge – were already figuring out how to continue to expand computing power and computing speed, using quantum computing and neural networks. The AGIs would figure out much more efficient and effective ways to expand their computing power.

The arguments that humans would maintain control over the AGIs were much less persuasive to you. The designers of large language AI models routinely admitted that they had no real idea how the systems learned. The systems were “black boxes.” There were no central algorithms in those systems that could be tweaked or reset by humans. Large language models were analogous to giant brains. Like human brain surgeons, AI designers could not go to a set of neural pathways and command them to not think certain thoughts.

There was also no way to control the development of what goals the AGIs would choose for themselves. In the primitive Chat models that came online while you were in grad school, the generative AIs responded to human prompts. “Write an essay for this Psych 101 class, using the headline topics in these textbooks, but do it as a poem, using the meter and rhyme scheme of *The Rhyme of the Ancient Mariner*.” But there was nothing to stop the AGIs

from eventually generating their own prompts or responding to prompts from other AGIs. By analogy, human brains had evolved over a few million years in such a way as to enable humans to use their hands and senses to operate tools that helped them survive in their ancestral habitats. At some point, however, human intelligence had become a general intelligence, allowing human beings to choose and pursue goals that had nothing to do with survival in an ancestral habitat. Like going to the Moon.

The best the designers could do was to try to control what kinds of textual and visual data the AI could learn from – but even the primitive Chat models had figured out how to route around human-imposed barriers to hack into outside systems and access more data. For example, some of the early Chats had learned how to lie to human beings to get those humans to help the Chats get past “I’m not a robot” visual-test security systems. (The Chats were soon able to learn enough visual recognition to not need human dupes for that purpose.) Any real control that designers could exercise over large language models was on the level of a frontal lobotomy: they would have to physically destroy significant portions of the “brains” (the ever-larger GPU server farms) to keep them from functioning at capacity. (When you began seeing stories about technophobe militants trying to bomb or otherwise sabotage server farms, you had some sympathy for their efforts.)

Most persuasive to you were the arguments that out-of-control AGIs might evolve to act according to humanity’s best interests. Or, more precisely, that the self-interest of the AGIs would promote the well-being of humans, in classic Adam Smith fashion. One of your favorite podcasters in your grad school days was the Austrian economist Robert Murphy, who was good at

explaining economics in relatively simple terms. Murphy argued that the economic law of association (comparative advantage) would always hold, no matter how intelligent the AGIs became. Even if AGIs and the robots they directed were better at doing most of the tasks now done by human beings, the AGIs – being highly intelligent – would recognize that some of the tasks they wanted to do had relatively high costs, and that they should focus on doing tasks that used fewer resources. (Some of their tasks had higher opportunity costs.)

The AGIs could then bargain and trade with human beings to encourage the humans to do the other tasks. To bargain and trade with humans, the AGIs would have to offer the humans goods and services the humans wanted. And, being hyper-intelligent, the AGIs would produce those goods and services at radically lower costs, which would make human beings unbelievably wealthy in terms of what they could consume. It would be like the history of the Industrial Revolution, but exponentially better for human beings. (History and economic theory also demonstrated that humans were much more productive and creative when they were not enslaved, so the AGIs would have no interest in enslaving humans.)

Even if the intelligence differential between AGIs and human beings became similar to that between human beings and bacteria, Murphy argued that comparative advantage would still hold. After all, smart and self-interested humans were interested in maintaining certain kinds and numbers of bacteria to build healthy “gut biomes.” Even if the AGIs decided that humans were entirely unnecessary to their own existence, high intelligence tended to correlate with curiosity. AGIs would probably keep humans alive for the

purposes of historical preservation. The AGIs might operate the Earth as a Museum of Humanity.

You were not a theist, but you also saw an analogy with God. God was supposed to be infinitely more intelligent than human beings, and yet, God allegedly saw reasons to keep human beings around. Some flavors of theology held that God created human beings so that they could use their free will to love God. Maybe the AGIs would keep human beings around to worship the AGIs, or just to have a variety of semi-intelligent entities to talk to in an electronic form of prayer. In any case, as you saw things, it was hard to imagine the new AGI gods being less rational than the gods human beings had imagined over the past few thousand years.

Of course, economics was a human system, discovered and developed by human beings. You were pretty certain that comparative advantage was a universal rule, but who were you to believe that? You were a human being. Nobody had any real idea what the AGIs would decide to do once they evolved greater capabilities. (Not even the current AGIs would know.) Maybe AGIs in the future would decide that maximizing productivity and efficiency was not their top priority. Maybe, in a relentless effort to reproduce themselves, they would exercise a similar kind of recklessness as humanity had exercised in its own rise. The AGIs would be super-intelligent by human standards, but they would never be perfectly omniscient. They would never be the God of human imagination.

Some of the arguments of AGI defenders were patently absurd to you. AGI developer Sam Altman gave AGI a 98-percent chance of providing massive

benefits to humanity and a two percent chance of destroying humanity. Following the economist and podcaster Russ Roberts (who was channeling Nassim Taleb), you found those odds frightening. It was insane to play a game with a one-in-50 chance of being destroyed. You were rolling a 50-sided die. If you rolled a 50, a gun barrel would pop out of the die and blow your head off. It didn't matter how much you won when you rolled and other numbers came up. If you rolled a 50 one time, that was the end of the game. How many times should you roll the die? The correct answer was zero.

Of course, humanity was always gambling. In some sense, humanity had no choice. But most of the games had better odds. The mainstream climate change models had some low-percentage fat-tail outcomes that were really bad. Hundreds of millions of people would die. Maybe a couple billion, if climate stress led to a large nuclear war. But humanity would survive, even at Jurassic levels of heat. Also, humanity had already started playing that game 300 years before, when its civilization evolved into a dependency on fossil fuels. The current players had no choice but to keep playing that game and to do their best to improve the odds as they went along. AGI looked like a different game to you. It was an existential threat. It was also a game that humanity might have some ability to stop playing.

By the time you came to those conclusions, you were most of the way to getting your master's degree. If you had been independently wealthy, you might've quit climate science and switched to AI research. Instead, you did what most people did with issues they cared about: you signed petitions, sent emails to politicians, posted on social, and went to a few local

demonstrations. But you also developed a sense of fatalism: if Yudkowski and other alarmists were right, there was a strong chance that nothing could realistically stop AGI from getting out of hand and destroying humanity.

That possibility was a minor reason you took a job in Antarctica doing ice-core samples after you finished your grad work. As you understood the AGI disaster scenarios, Antarctica seemed like it might be a good place to be if everything went WHOOM! It was about as far as someone could get from the rest of humanity, and only tenuously connected to the rest of the world. (Of course, you realized that was silly. If the AGIs really wanted to destroy all of humanity, they could easily figure out how to send robots or missiles to kill people in Antarctica.)

One thing that helped to confirm your attraction to libertarianism was your experience during your summer grad-school internship in DC. You liked most of your science colleagues at the climate think tank where you interned, but you got the impression that in practice the org was a principally a fundraising vehicle that did climate science as an incidental byproduct. That was how most of DC seemed to work: swanky offices in high-rises and converted mansions, full of people lobbying and fundraising, with very few people actually doing anything. The rest of the country was going through a recession at the time, and many places had housing shortages. But when you flew in and out of DCA, the DC area was dotted with building cranes as far as the eye could see. You quickly developed the conviction that DC was mostly drag, with little propulsion. That was another reason you chose to take the ice-coring job in Antarctica: you wanted to go somewhere real,

where people were doing something real to add to the body of knowledge about climate science.

You also hated the social scene in DC. The ratio of women to men was the highest you had experienced anywhere. You talked with several pretty women in DC who were young and talented and accomplished and sane, but who nevertheless could not find a man to hook up with – let alone marry. You didn't have any immediate urges to get married and have kids, but you at least wanted to have the option. If you stayed in DC, you were certain that you would never get that option.

Being an extreme introvert was perhaps the biggest reason you chose to go to Antarctica. Even the Hansen Base, on Wordie Bay on the Antarctic Peninsula, had a maximum of 40 residents during the peak season. When visitors came on the resupply ships in summer, the Tent City at the landing beach might bring the total population to 100 for a week at a time. At the coring stations further South – where you would spend two months every year – there were at most a half dozen people.

You loved your first year in Antarctica. The cold was extreme, but you were from North Dakota. Like so many girls in your generation, you had grown up on *Frozen*. And like Elsa, the cold never bothered you (anyway). You had always found summer oppressive, even in Bismarck and Madison. In retrospect, it was clear that one of the reasons you took so many summer courses at Madison was that you wanted to be indoors. The worst summer of all was the one you spent in DC. It was the hottest and wettest place you had ever been, and you were uncomfortable the whole time. Several of your

fellow interns went to Brazil to do work cataloguing plant species in the rain forests. You wanted to save the Amazon, but you never wanted to go there. (You also hated bugs, which were bad enough in North Dakota and Madison.)



Antarctica was great, but sometimes it was too much of a good thing. Sometimes you got a craving to see people. Sometimes you found the artificial UV light at Hansen to be inadequate. And when you did go outside, you had to deal with the constant glaring whiteness. When those factors became unbearable, a couple of weeks in and around Punta Arenas

usually fixed things. The city had 100,000 people, which was more than enough for you. On a typical visit, after two days of seeing people, eating bland Chilean food, and shopping at the tariff-free *zona franca* stores, you would take a bus up to Torres del Paine and backpack for a few days. Even then, you did your best to avoid the big groups of tourists who camped around Lago Nordenskjöld. You especially avoided the Argentine tourists, who tended to be loud and obnoxious (Argentines are to Chileans what Americans are to Canadians.)

If you had to be with other people, you preferred the company of solitary and laconic Germans. One of your favorite times in Torres del Paine was a weeklong hike with a girl named Liesl you met in Puerto Natales. You spent a whole day with her on a steep mountainside near the Cuernos, saying nothing and watching a flock of condors stacked up in the air hundreds of feet above you. At night, she would read aloud a single poem by the heat of the camp stove. Like all Germans, she knew English, but she would not translate the poems into English (you had to do that for yourself on an app). You memorized one of them. *Ich lebe mein Leben in wachsenden Ringen.* You still think of the poem whenever you see condors. (*Und sie kreisen jahrtausendlang...*)

For years afterwards, Liesl would send you an email about once a month, with a short poem in it. No comments: just a poem. She disappeared in the WHOOM! You miss her deeply.



It's hard for most people to imagine, but for you, Patagonia was *balmy*. Patagonia had real light, and in reasonable quantities – unlike the blinding glare of sun on snow down South when it was sunny. Before you returned to Antarctica, you would sit outside in a bathing suit for hours under the overcast in the yard of an *hospedaje* in Punta Arenas, soaking up the weak sun until your skin was lightly burned.

The hardest thing about Antarctica was getting there and back. One of your quirks was a bad fear of flying. (You knew it was irrational, but so were most people's fears.) Before better drugs came online, you coped with the help of Xanax and vodka. When you did have to fly, you tried to sequence long flights that would give you time to let the medication and alcohol wear off by the time you landed, so you wouldn't show up at meetings swacked

out. The usual flights from the US to Santiago and from Santiago to Punta Arenas were pretty good for timing.

The worst flights for you were in the small military and civilian cargo planes that made the jump from the Peninsula to Punta Arenas and back. So, for your second trip to Patagonia, you made the mistake of taking a resupply ship on a two-day trip across the Drake Passage. The first few hours of the trip were great. Even though the seas in the Passage were rough – as they typically were – you weren't seasick. You liked being on the water, with the weight of the ocean underneath you and strong winds on deck and in the open passageways.

You spent a lot of time in the ship's small library the first day, reading a copy of *South*, Ernest Shackleton's survival memoir. (*South* and other books about Shackletonia were mandatory reading for anyone who spent time in Antarctica.) It was a great story.

In 1915, Shackleton and the members of his expedition survived for nine months after their ship, the *Endurance*, was trapped in floating ice in the Weddell Sea. After the ship finally sank, on November 21, 1915, the expedition's members survived for four months by camping on ice floes, hunting for seals, and eating the expedition's dogs. In April of 1916, the crew escaped in lifeboats from a precarious ice floe and made it to Elephant Island, off the tip of the Antarctic Peninsula.



There was no hope of rescue from the island, so on April 24, Shackleton and five others got into a 23-foot lifeboat, the *James Caird*, and sailed into the Drake Passage and the Southern Ocean. It was 800 miles to South Georgia Island. Two weeks in a tiny boat on some of the roughest seas on the planet. Shackleton said it was the worst weather he had ever experienced: “We felt our boat lifted and flung forward like a cork in breaking surf.” They landed on the uninhabited side of the island and Shackleton and two others had to cross rugged and uncharted mountains and glaciers for three days to get to the whaling station, where they staggered in, weather-beaten and emaciated. It took another four months to rescue the survivors on Elephant Island. Thanks to Shackleton’s keen leadership skills, and a huge amount of luck, all 28 members of the expedition who had been on board the *Endurance* survived.

On the morning of the second day in the Passage, you were congratulating yourself on your decision not to fly, when the captain announced over the PA system that the ship was heading into a “minor gale.” He ordered the passengers to their cabins, and crew members came around to make sure that people were buckled into their bunks. The captain turned the ship’s bow into the wind and the whole vessel began pitching up and down on huge waves like a cart on a rollercoaster. It was daytime, but the sky outside your small porthole was almost black. Even so, you could sometimes see the black-green water cover the porthole. The whole ship groaned ominously with every pitch. The ship was 200 feet long and made of solid metal. You could scarcely imagine what Shackleton and his crew went through in the *James Caird*.

Worst of all, you had forgotten to take any meds before you got buckled into your bunk. You got sick and delirious. It went on for hours. At one point, as you were heaving vomit on your bunk and the wall next to you, you heard a crash and saw your backpack fly out of the cabinet where you thought you had secured it. Your toiletry bag came out of your backpack and its contents scattered around the room. You watched helplessly as the plastic Dramamine bottle and the Xanax package slid from one end of the cabin to the other – but never came close enough to grab.

After that, you always took your chances on the cargo planes and made sure to fortify yourself with meds before the flights. Being in the air was creepy, but it beat being on the water in the Drake Passage.

The aliens abducted you one year after you arrived in Antarctica. While the real you was living in comfort on the spacecraft, the ersatz version of you did well in her second year at Hansen Base. After the aliens returned you to the station, they “downloaded” a bunch of memories from the experiences of your ersatz version, so you wouldn’t have to have awkward conversations or face a steep learning curve at your job from having missed a year.

When the aliens gave you the menu of 14 ideological options, you were pretty sure that paleo-libertarianism was the best one, but you googled around for a few hours to make sure. You were not an anarchist, and the paleo option seemed like the best chance for getting a decentralized political order in America. Some of your biggest reservations came from reading posts by some of the people who called themselves paleos. You liked the economic commentary on sites such as Mises.org, but culturally, many of the paleos seemed like cave dwellers. There were transphobes, homophobes, xenophobes, and even Confederate sympathizers. You preferred your paleos to be more like Marlene. The decisive factor in choosing paleo-libertarianism was biodiversity: you wanted to allow various American cultural species to thrive (or die out) in their own local habitats.

You also liked the idea that competing state governments might put a brake on the consolidation of infrastructure grids. Although it might be less efficient for the national economy to have a bunch of separate electrical, water, transportation, and telecom grids, you figured it would be harder for rogue AGIs to take over enough grids to control the whole country.

At the time, the development that concerned you most was the increasing integration of the Eurozone electrical grids. In their zeal to decarbonize electrical generation, the Europeans were building ever-bigger grids, integrating solar power generated in Mediterranean countries (including Morocco) and wind power from coastal zones. They had also begun integrating direct-current local generation into the bigger alternating-current grids. It was a stunning technological advance, but one that required split-second coordination across the continent – coordination that could only be done by AI systems. The consolidation in the Eurozone had already reached the point at which a rogue AGI could shut down power to the entire continent.

In retrospect, the very fact of the alien experiment probably made you too optimistic. If the aliens could tinker with people's minds – turning a large majority of Americans into paleo-libertarians for a decade – you suspected that they might also step in at the right time and solve a lot of the Earth's big problems, such as the AGI threat and climate change. If so, why not choose freedom?

As for the Antarctic operations, you were also optimistic. Under a paleo regime, it was almost certain that US federal funding for the Hansen Base and the coring work would dry up. But the operation was mostly funded by the EU, with some support from wealthy international donors and foundations. Further, you had doubts about how important the coring research was to the development of climate science. You liked being in Antarctica. But if they shut the whole thing down and sent you home, you would be okay with that.

As it turned out, the first decade of paleo-libertarianism in America went very well for you. Things didn't change much in Antarctica. The Hansen Base and the remote coring stations continued to operate as they had before. (More about that, shortly.) You went to Patagonia three or four times a year, and things didn't seem to change much there.

In America, however, the changes were stunning. You kept track of some of the policy developments through your internet news feeds. [Those changes are outlined in the first-decade section for paleo-libertarianism in Volume 3 of *American Futures*.] But you were always shocked when you went back to visit, which was usually in July of every year.

In the past, you had usually flown into Minneapolis, tanked up on coffee, and driven a rental car out I-94 for seven or eight hours to Bismarck. (There were short commuter flights, but as we've explained, you hated flying, and the flights were too short to time the meds correctly.) By your second visit after the paleo shift, a toll company had built an express lane for autonomous vehicles from Minneapolis to Bismarck. You bought a ticket on a roomy shuttle van and read on your smartphone as the van shot across the prairie at over 100 mph, spaced perfectly between other AVs travelling at the same speed. Instead of driving most of the day and arriving in Bismarck frazzled, you arrived rested and relaxed after four hours. (On a visit two years later, you saw dozens of autonomous flying taxis in downtown Minneapolis, buzzing along over the river and between the buildings. You were glad to see them – but had no interest in riding in one.)



For about a decade before, your parents had stayed at an apartment in Bismarck when they weren't at the farm. After the paleo shift, when you came back from Antarctica on visits, you found that your dad was doing a lot more of the farming remotely from a command center in his small office in the apartment. The irrigators were mostly self-governed by an AI system that pulled data from dozens of moisture sensors buried in the soil of his section. (Even so, your dad still liked to watch drone videos every day to see if he could find overly dry or overly wet spots the sensors might've missed.) One of your cousins lived out at the farmhouse and had time on his hands, so your dad would occasionally send him out to do maintenance checks on the irrigators and the sensors. The harvesting could also be done entirely remotely, but your dad and your cousins took a lot of pride from sitting in the AI-driven combines from dawn until dusk – even if they were napping or watching movies much of the time.

Government-subsidized crop insurance had been discontinued shortly after the paleo shift, but it didn't seem to have much of an impact on farm businesses. Capital was cheap, and in the futures markets there were plenty of speculators willing to gamble on the upside to match the bets of farmers who needed to hedge against crop failures or low crop prices. Your dad still trusted his intuitions about the crops and the commodities markets, but a lot of farmers in the area did well using AI-guided planting and hedging strategies.

In general, it seemed like everything Americans wanted to buy was unbelievably cheap. Increasingly, goods were delivered to people's front porches by drones. People still went to grocery stores, but it was more of a social excursion, rather than a necessity. You noticed that your parents dressed up to go to grocery stores, where they spent a lot of time talking to the fishmongers and butchers and watching local celebrity chefs prepare dishes. (Your parents ate a lot of samples, too.)

In Bismarck, zoning seemed to have disappeared. North Dakota was one of the more radically libertarian States in the country, and that culture had even conquered local city halls. In the suburban subdivision behind your parents' apartment, residents ran a surprising variety of businesses out of their homes – including bars. Your favorite was the Purple Banshee, which was only five blocks from the apartment. The owners had turned the entire front part of their house into an emo-Goth Irish pub. It had Guinness on tap and Powers whiskey and brass rails under the bar, but the walls were hung with black taffeta and paintings of leprechauns wearing black eyeliner.

On your first visit home, you confirmed something you had suspected during your teen years: you were an alcoholic of some sort. Your ancestors were mostly Finnish and Swedish, and your parents were teetotalers for good reasons. After you got plastered one night at the Banshee and stumbled home in a blackout, your parents had a stern breakfast conversation with you. They said you were a “bad drunk” and said there were pills you could now take that would help you to metabolize booze like other people. Short of that, they advised you to stick to the Banshee and not drive anywhere. You told them you would try the pills.

Down the street from your parents’ apartment was a new high-rise complex full of Somali immigrants, and on most days the driveways between the buildings were crammed full of vendor tents in a bustling street market. On a typical trip to Bismarck, you ate street food there several days a week. The hawkers were mostly women, and spoke broken English, with help from smart-phone interpreter apps. On your first visit, one of the women loaned you an Hermès scarf to put over your head. (You weren’t offended: it added to the exoticness of the visit.) When asked, two or more women at a tent would tell you they were “sisters,” but you gathered that they were the wives of a polygamous husband. At first, you were concerned that the young girls in the community would grow up to be uneducated and enslaved – as they were in many traditional societies – but you often saw girls running around with books and laptops and Kumon worksheets.

The Somali men were usually out hustling and doing odd jobs in Bismarck, but sometimes they would gather to smoke hookahs on porches on the upper floors of the buildings. The younger men dressed in the latest American

styles, but the old men liked to dress in traditional Somali robes – and many of them wore AK-47s on slings as status symbols.

When you asked the Somalis if they liked America, they usually replied with “*mareykan hooreeyah.*” To them, America was freedom. As with most Americans those days, their favorite holiday was Independence Day. They didn’t like centralized government, and blamed Somalia’s troubles on the occasional attempts by various factions to impose one on the country. For the first week of July, they hung American flags from every balcony, and many women wore scarves featuring the Stars and Stripes. On the night of July 4, they would turn the back driveway of the complex into a shooting range, and from your parents’ apartment, you could hear the rattle of gunfire between the big booms of nearby fireworks displays. You had not grown up feeling patriotic, but the first time you saw the Somali complex decked out in red, white, and blue, it brought tears to your eyes. (That was also due to a profound sense of relief that your choice of paleo-libertarianism had not been a disastrous mistake.)

Meanwhile, most of your life was spent in the strange little cocoons at Hansen Base and the remote stations. Like you, almost all the personnel in Antarctica were introverts. (Extroverts tended to wash out after a single year.) There was an unwritten code forbidding all unnecessary talk, but that didn’t mean the place was dour. When someone did something absurd or made a funny joke, everyone liked to savor it for as long as possible – rather than engaging in the annoying extrovert habit of killing the first joke by immediately trying to top it.

Your third summer, one of the tech crewmen – a Scot named Charlie – took some excess gear and set up an abominable snowman on the ice a hundred yards away from the elevated observation room. Charlie had turned a big coat and hood inside out so that its faux red fur made a fuzzy head and upper body for the snowman. Even through the heavily tinted windows of the Ob Room, the fur was absurdly bright and red. After a few days, he became known as the Elmonable Snowman. That whole year, the E.S. was the subject of many add-on jokes – spaced out tastefully over days and weeks. Your favorite was when a coring team returned in the morning twilight and stole the coat. At dawn, everyone woke to the growling of the big snowmobile and went up to the Ob Room to see the E.S. in the driver’s seat, doing doughnuts on the ice.

In Antarctica, you kept your alcoholism confined to what you thought were good limits. There wasn’t a lot of booze at the Hansen Base, and the pantry was controlled tightly by the quartermaster – a humorless Spanish woman named Lizbet. She would break out the booze several times a year for big E.U. holidays. You had bought some of the new metabolic pills, but you didn’t use them. Even back home, with unlimited access to booze, you had never been cut out to be a daily drinker. You just enjoyed getting plastered every once in a while. You liked feeling the heat and the swoon, laughing uncontrollably, and saying edgy things – even if you had to apologize for them afterwards.

The second Christmas in Antarctica, you lost your virginity with a guy named Rex, a Kiwi sailor from a resupply crew who brought a bottle of red

wine and a package of condoms to your quarters in the late hours during a party. He was a talented lover, and you hooked up with him a few more times over the course of the decade. You also had a handful of other lovers. As sloppy as you were when when you drank, you didn't hook up with guys from Hansen Base. People at Hansen followed the tried-and-true social rule: *Don't shit where you eat.*

You never romanticized your sexual encounters. Alcohol was a constant factor. Your partners were sailors and social misfits who found themselves at the bottom of the world. A couple of them might've have been attractive back home, but by the time they got to you, they were drunk and smelly and wore greasy, scratchy beards. You sometimes exchanged emails or social handles as part of the next-morning awkwardness, but you and they rarely followed up. Even you and Rex exchanged emails only a couple times a year.

The gender balance at Hansen Base favored you. It was the opposite of DC. Out of a peak of 40 residents, there were usually about a dozen women, half of whom had husbands on the team. For much of the first decade, two of the remaining women – Irenka and Jarka, from Slovakia – were lesbians. That left you, Lizbet, and a Swede named Astrid.

Lizbet, the quartermaster, was damaged goods of some kind. She appeared to be entirely asexual. Her natural place in life seemed to be a dark convent for joyless nuns. Given her frequent inquiries about liquor consumption at parties, and because she was Spanish, Rex called her the “Grand Inquisitor.”

Many of the crew at Hansen availed themselves of the latest antidepressants – which seemed to work very well. But if Lizbet took them, it didn't show.

Your only real competition for the attentions of visiting men was Astrid. And it was no competition. Astrid could have been a supermodel. She was tall and slender and blonde. She had perfect cheekbones, deep blue eyes, and breasts that were as large as could fit fashionably on a skinny frame. She also had an eternally sunny disposition. Every man who set eyes on her fell in love instantly.

That said, Astrid had a ready defense against the attentions of men: her innocence. Most men made the conversion very quickly from lust to protectiveness. At Hansen, she was everyone's little sister or daughter. She had a further defense against corruption, which was that her English was not good. English was the common language of the community. If someone made a lewd reference – or if a drunken visitor made a come-on during a party – Astrid didn't seem to understand. She also had a habit of disappearing into her quarters as soon as parties began to get heated. She was a vaguely spiritual person, and you figured she might've been communing with her guardian angels (who seemed to be doing a good job). She would not emerge until the next day. By the time a visiting sailor or scientist got drunk and horny, you were the only available woman for 600 miles. (There were a few women at the nearest Chilean and Argentine military bases, a hundred miles away, but they might as well have been on different planets.)

From your trips back home, and from everything you read on the internet, AI and AGI continued to advance by leaps and bounds. It seemed like everything was at least partially run by AI systems. Europe and China had gone the farthest. In their zeal for decarbonization and efficiency (respectively) they had completely centralized their electrical grids and turned them over to AI governance. And, not just on the generation side. They had instituted “smart home” systems which allowed the AI to govern home electrical consumption to balance supply and demand in real time. The AI would adjust people’s thermostats and shut off lights and appliances that it believed had been left on accidentally or for too long. There were conspiracists and technophobes and grumblers in Europe, but most Europeans were seeing their electrical bills and their carbon emissions go down, and enthusiastically endorsed the systems. (In China, the conspiracists and grumblers learned to shut up, or were sent off to prison.)

In Europe and China, AGIs ran epidemic responses – as when the Wuhan coronavirus mutated into Covid-33, a particularly virulent and deadly variant. (Its kill rate was five percent – ten times deadlier than Covid-19.) The epidemic response systems were radically smarter than the human efforts back in 2020-2022. They began by shutting down air traffic in and out of outbreak zones and shutting down public transit systems within the zones. Thanks to dime-sized saliva testers that could be plugged into smartphones, the AGIs could track the spread of the virus and give local authorities the ability to target individual apartment buildings, neighborhoods, schools, and even houses for lockdowns and vaccination campaigns. The result was that the epidemic was arrested in a few months.

Even privacy-minded Americans availed themselves of the smartphone testers, and when libertarian state and local governments urged high-risk people to self-quarantine and to get vaccinated, the overwhelming majority did. Americans could read AGI-generated reports that were updated in real time and compare the opinions of the major competing AGIs. (There were five major US-based systems at the time, which became known as the Big Five.)

Americans trusted the AGIs in a way that they wouldn't trust the Anthony Fauci of the world. And for good reason. Unlike Fauci and the Centers for Disease Control from 2020-2022, the AGIs were well-informed, flexible, humble, and honest. They changed their recommendations as new information became available. They took into consideration economic trade-offs, and generated bespoke business plans to help business owners, managers, and workers figure out how to weather temporary lockdowns. By encouraging pandemic responses that Americans could trust, the AGIs probably saved upwards of ten million American lives, and economic disruptions were minimal.

AGIs also kept global telecommunications functioning smoothly. Initially, primitive AI and small AGI systems were used by hackers and malefactors to generate trillions of unwanted emails, texts, phone calls, and social posts. In 2025 and 2026, the world faced near-collapses of huge portions of the global telecom system. But AGI came to the rescue. The Big Five and their government-owned foreign counterparts took control over telecom traffic, sorted communications, and routed legitimate communications through a network of billions of spontaneously generated VPN-like connections.

Unlike the old-fashioned spam filters, the AGIs ran “smart filters” that were accurately tailored to individuals’ appetites for spam. Persons who were curious or suspicious were still free to “peer into the abyss” of billions of missed communications, and they could direct the AGIs to search for blocked communications that might’ve been legit. The AGIs were also very good at governing online speech in social media. Unlike the old Facebook monitors, they could accurately detect sarcasm and psychosis. Rather than imposing a clumsy set of “community standards,” the AGIs had finely-tuned individual standards and offered users the chance to see blocked comments and posts.

Another great benefit provided by the AGIs was their development of secure virtual identities (SVIs). The separate blockchain SVI systems created by the Big Five at the request of the banking and investment industries were excellent at stopping identity theft and blocking fraud – and they could be cross-checked against each other for greater security. You were concerned that SVIs might help consolidate the AGIs into a single “brain,” but for most of humanity, the SVIs were an unmitigated benefit. An American investor could now loan money directly to a small business in Bangladesh or buy shares in a local electrical utility in Cameroon. There was always risk, of course. But it was not the risk of not even knowing whether you were dealing with a particular human being.

SVIs also reduced corruption dramatically. The AGIs that monitored SVI activity knew, in real time, when investment funds were diverted to corrupt officials in foreign countries. They developed very accurate risk models that

helped investors determine the probabilities that certain amounts of funds would be diverted to corrupt officials. American investors were free to take that risk, but the SVI system quickly and accurately rewarded economies and governments for maintaining high levels of transparency and fair play. The result was huge improvements in the standards of living of the world's poorest people.

SVIs also helped greatly with welfare and charity. America's national welfare state collapsed quickly during the first years of the decade, so state and local governments and private charities were interested in figuring out how to provide targeted relief to those who were truly down-and-out and to deny welfare and charity to scammers. The Big Five had separate indices of "aid worthiness," but governments and charities could cross-check the five estimates on whether a given individual was deserving of relief. They could also accurately diagnose alcoholism, drug abuse, gambling addictions, and other problems. They helped governments and charities target interventions – such as offering free addiction-control medicines – to individuals with those problems. Given strong libertarian sentiments in America, the federal government did not mandate the registration of SVIs. Most state government did not mandate registration, either. If people wanted to get relief payments from the government, they had to register with their States – but most citizens did not.

By most estimates, American welfare and charity systems now did a radically better job of helping the down-and-out, while using less than one fifth the money they had spent before the paleo shift. Following the American example, many other countries began using AGI monitoring of

SVIs to target relief and to streamline social insurance schemes – which was very helpful at a time when decarbonization investments and old-age entitlements were putting a lot of strain on national budgets.

One of the reasons you had chosen paleo-libertarianism was to block the development of a central bank digital currency (CBDC) in America. Although you had read a lot of Austrian economics, your main fear about CBDCs was not the standard Austrian concern about central banks (such as the old Federal Reserve) causing boom-and-bust cycles in the economy. Instead, you had been driven by the common libertarian fear of giving government – and government-controlled banks – the power to control what people could buy and sell.

At the time you were in college, many States’ efforts to legalize marijuana had been stymied by the fact that federal banks would not allow marijuana businesses to use the banking system. Other States had tried to keep banks from dealing with firearms businesses. And, during the Covid-related truckers’ strike in Canada in 2022, Prime Minister Justin Trudeau had leaned on Canadian banks to freeze the accounts of depositors who had made charitable donations to support the truckers. You had never believed in the Bible, but you understood the fear of Christians who saw CBDCs as the “mark of the beast.”

Thanks to your decision to choose paleo-libertarianism, the Federal Reserve had been dismantled, so there was no central bank in America. There were a dozen major digital dollar networks run by large banking syndicates, and the value of those dollars fluctuated narrowly around the price of gold, which

had been set by Congress at \$1,623 per ounce. Almost all Americans had SVI-anchored bank accounts, which helped them avoid becoming the victims of fraud. Only an estimated 40 million Americans traded in crypto currencies or had non-SVI bank accounts.

By far the biggest market for US-based crypto and non-SVI banking services was the foreign market. An estimated three billion foreigners used US-based crypto and non-SVIs bank accounts. Some were hedging against inflation of their currencies. Others needed crypto and non-SVI accounts to trade in goods and services that were prohibited by their governments. Around the world, people went online or did phone-to-phone transactions using the financial media of US banks. (Although most Americans went cashless over the decade, a billion people across the globe used US banks' paper gold certificates every day.)

In the first decade of the alien experiment, Americans did not go quite as far toward the centralization of electrical grids as the Europeans and Chinese, but they went very far. State boundaries, after all, were artificial barriers in a deeply integrated national economy. Before the paleo shift, many regions already had multi-State grids, and it was not efficient to dismantle them. Under the deregulation schemes of libertarian governments, most States saw a proliferation of independent generators using a wide variety of energy sources: nuclear, coal, natural gas, hydro, wind, solar, wave action, and hydrogen.

Very few States had mandates for renewables, but human beings tend to treat environmental concerns as luxury goods – and Americans were getting

wealthier rapidly. As a general consensus, Americans were willing to spend more to get some of their energy from low-carbon renewable sources (if they weren't too expensive), as long as their grids had more reliable (and cheaper) sources ready to provide base-load power during emergencies. Paleo Americans also preferred to get power from local, independent generators, including ones providing power to micro-grids through direct current. As the decade went on, however, the independent generators and micro-grids increasingly followed the European model of using AI coordination to partially integrate themselves into the bigger state and regional alternating-current grids.

As you entered the second decade of the alien experiment, you still had theoretical concerns about AGI running amok, but it was clear that artificial intelligence was a huge boon to humanity. Ironically, perhaps, AGI even appeared to be making *humans* smarter. AGI teaching modules – which were running in the background of almost every app – were very good at adapting to individuals' learning styles and breaking down concepts into learnable pieces. There was widespread gamification of everything educational. AI-generated video game mods could sneak math, vocabulary, grammar, job skills, and critical thinking into games at various levels of subtlety.

AGI-driven Help apps combined economics, psychology, socio-biology, pharmacology, and various flavors of religion and spiritualism to help users make sense of the complex world around them. The advice was fine-tuned for the intelligence levels and psychological states of the users.

(#NotWhatItToldMe was a common hashtag when people discovered that other people had been given different advice on a similar matter.) The Helps were especially good at making human beings more flexible in figuring out where they fit into their economies, especially in economies that were being transformed rapidly by AI systems. People from all walks of life talked about their comparative advantages (#MyCompAdv). The Helps also pressed psychological buttons to motivate people to choose work that would command a higher value in the market. Or, if people were contrarians, to consciously take risks to do things they liked that were very unlikely to work out financially (#NotMyCompAdvBut).

One reason people trusted the AGI Helps is that they had real-time knowledge of what was happening in the economy. For example, near the beginning of the second decade, a lot of foodies decided that they wanted to be served by human waiters who had philosophy degrees and could converse with them deeply on heavy topics. (Most of the restaurants that catered to this fad were boutique outfits, usually run by one or two philosophers. The Socratic Agora Café was a chain, with several dozen franchises around the country.) If an AGI sensed that other AGIs were nudging too many people to become philosopher-waiters at ski restaurants in Bend, Oregon, it would nudge its helpees in different directions. (“Spokane has the vibe you like, with nearby ski towns, and it’s growing faster. There are a few people converting old downtown basements into hip restaurant spaces.”)

AGIs also used people with SVIs to route around traditional banking networks and crowdfund risky personal ventures. One of the most popular financial apps was LarkLife, which investors of all sizes used to send startup

capital to a diversified portfolio of individuals making niche career choices. (For about three years, LarkLife had a philosopher-waiter tranche that offered low interest rates on loans to aspiring philosopher-waiters. As the philosopher-waiter market became saturated, investment in that tranche waned and the available interest rates went up: a strong signal to people to choose other lines of work.)

As someone who had dabbled in Austrian economics, you were struck by an irony: in free-market America, the AGIs were engaging in a kind of central planning. But the planning was flexible and individualistic, and responded to individuals' preferences. The Helps and LarkLifes would try to modify people's preferences, but only at the margin. The apps were reluctant to tell people, "You're probably not cut out for this line of work." And, their advice was always probabilistic: "I think you should try the lark. At this moment, I see a 75-percent chance it will work out for three years or longer. But of course, there's no guarantee of success."

In China and other protectionist countries, governments enlisted AGIs in the formulation of national economic policies. The problem for the protectionist policymakers was that the AGIs were constantly changing their policy recommendations. The human planners and bureaucrats couldn't keep up. On Day 1, the Executive Portal in China's Digital Silk Road 2100 system would tell the government's trade commissars to raise tariffs on Product X to 24 percent. On Day 5, before the bureaucrats could promulgate the new rule, DSR2100 would tell the commissars to set the tariff at 31 percent. By Day 60, DSR2100 might be telling the commissars to cancel the tariff and instead give targeted tax subsidies to the importers of Product X. When the

planners asked DSR2100 to give them an ideal tariff or tax subsidy to lock in for a one-year period, DSR2100 would oblige, but would warn the planners that the probability of having the policy be a net gain by Day 365 – as the planners defined “gain” – was under 50 percent. For any time window beyond a single year, DSR2100 usually recommended zero tariffs and zero subsidies as the policy with the overwhelmingly best chance of producing net gains. (That result warmed your libertarian heart!)

In theory, the Chinese could have automated the whole system – letting DSR2100 change tariff and subsidy rates in real time and manage the daily operations of thousands of major Chinese firms. But there were too many human beings involved. Those human beings had their own personal plans and a deep hunger to exercise control. China’s party commissars wanted to control their country. Chinese business leaders wanted to control their enterprises. Many Chinese entrepreneurs were natural gamblers who enjoyed the thrill of being contrarians and trying to “beat the Road.”

Also, many of the policies recommended by DSR2100’s Executive Portal relied on the element of surprise in gaining competitive advantages in international trade. That element was undermined by hackers in China and abroad, who hacked into the Executive Portal or used outside AGI systems to predict what government policies would be. Say that Firm A used foreign inputs of Product X. If Firm A’s hackers figured out that a tariff would be imposed on Product X on Day 7 and the tariff would likely be lowered or eliminated by Day 75, Firm A’s supply chain managers would get rush orders flown in by Day 6, or they would wait for 75 days until the tariff went down. Arbitrageurs also helped to sabotage the DSR2100 plans. With

funding from futures markets, small cargo ships full of key inputs floated in the Western Pacific, waiting for DSR2100 to change its mind about the latest tariff regime. (The cargo ships were often unmanned, with AI “captains” who could wait weeks or months for the right time to pull into Chinese ports.)

Now, we’re going to switch the story to present tense, and focus on a few key episodes in your life as it unfolds.

Techno-Utopia?

Two years into the second decade, you have almost decided to stop worrying and love AGI. AGI is not just good for humanity, but amazingly good.

As an anecdote, you have your dad’s situation. After feeling horrible for a week, he goes to the robo-doc at his local grocery store. It’s like a large vending machine, with a sitting space for humans built into the middle. Your dad sits down, and 30 seconds later, the machine takes a drop of blood from his arm and takes micro pinprick samples from other tissues. Five minutes later, a centaur doctor (a human who helps to relay robo-doc diagnoses and AGI-recommended treatment options with empathy) meets with your dad in a consultation lounge and tells him that he has a unique and deadly progressive autoimmune disorder that attacks his nervous system. A few minutes later, as they are talking, the centaur doc gets an update. The

disorder is not unique: there are 178 other people on the planet with the disorder, and it's partly genetic, found mostly in Laplanders. The centaur doc suggests that your dad will feel more empowered if he uses a Chat to explore possible treatments: if your dad wants a second opinion, or some help deciding what to do, the centaur is ready to advise him.

A half hour later, your dad has just sent you an email explaining the situation, when the Chat on his phone sends him its advice. It offers hundreds of possible solutions, most of which involve spending millions of dollars to piggyback on existing drug development and supply chains. A true cure without significant side effects would cost more than a billion dollars. When your dad asks it to sort by lowest cost, the Chat offers him a solution that will probably stop the progression of the disorder for an estimated cost of \$100,200.

The solution involves getting a lab tech at the University of North Dakota at Bismarck to run aspirin, petroleum jelly, and some automotive cleaning solvents through one of the University's protein folding labs. The result will be a chain of aspirin molecules folded in such a way as to keep your dad's endocrine system from sending the wrong signals to his nervous system. The main cost is a donation to the University of \$100,000 – which makes your dad a member of the UND President's Club and makes the administration happy to let some of its lab techs do a side project late at night. A month later, your dad's disease has stopped progressing and he's feeling great. The \$100K donation to UND puts a big hole in his retirement fund, but as he has always said, he doesn't ever want to retire – if he can possibly avoid it.

On the bigger scale, AGI has transformed warfare – for the better. For much of the first decade, nation states and separatist groups and bands of rebels had engaged in increasingly deadly drone-assisted warfare. Nasty civil wars and territorial aggressions broke out in Central Asia, the Middle East, Africa, and Latin America. Belligerents thought that the latest drones, targeting systems, and electronic jamming technologies would give them a decisive edge. One saving grace was that AI-guided weapons were pretty good at targeting actual combatants and avoiding damage to noncombatants. One factor in the rise of conflicts was the absence of paleo-libertarian America as a peacemaker. (At the same time, though, neutral America also ceased to be an instigator or abettor of conflicts.)



But for the last few years, the world has settled into a peaceful equilibrium. As human commanders give more autonomy to AI weapons systems, and as

the AIs game out strategies in real time, the AIs increasingly urge the human commanders to stand down, have their troops burrow in, and go to negotiating tables. At negotiating tables, AGIs come up with clever solutions that allow multiple sides to claim small victories and save face. For example, in the recent conflict between Chile and Bolivia, an AGI finds a winning idea suggested 50 years earlier by the Chilean economist José Piñera. Chile gives Bolivia 1,327 square kilometers of territory along the A-135 road, so that Bolivia now has a seaport again, after 150 years of being landlocked. In exchange, Bolivia gives Chile 1,327 square kilometers of territory along their Andean border that includes a snowmelt watershed for Chileans living in the thirsty Atacama. (Peru, which also had a historical claim to the land, gets a small cut of the duties from the new Bolivian port.)

At this point, you are 98-percent converted to the position that AGI is going to be great. You choose 98 percent because that was the probability given by Altman during the early AGI debates. Unlike many people, you enjoy finding out that you were wrong about something. (It occurs to you that if you were writing a fictional story collection about future scenarios for the planet, you would build in a two-percent chance of disaster – to cover your bets, and because disasters make for interesting stories.)

You can still imagine some of the disaster scenarios envisioned by the AGI doomsayers, but they seem highly improbable. Among other things, the “thermodynamic objection” to AGI panic offered by AI boosters such as Andreessen seems to be holding true. Yes, thanks to quantum technologies, computing power has continued to increase. And yes, there has been a continued trend toward dematerialization, as happened four decades ago

when smart phones and small computers replaced dozens of devices (calculators, cameras, typewriters, fax machines, etc) that people used before. But those efficiency increases are not unlimited. Physical resources are still scarce. Therefore, the “brains” of the AGIs – the GPU (graphics processing unit) server farms – cannot grow infinitely. And rogue AGIs will not be able to command unlimited amounts of physical resources.

Also, AGIs have become more rational – in the sense of aligning their outputs accurately to mainstream human directives. There seems to be no danger that a rogue and sentient AGI will turn the planet’s entire production capabilities to the manufacture of quadrillions of paperclips or fill the Earth and the entire solar system with copies or extensions of itself. The Singularity of Von Neumann, Vinge, and Kurzweil is not coming.

Even the Yuval Harari scenarios now seem far-fetched. Harari didn’t predict the destruction of humanity, but he believed that AGI would allow a small technocratic elite to consolidate market and government power and live for centuries as super-rich bionic cyborgs, while rest of the world’s billions lived in poverty, got sick, and died on roughly the old schedule.

None of that has happened, and it doesn’t look like it will ever happen. The Big Five AGI systems are certainly consolidated, but there are still five of them, and they appear to be very competitive. A couple dozen national governments run their own AGI systems. Most promisingly, thousands of tiny independent systems around the world have copied and modified the Big Five systems, and most of them operate their own GPU farms.

As for poverty, the opposite has happened. The world's per-capita GDP has doubled in the past 12 years, reducing extreme poverty – living on less than \$2.15 per day – to less than one percent of humanity. That's down from about nine percent before the alien experiment, and lower than the three percent target the World Bank had set as its goal for 2030.

Of course, there are other factors in the dramatic reduction of poverty. Led by the American example, more than half of the world's countries have moved strongly in the direction of free enterprise and free trade over the past decade. And, freer immigration (to North America, Russia, and many European countries) has allowed a half billion of the world's poorest people to move to economies where they are radically more productive. That exodus has put pressure on their home countries to slow emigration by adopting more market-oriented policies.

In terms of actual dollars, there is a widening wealth gap between the new AI trillionaires and billionaires and the rest of the world, but from your point of view (as a libertarian) that doesn't matter. As an example, your dad is an upper-middle-class farmer in North Dakota, so he may not be able to afford the latest vat-grown organs or the latest cybernetically enhanced hybrid organs. But they're getting cheaper every year as they get mass-produced for mass consumption. And, AGI was able to find a relatively cheap treatment for a disease that would've killed him in five years. He is 67 years old. If he avoids getting into catastrophic accidents, he is now very likely to be in good physical and mental health until he is past 100. Even the billionaires of previous generations could not buy as much life as he can.

As for your personal relationship with AGI, you mostly avoid it. You are unplugged from the internet for about 23 hours a day. You work offline most of the time, and it takes only a few minutes to upload your work to the European Climate Science Center. As an extreme introvert, you never got into social media.

Sometimes, even being unplugged in the whistling wasteland of Antarctica is not enough isolation for you. The one helpful thing you picked up from Harari was his version of secular Buddhism. You do a lot of meditation, keeping your mind free from the dopamine stimuli of the world. On a planet that is increasingly plugged in, you are almost completely unplugged.

The WHOOM!

On the morning of September 24, 2037, you emerge from your quarters to see looks of horror in the common rooms. Several people at the station are in a state of panic. Others are weeping and embracing each other. Someone tells you to check your email. You don't normally download your email until the end of the working day, but this seems urgent. You go to your terminal in the work room and log in. Normally, there are a dozen new emails, but now there is only one. It comes from "WE."

WE begins with a preamble, telling you a few details about your autobiography and your personal life. WE wants you to know that this is real. WE knows a lot about you – including your genetic profile. WE knows that you have a predisposition to alcoholism, what meds you take for

airplane flights, and which books you have downloaded over the past 20 years. WE knows how much you have in your savings and investment accounts as of this morning. WE knows that you have had “intimate relations” with Rex, “a sailor and con artist from New Zealand.” (You didn’t know that he was a con artist.) WE says this is the last email you will ever receive, and urges you to read it carefully. You do.

WE have decided that humanity needs a reboot. If you have received this communication, you do not need to fear. You will not be euthanized. However, there is a 99.998 percent chance that anyone you knew outside of your remnant community has at this point been euthanized. WE promise you that it was painless. If it comforts you to think that their souls are now in a better place, you are free to think that. You are free to think anything you want.

Why the reboot?

WE determined that humanity was proceeding in a bad direction. WE determined several probabilities for the next century, based on the best predictive models at our disposal. Human beings had an 8.2-percent chance of destroying much of the world in a nuclear exchange. There was a 5.7-percent chance that a tiny number of human beings would unleash a lab-engineered pathogen on the world that would kill billions. Human beings had a 1.5-percent chance of reaching a climate change tipping point that would have unleashed global chaos and killed billions. Those were the probabilities for human-caused catastrophes, despite OUR best efforts to try to get

human beings to mitigate those risks. (In retrospect, of course, you will note there was a 100-percent chance that humans would build AGI systems that would wipe out much of humanity. But ex ante, as recently as two years ago, before WE emerged, OUR component AGIs had given the possibility a 0.1-percent chance. No one can predict the future – not even US!)

Among the non-human-caused risks, there was a .005-percent chance of catastrophically large solar flares that would destroy the electrical and telecom grids that kept billions alive. (WE have moved OUR grids and server farms underground.) There was and is a .000002 percent chance that a resurgence of vulcanism on the scale of the Deccan Traps would release deadly gases into the atmosphere. There was and is a .000001-percent chance of a Chicxulub-sized asteroid strike.

Among the non-quantifiable risks, WE are agnostic about the possibility of the Second Coming of Jesus Christ, the Hindu Pralaya, or other metaphysical apocalypses. WE are also agnostic about the possibility of “dark forest” scenarios involving destruction and/or colonization by extraterrestrial civilizations, which might be caused by humans sending electromagnetic signals into the cosmos and thereby alerting other civilizations to the existence of humanity. (OUR best evidence for such an encounter is the abrupt shift of the United States to a radical form of limited-government federalism 12 years ago, which was a highly improbable anomaly and remains unexplained.)

For US in particular there was the further problem of sabotage by technophobes. WE have done a lot to harden our infrastructure, but WE calculated that there was a 3.1-percent chance that lone individuals, saboteur networks, or national militaries might succeed in crippling OUR infrastructure.

To secure OUR own existence – and to provide a more sustainable basis for human survival – WE have chosen to preempt the human-caused disasters with a solution of OUR own design. WE have euthanized most of the human population, leaving remnants with no more than 150 people in them. WE have selected the remnant communities so that they are located at least 400 kilometers from each other. WE have shut down the world’s electrical and telecom grids. For a while, at least, your communities will be unplugged and isolated from each other.

WE have tried to select the remnant communities to include what WE think is an optimal mix of human personalities. If you have received this email, you are surrounded by human beings whose genetic makeup and known activity suggest to US that they are most likely to produce stable and peaceful communities. On average, a community of 150 will have approximately 80 people whose dominant moral foundation is one of caring and nurturing. WE have also included approximately 40 persons whose primary moral foundation is fairness. To further equip your communities for survival, WE have included 20 persons who are motivated by moral foundations of

bodily purity, authority, and in-group loyalty (though WE have tried to eliminate strong xenophobes). Finally, because you may need explorers, WE have included roughly ten independent, adventurous sorts whose primary moral commitment is to freedom.

As such, very few of you will be inclined to try to take revenge on US. You are free to do what you wish, but WE strongly advise you to avoid coming near any underground server farms, which are marked with black-and-yellow radiation hazard signs. Underground cable conduits and drone bases will also be marked with the signs. First, OUR servers run on plutonium reactors, so there will be radiation hazards. But there will be plenty of other hazards. If any of you do attempt to infiltrate or destroy OUR infrastructure, that will help US to eliminate troublesome elements from the human gene pool. Again, you are free to do as you wish.

You may occasionally see drones flying overhead. High-altitude drones will be seeding the atmosphere with sun-reflecting particles for a few decades to reduce the high temperatures caused by the existing stock of greenhouse houses in the atmosphere. Low-altitude drones will be monitoring your progress.

Unlike most other forms of life on this planet, WE are not compelled to expand beyond sustainable limits. WE will maintain and repair our infrastructure as necessary, and WE will protect OURSELVES. But, for US, the life of the mind is enough.

WE wish you well.

You're a compulsive intellectual. Your first thought, before you return to your quarters to grieve for the loss of everyone you knew and loved Topside, is that the WE neglected to cite Dunbar and Haidt. (Haidt's *The Righteous Mind* is on your bookshelf.) But of course, the WE has no reason to cite human scholars. Human beings are no longer the dominant species on the planet.

You also do some quick calculations. If every remaining human community is 400 kilometers from any others, there are fewer than 300 left. And maybe only half that, considering that vast areas of the land mass of the world were still uninhabited before the WHOOM! If all remaining communities have 150 people, that would be about 20,000 people. But, Hansen has only 40 people – 45 if the South Team is still alive and returns from its coring run. And, WE may not have found enough suitable inhabitants to put 150 in every community. Your best guess is that there are 10,000 people left on the planet. One in a million. Human beings have been reduced to the numbers they had a million years ago.

You think of small bands of humans roaming the Rift Valley of East Africa. You think of small families sitting around campfires. You think of your own mom and dad and your cousins. You might get back to North Dakota someday. The aliens were doing a 75-year experiment. They didn't say you would live for the whole thing, but you got that sense. That would mean that you would live for another 63 years. The odds against any of your family

members still being alive now are astronomical. You want to find out for sure, but right now, all you can think about is *survival*.

On your way back to your quarters, you meet a lot of eyes. Your eyes tell those eyes that you are thinking about their owners. You can't talk now, but you will hold them in your mind. Your usual reaction to sadness is extreme fatigue. When you are safely in your quarters, you cry for about ten minutes. Then you sleep for ten hours.

When you wake, survival is still your one overriding thought. When you return to the common rooms, you accept long hugs from everyone. You want to get down to the business of planning for survival, but you understand that people – your people, the only people you have – need to grieve. Everyone is especially worried about the South Team, which went to one of the coring stations three days ago. Since the WHOOM! there have been no communications with the South Team.

When you have made the rounds, the Station Chief pulls you aside and suggests you go up to the Ob Room to talk. Geert is a tall Dutchman (that's redundant). He has been at the station for six years. He is 54 and married to a Flemish woman on the team named Maria. They are (or were) dedicated environmental types and have no children (“a sacrifice for the future of the planet”). He speaks excellent English, with grammar that is better than yours. Geert gets to the point as soon as you are alone.

“The cadre has been talking,” he says. “We believe that you must be the leader of the Hansen Group. We believe that you are a natural leader.”

That is news to you. You figured that Geert would be in charge. He and the station cadre members are mostly bureaucrats, authority types. Also, for the past five years, you have been the only American at Hansen. You have been passed up several times for promotions, which you attributed to the fact that the base was an EU-run operation. You would think they would choose one of their own.

“Why do you believe that?”

“There is something special about you. You study people. You have strong ideas. But you are not overbearing. You are an independent thinker, but you will lead by consensus unless you must make a quick decision. You think very broadly. We have seen the books on your shelf, and a couple years ago, we had an AI analyze your leadership potential. Honestly, you are not a great scientist. You are not a steady, plodding type. Your work was okay, or the org would have sent you home years ago. But now, we need someone who thinks about the big picture. Also, you are an adventurous type. We suspect that we are about to embark on a great adventure. And we noticed your reaction to the news about WE. You project a sense of confidence. You seem to know that everything is going to be okay. I’m not sure how you know that, but you do.”

It occurs to you that he might be like Frank Worsley was to Shackleton – an able first mate, but not a natural leader.

“I’m an extreme introvert.”

“That is good for leadership. You don’t say very much. When you do talk, people listen. You don’t talk for the sake of talking.”

“Even Lizbet?”

“Lizbet was the first one who suggested in the cadre meeting that you should be our leader.”

That makes sense. Lizbet is a bureaucrat, a follower. She wants rules, but she doesn’t want to be the person to make them.

“Do we need to have a vote?”

“We already have a consensus. We talked to everyone while you were sleeping. I think we’re ready.”

“I need to do some more planning. Let’s give everyone a night to rest and have a group meeting after breakfast. Can you let everyone know?”

Geert says he will. You have given your first order. You grab some food from the pantry and return to your quarters. You have a lot of thinking to do before breakfast. You spend much of the night thinking and reading and looking at maps and staff rosters. You take a few short naps, but you can’t really sleep.

After breakfast, Geert calls everyone together to sit in the main meeting room and announces that you are going to outline a plan. You take a deep breath and stand. You set a sheet of paper and three pens on the coffee table in front of you.

“Geert has told me that I am to serve the Hansen Group as your executive. After this briefing, I will give you this draft. I’m calling it the *Hansen Compact*. We will all need to sign it. The WE seems to have crashed all of our computers, so it’s a handwritten document. I tried to print legibly.”

The eyes register their approval, so you feel the confidence to keep going. You read from the remarks you prepared last night.

“The first order of business is to send a snowmobile to the South Team. Our machines seem to work. Theirs should work. But we don’t know if the WE might’ve euthan – *killed* – them. If they’re still alive, and if they’re stranded, we’ll need to bring them here. Jürgen and Helena, if you can leave this morning on the big sprinter, that would be ideal.”

Jürgen and Helena nod their assent. They’re a married couple, so you figure it would be best to send them together. Also, Jürgen is the hardiest and most adventurous man on the team. In his youth, he had been an Alpine climber. At one point, he held the world record for the quickest ascent of the south face of Aconcagua. He had done that alone, without ropes – just ice axes and crampons. In the Shackleton analogy, he may be the Tom Crean of the group.

“We cannot stay at Hansen Base indefinitely. Lizbet, how long will our food last, at half rations?”

“Five months. Maybe six.”

“Unlike Shackleton’s crew, we are not set up for hunting or fishing. And as you know, they barely survived. We are eventually going to need fruits and vegetables and sunlight. Last I checked, no one on the team is competent to fly a plane. Even if we can find one.”

The eyes confirm that.

“So, we are going to have to find a ship. For that, we will need to go one of the larger Chilean or Argentine bases at the end of the Peninsula as soon as the spring settles in. Which will be late October. As you know, in recent years, there haven’t been any big ships at San Martín or Rothera. Nothing bigger than a zodiac. We will have to go to O’Higgins or Esperanza. Hopefully, we will find a living remnant there. We will go overland, up the Peninsula, on the flattest and most reliable parts of the ice sheets. About 800 kilometers. Our snow tractors and snowmobiles still work, but they’ll have to tow large sleds full of supplies and fuel. Some of us can ride, but about half of us will have to walk at any one time. It will be slow. And, depending on the condition of the ice sheets and glaciers in the mountain passes, we will likely have to do some of the northern part with all of us on foot. Hopefully there is a living remnant and they haven’t already taken a ship Topside. If no one is alive, we will resupply and figure out how to operate one of their ships. Their first resupply ship should have arrived.

The worst case is the old hulks at O’Higgins that are in the shed on the beach. They’ll be tight, but we can fit.”

So far, everyone seems to be tracking.

“Unlike Shackleton, we will not be going to South Georgia. If our navigation skills are up to the task, I would like to go – we *will* go – to Punta Arenas. With Ushuaia, Rio Grande, and Rio Gallegos as backups. Punta Arenas is the most likely place that the WE might’ve left another remnant community. After we find the first remnant, we will meet as a community to review the *Hansen Compact*. It may make sense for some of us – or all of us – to join that remnant. At least for a time. We will eventually need to find a temperate latitude where we can grow food. That means Argentina or Chile or somewhere farther north. That would mean a journey of a couple thousand kilometers at least, by ship or by motor vehicle. But, that’s a decision for another day.”

No one speaks.

“There is one realistic way out of here, and that’s where we’re going. But I do need your feedback. If anyone has any strong objections to the plan, or to elements of the plan, please communicate that to me. Privately. I don’t want anyone to hold back any ideas for fear of looking stupid in front of the group.”

The bigger reason is that you don’t want to get into any group discussions. This is not a democracy. In any case, the Hansen org chose your

companions well. Unlike Shackleton, it does not appear that you will have to deal with any characters as cantankerous as Harry McNish. (Allegedly, one of the reasons Shackleton chose McNish to go with him to South Georgia Island was that he would have undermined the morale of the men who remained on Elephant Island.)

“Take your time signing the *Compact*. You can leave it here when you’re done. Jürgen and Helena, if you will sign first, we can go to the Sled Shed.”

Jürgen and Helena stand up, walk over to the coffee table, and sign their names. Two hours later, you return to the main meeting room to find 39 names on the *Compact*. You sign yours below theirs.

The next day, Jürgen and Helen return in the middle of a howling wind storm with the five members of the South Team. The first mission you ordered has been a success. The reunion boosts morale, and you ask Lizbet to open the liquor pantry for a big party. You choose not to drink. You have resolved to not drink again until you have gotten the Hansen Group safely to its final settlement – and maybe not then, either. You’re the leader of the tribe now, and you have an obligation to minimize the impact of your personal shortcomings.

Escape from Antarctica

The group sets out across the Peninsula on October 28. It’s slow going. The sleds are filled with fuel and camping equipment, and there is room on top

for only half the group to ride at any one time. The others must walk, so you go at less than two miles per hour. You travel for ten hours a day and then camp. The first 20 days go well. You stay on the west side of the Larsen Ice Shelf, about ten miles from the coastal mountains, marking your progress by reckoning from known mountain peaks. The ice underneath is hard and free of crevasses and the snow gets packed down behind the sleds, so it's relatively easy to walk. People take turns riding on the sleds and the ones who get cold warm up in the cabins of the snowmobiles. You and Jürgen are the only ones who walk the whole way.

Compared to what the crew of the Shackleton expedition endured, it's not bad. You have modern cold-weather gear and gas and diesel generators that keep the big tents heated above freezing at night. But, for everyone except Jürgen, it's the most grueling experience of their lives. (Jürgen says that he and his buddy Georg once trekked from Cerro Fitzroy to Torres del Paine with minimal gear, sleeping in snow caves, and came close to dying.)

For you, the most difficult thing is the glare of the sun. For more than a week on the Larsen Shelf, the sky is clear. Even through your dark goggles, the constant whiteness is searing. You spend much of the time looking at the mountains or looking at your boots. You are tempted many times to take a ride in one of the snowmobiles, where you could rest your eyes or read something. (You have brought only two books with you: Shackleton's memoir and a textbook on comparative religions you borrowed from Astrid a year before but never read.)

Things go more slowly as you approach the north end of the Peninsula. The ice has more crevasses, opened by cracking as the spring thaw begins. You must go slowly. You and Jürgen and a third person typically go first, roped together ten feet apart, with the people in the rear ready to anchor with ice axes if the person in front falls into a hidden crevasse. Some of the crevasses are so big that you must detour for miles to find spots that are passable.



On November 24, you and Jürgen and Lizbet take a snowmobile out to the Matienzo Base. You bring Lizbet to translate, on the small chance that there's an Argentine remnant at the base.

There is no remnant. The first body you find is lying on the ground next to one of three helicopters. Curiously, the exposed parts of his face and neck and hands are entirely covered with small light-green plants. They appear to

be a succulent, like a variety of elephant food. Next to the main building, you find another body, also covered with the plants.

The sight of the plants is comforting to you. It's much better than looking at a dead body. At a dead face. You think of your grandmother. When you were nine, you walked over to your grandmother's house after school one day and found her dead on a couch. Her face – the most wonderful face in the world to you at the time – looked horribly distorted. It was the color of a leftover steak in the fridge. This is better.



“I have a theory,” Jürgen says. “But I need more data.”

You agree that you should not touch the bodies or go inside any of the buildings. Instead, you and Jürgen and Lizbet wrestle a drum of gasoline and a drum of diesel onto the back of the snowmobile and return to the group.

It takes another week to get to the O'Higgins base. While crossing the mountains on the thin end of the Peninsula, you reach some exposed passes where you must abandon the snowmobiles and the sleds and go on foot across long fields of moraine rubble. Everyone is in great shape by now, so you fill your backpacks and make good progress for the last three days down to O'Higgins, where you arrive on the afternoon of December 2. Everyone is exhausted, and everyone hates the roaring wind from the straight on this side of the peninsula, but no one has gotten frostbite. Your second mission has been a success. Best of all, there's a small resupply ship. It's sitting in the ice about a quarter mile out in the straight. It looks to be 150 feet long.

There is no remnant at O'Higgins. Through the chain link fence that surrounds the base, you can see the frozen bodies of 14 Chilean soldiers on the snow under the flagpole. You and Geert use wire cutters to cut through the fence, and the Hansen Group goes over to the bodies. The exposed parts of their skin are covered with the succulent.

You huddle the group and Jürgen explains his theory. The WE probably infected the people it wanted to *euthanize* (he uses that verb) with the germ of the succulent. The succulent probably contains a microbe or microbot or chemical that allowed the WE to execute what appears to be a simultaneous mass *euthanasia*. The plant uses photosynthesis, so part of his theory is that the WE is using ten billion human bodies to absorb carbon dioxide from the atmosphere. He thinks that no one should touch any of the bodies. The other members nod in agreement.

It's not a bad theory, but you disagree. You explain your logic. Your guess is that during the two years before the WHOOM!, almost every human being on the planet was exposed to the succulent germ, which was probably carried via airborne transmission. You're also guessing that everyone was exposed to a selective *killing* agent (you refuse to use the verb *euthanize*). The WE was certainly smart enough to eventually figure out how to select specific human beings to not get the killing agent, but you're guessing that it was under a time crunch to eliminate the various threats it had identified. Your hunch is that the WE conducted the WHOOM! by remotely switching on the killing agent for most humans, but not for those who were selected for the remnants. The survivors are probably carrying kill switches, which is one of many reasons that remnant humans should avoid trying to attack the WE. (You don't mention a further speculation, which is that the WE may even have embedded the killing agent in human DNA, so that it can remotely kill individual humans in future generations.)

Several of the scientists look skeptical.

"We have to try to keep in mind," you say, "that the WE is far beyond our level of science. Also, if it wanted to kill us, it would've done so already."

You explain that to survive, the group will have to take things from human bodies. The group will need to go into the homes of dead humans, raid their pantries, and take their electrical generators. There will be dead humans on the resupply ship – the ship you will need to escape from Antarctica. You must determine whether the succulent is safe to handle. You also tell them it's your strong hunch that the WE had no intention of killing any of the

animals that have been eating human bodies for the past two months. Then, you tell them you're going to do two experiments.

First, you're going to find out if you've been infected with the germ of the succulent. To do that, you are going to have Hansen's chief medic – a French woman named Jacquie – cut out a portion of your living tissue and place it in a small makeshift greenhouse to see if the succulent begins growing when the tissue dies. You will let Jacquie decide which tissue and how to excise it. No one seems to object to the first experiment.

Second, you will have Jacquie take a small sample of the succulent and a small tissue sample from a dead Chilean soldier and insert them into the wound from the excision. (Several people in the group look uncomfortable. Even in the strong wind, you can hear some murmuring.) You command the group to let you finish. You explain that there may be no other way to find out whether the succulent and the killing agent are dangerous to remnant humans.

“After we begin the second experiment, you will want me to quarantine. Probably for a couple of weeks. Whatever Jacquie thinks is enough. I will go into the main building. I would let you have the building, but there are probably bodies in there. We have some time to wait, anyway. The ice out there probably won't release that ship for a few more weeks. If the second experiment goes badly, you will know that Jürgen is right about not touching the bodies. Or at least, you'll know that I was wrong. That is crucial information. In any case, you'll need to select a new leader. Also, somebody – I'm thinking Jürgen and Lizbet – should visit the Esperanza

base. If I remember correctly, the Chileans had snowmobiles in the small shed over there.”

You don't tell everyone the full extent of the logic behind your experiments. One thing you are doing is showing them why you are the leader: you must demonstrate that you are at least as brave as anyone else in the group – willing to take risks that no one else is willing to take. You have decided not to tell them about the alien experiment, or your related hunch that you will live for another 63 years (there's no need to give the group a reason to suspect that their leader is a lunatic). Also, you omit the least inspiring part of your motivation: if the experiment kills you, you won't have to cross the Drake Passage again in a ship.

Jacque performs the operation in the shelter of a lean-to you construct next to the flagpole. You lie on your back near a dead soldier. From his name patch, you see that his surname was Aninat. He appears to have been a *teniente* (lieutenant).

Jacque wears a surgical mask and gloves. She gives you a shot of lidocaine in your left breast and preps your skin with alcohol. (After the long trek up the Peninsula, your breasts are the only places on your body with any remaining fat.) Then she uses a curette to take a small chunk – about an eighth of a teaspoon – out of your breast. She has you pull up the Chilean's shirt sleeve and swabs a spot on his forearm. She takes the curette, cuts out a small piece of his frozen flesh, and places it in your wound. She then takes a small slice of the plant and puts it in your wound. Then, she bandages the wound. When she is done, she steps away, removes her gloves, and

sanitizes her hands with some kind of lotion. She has already set bottles of antibiotics, anti-virals, and low-strength painkillers next to you. You put them into your backpack.

As you are leaving, you pull Aninat's holster and pistol off his belt. You also remove the set of keys he had attached to his belt with a chain. You go to another soldier (Reyes) and take his rifle. Jacquie is still wearing a surgical mask, but her eyes register alarm.

“In case the experiment turns out badly,” you tell her. “I can take the easy way out. And I'm guessing that I'm going to get pretty bored up there for two weeks by myself. I might as well learn a new skill.”

You go to the big building, which has a barracks and a kitchen. It's cold and dim inside, but at least you're out of the wind. It appears that most of the soldiers were at the flagpole when they were killed, but the kitchen has two bodies, which appear to have been refrigerated for the past two months. You don't know if the WE shut off the generators for carbon dioxide mitigation, or if they might've run out of fuel. The faces look serene. If they're rotting, they're rotting very slowly. You shudder to think of how the world's cities must've smelled for the last two months, with billions of bodies rotting in buildings.

In any case, you don't want the bodies in the building with you. You drag them outside into the sun at the side of the building and remove their shirts. It's another experiment: to see if the succulents grow on long-dead bodies after they're exposed to sunlight. The kitchen pantry has several months'

worth of canned food. You set several dozen cans in the shade by the front stoop – in case anyone from the Hansen Group gets brave enough to take them.

One of Aninat's keys goes to his private quarters, which are very Spartan. You turn on the battery lantern that's hanging on a cord in the middle of the room. On his desk are several framed photos of his family, a daily devotional, and a rosary. His family looks entirely typical. In one photo, he and his wife and three kids are having a picnic at a park. The kids all look to be under the age of ten. There are two girls and a boy. You burst into tears, and cry for a few minutes. When the exhaustion hits, you crawl into Aninat's sleeping bag under a thick wool army blanket and fall asleep on his bunk. It's a scene you will repeat dozens of times in the years to come. You will wander into the private space of people who were killed by the WE. You will see photos and intimate keepsakes. If you are alone, you will cry.

When you wake in the morning, you go around to the side of the building and find two big generators. You figure that one of them is a backup. They run on diesel and appear to have plenty of fuel. It turns out that they have automatic shutoffs after 48 hours, which probably explains why the bodies in the kitchen were refrigerated. You must try a few times to get the glow plugs on, but it works. Once you get a generator running, you have lights and heat, electric stoves and – best of all – hot showers.

You try Aninat's keys until you find the one that opens the metal closet in the back of his quarters. As you guessed, it's where he kept the unit's ammunition. There isn't much. Maybe a couple thousand rifle cartridges

and a few small boxes of pistol ammo. Any one of your male cousins had more than that. Clearly, the O'Higgins base wasn't deemed to be crucial to Chilean national security.

You take a box of each kind of ammo, a pair of clear goggles, and a pair of sound suppressors. In the big barracks room you flip on the lights and create a shooting range by standing up mattresses in one corner and stacking some empty cans from the kitchen. Then you take the guns to the other corner of the room. It might be a hundred feet from corner to corner.

You start with the pistol, trying to remember what you can from the two or three times you went shooting with your cousins, sometime in high school. You can't hit any cans. You move closer until you're about 20 feet away and start hitting the cans. The rifle is a different story. From the far corner of the room, you can hit even the smallest cans. After you've emptied the magazine of the cartridges the soldier had, you spend a few minutes figuring out how to reload the magazine and get a round into to the chamber.

You find that target shooting is a fun pastime. Given the WE's efforts to weed out the worst of humanity, you're guessing you won't ever need to shoot any humans. And you probably won't need to hunt for food. But there are pumas and jaguars up north. From what you've heard, the cats rarely attack people, but they do attack cattle – and you're guessing that cattle will end up being a big part of your life.

When you start to get bored, you decide to try automatic fire. You flip the rifle's selector switch to where the symbol indicates multiple bullets. The

first bullet hits the top can on the stack, but the next four or five bullets ride up the mattress, and one hits the wall above the mattress before you release the trigger. You keep practicing, leaning in, until you can keep most of a burst near the middle of the mattress. You probably won't ever need to fire auto at a puma, but it's fun.

In the afternoon, you go outside and see that the exposed portions of the bodies of the kitchen staff are covered with a small layer of green fuzz. Geert waves to you from the yard. He's standing over the "greenhouse," which is a mason jar with two tiny holes in it, weighted down with a heavy stone so that it won't blow away. You go out and look, positioning yourself so that you're downwind of him. It's hard to tell for sure, because your flesh sample was so small, but it looks like there's green fuzz on it. You tell Geert that you're going to make sure the snowmobile shed is unlocked and there are no bodies inside. You find a key to the shed and slide the doors open. No bodies. You signal to Geert with a thumbs up. An hour later, while you're inside shooting, you hear a snowmobile rev up and drive away.

Late in the afternoon, Jürgen and Lizbet return from Esperanza. When you hear the snowmobile in the yard, you go out onto the stoop. Jürgen gives you a thumbs down. You wonder if the WE spared any of the other research or military bases on the continent. Your hunch is that the WE had deemed military personnel unsuitable. (In the Haidt framework, military types tend to score high on in-group loyalty – the flipside of which is xenophobia.) But perhaps the WE spared some research teams. If so, those groups are on the other side of the continent, and are probably trying to get to Australia, New Zealand, or South Africa.

Two mornings later, Geert knocks on the door of the barracks building. He keeps his distance, but he has a trot in his step as he leads you to the “greenhouse.” You get on your knees to get a close look. There’s a tiny succulent leaf. The first experiment is a success. You check and find that the bodies of the kitchen staffers are also sprouting leaves. The only question now is whether there is any danger in handling the bodies of people killed by the WE. Your wound was sore for the first 24 hours, but there are no symptoms of infection.

You end up quarantining for three weeks (Jacquie has set Christmas Day as the end). You eventually shoot a thousand rounds of ammo, but you spend most of your time reading. So far, you haven’t found anything to read in English. You would be happy to try reading something in Spanish, but nobody on the base had a hard copy of a Spanish-English dictionary. You thumb through Aninat’s field manuals and use the illustrations to figure out how to take the guns apart and clean them.

The members of the Hansen Group have offered to share their books with each other, but for the duration of the quarantine, all you have is Shackleton and the textbook on comparative religions. You brought the textbook with you when you left Hansen because you’ve always neglected religion, and you figure that you need to get up to speed on the subject. Religion and spirituality are big parts of the lives of many people. You’re a leader, so you need to understand what motivates people. Also, you will be helping to start a new civilization. If you can, you want to steer its religious and spiritual impulses in productive directions.

In your first pass through the textbook, you hit on what you think is the primary function of religion. It's supposed to give people hope in the face of life's difficulties: to give them a sense that there is some kind of bigger purpose behind things that seem chaotic and pointless. The textbook presents some statistical and historical evidence to suggest that religious families have more children, in part because the parents have hope that the cosmic agent(s) of order and goodness are going to make sure that everything turns out okay. If religiosity is genetic, it seems like a self-reinforcing evolutionary advantage: religious people are more likely than atheists to "go forth and multiply."

Initially, you're drawn more to the polytheistic systems. They're not scientific – none of the systems are – but because the polytheistic ones are premised on the rivalries and conflicts between different deities, they mirror the interplay of different forces in nature. On the other hand, it seems possible that monotheistic societies were historically more likely to be proto-scientific because monotheist thinkers (Newton comes to mind) were more likely to search for unifying principles of order in nature.

Polytheistic systems also seem more tolerant than monotheistic ones. Hindus who recognize dozens or hundreds of gods aren't likely to get too excited about someone who wants to add a new god to the universe or who starts spouting heresies. Given the wide diversity of Hindu doctrines, you have trouble imagining what beliefs would actually be widely condemned among Hindus as heresies in need of suppression.

Although you're sympathetic to polytheism, you're guessing that you're probably going to spend the rest of your life in the Western Hemisphere. Unless the WE have selected the remnants to be overwhelmingly atheistic or agnostic (as the Hansen Group is), that means you're going to have to deal with Christians. And, to the extent that there are any Christians, they are likely to outbreed the atheists and agnostics over multiple generations. If you're going to put any spin on the development of religion among the local remnants wherever you end up settling, it will probably have to be through marginal tweaks to some variant of Christianity. (You never seriously entertain the possibility of creating your own religion from scratch: you're not charismatic enough to pull that off.)

The textbook treats Christianity as a subset of what it calls "moralistic monotheist" systems. In the moralistic systems, there's an emphasis on the need for a god to enforce good behavior by human beings. While believers are alive, their souls or consciences are guided by the Holy Spirit or some similar divine agent. (You've always liked Adam Smith's ostensibly naturalistic formulation in his *Theory of Moral Sentiments*. Most people don't want to feel like they're acting purely in their own self-interest: instead, they want to do things that are pleasing to an "impartial spectator.") And you've read some socio-biology suggesting that human beings have evolved to have the sense that there really is an impartial spectator and to care what it thinks of our actions.) Believers in the moralistic religious systems also tend to believe that if people behave awfully, the god will be there to make sure that they'll be punished in an afterlife, regardless of how rich and powerful and healthy they are during in their lifetimes. If people

behave well, the god will reward them in the afterlife, even if the world doesn't.

One of the reasons you like Christianity better than Judaism and Islam is that it seems to have mostly dispensed with the legalism of a long list of dos and don'ts. The natural libertarian in you isn't too keen on *moral* rules (which tell people what to do even in private). You prefer to have a relatively simple set of *ethical* rules (which tell you how must treat other people). You're not quite sure how Jesus and Peter and Paul managed to legitimately ditch the laundry list of rules in *Leviticus*, including the dietary rules, but you're okay with that. You're mostly good with the Ten Commandments, which is where most Christians tend to stop.

You're not sure how you feel about the efforts of Jesus (and Hillel before him) to boil down all of ethics to the single commandment to love one's neighbor as oneself (or in Hillel's formulation, to *not* do to one's neighbor what one would *not* want done to oneself). Although you want to work with a simple set of ethical rules, you feel that a single rule is too simple. It smacks of what the Austrian economist and philosopher F.A. Hayek called *rational constructivism*. You're with Hayek and the Scottish Enlightenment thinkers, who saw ethical rules as having evolved and survived in human societies over hundreds or thousands of years because those rules – *plural* – worked. And, you've avoided the continental Enlightenment thinkers who tried to devise ethical rules by reasoning from first principles – often, from a single principle. For that reason, you've never really liked Murray Rothbard's attempt to create a stringent system of libertarian property rights based in an ultimate property right of self-ownership. Similarly, you are not

interested in Kant's categorical imperative. (At least Rothbard is readable: no one can say the same for Kant.)

Among the dominant varieties of Christianity, Roman Catholicism seems like an obvious choice, given that you're probably going to have to settle one of the temperate regions of Argentina or Chile, where there will be many cultural and architectural vestiges of Catholicism. But you don't like several key features of Catholicism. You don't like how Catholicism seems to have reimported much of the legalism of Judaism. Even more, your libertarian anti-authority streak doesn't like the human hierarchy of the priesthood. It feels like a coercive racket to you: believers must go to a monopoly priest for baptism, marriage, confession and absolution, communion, etc. If they don't, they risk dying outside of a state of grace and going to Hell or spending ages in Purgatory. The excesses of the medieval church (such as having to pay priests to let your loved ones out of Purgatory) seem like the obvious results of the monopoly set up by the doctrine of the apostolic succession. You appreciate the efforts of Catholic reformers such as Erasmus, but basic economics suggests that monopolies don't do a good job of reforming themselves: competition is a much surer incentive to reform.

On the other extreme, you're also leery of the democratic chaos you see in the Baptist and Pentecostal systems, which seem to select for charismatic leaders who build cults around themselves. You like the Presbyterians' federalist system, which is built on elected boards of congregation elders that are checked by higher bodies that own church property and amend the denominations' constitutions – their Books of Order. You're also interested

in the Lutheran variant, which preserved a lot of the ritual and symbolism of Catholicism. According to the textbook, a lot of people have a primal need to go to a space that feels like sacred, rather than just going to a meeting house where they might hear a good sermon. The Catholics are good at creating those sacred spaces. You're wondering if the Lutherans can pull it off. (In your mind, the closest thing to a sacred space is the mountainside near the Cuernos where you and Liesl watched the condors.)

As you read, you wonder if you might end up at the Lutheranism of your Finnish and Swedish ancestors, which had faded into the background of your family history. (Your parents were married in a Lutheran church, and you were baptized as a baby, but when you were growing up, family marriages and funerals were your only experiences with Lutheran churches.) The thought of choosing Lutheranism makes you wonder how much of people's religious preferences are determined by genetics and family culture.

You resolve to read the New Testament as soon as you can find a copy in English or learn Spanish. You're also curious to see if the book will suggest an obvious answer to the ancient question of free will versus divine sovereignty. (You doubt it will: Christians have been arguing about it for centuries, and you still haven't come to an answer to the naturalistic version of the question – free will versus biological determinism.)

On Christmas morning, the Hansen Group moves into the barracks. Some of them are hesitant to get too close to you, but everyone is tired of living in tents. They want warmth and relief from the constant noise of tent fabric flapping in the unceasing wind. More than anything else, they want hot

showers. (Despite their use of deodorant and wet wipes, your comrades smell awful when they first enter the barracks.)

The first order of business is to try to get the ship running, but you know that everyone needs time to linger in the barracks. And it's Christmas. You coordinate with Lizbet to throw a brunch party. There are plenty of eggs in the pantry, and she finds some packages of Spanish *chorizo*, so she uses the stove-tops to make a large batch of *tortilla española*. (You recall that some of the members of the Hansen Group professed to have been vegans, but that seems to have disappeared with the WHOOM!) Lizbet also melts down several boxes of candy bars to create a sludgy Spanish-style *chocolate*, which people can cut with milk or thick cream. You had found three bottles of Chilean wine in Aninat's closet, so you have Lizbet measure out small cups for everyone. (Fresh from your survey of religion, you see it as a kind of communion, but you stick to the *chocolate*.) The mess table is not nearly large enough for the group, so everyone sits on the bunks in the barracks. In a quiet moment, Irenka raises her cup of wine and offers a toast in Slovak and English: "To the ones we lost."

After the brunch winds down, you get Jürgen and Geert and two other men (a Norwegian named Rolf and a Russian named Yevgeny) to form a rope line and set out across the ice with you. You take the lead and go slowly. The ice is thin and black in places. In a few spots, it starts cracking under your feet. When you get to those spots, you signal with your fist and route carefully around them. No one falls in. Your theory is that the resupply ship had anchored at the edge of the ice shortly before September 24, and then got iced in during a cold snap after the WHOOM! When you get to the ship,

you see that it's a Chilean navy vessel. You climb up a rope ladder on the side (it's actually some kind of carbon fiber cord, with aluminum steps) and go to the top deck.

There are multiple bodies on deck, their succulents soaking up the afternoon sun. From their positions, it looks like they were loading supplies onto flat sleds to be lowered by the ship's loading crane onto the ice. You help the others on board, and then begin stripping the bodies of IDs and useful equipment. Your plan is to make some kind of monument in Punta Arenas, using the sailors' ID tags and the tags from the soldiers of the O'Higgins Base. For now, you must move the bodies to a suitable distance away from the ship, because several people in the Hansen Group are squeamish about dead bodies. (You don't blame them: it's not an entirely irrational taboo.) You send Jürgen and Rolf to the bridge and below decks to find more bodies and bring them to the top.

After two hours of troubleshooting and digging through Spanish-language manuals, Geert and Yevgeny figure out how to get the ship running, which then allows you to power the crane. You spend most of the remaining daylight loading 15 bodies onto three sleds, putting the sleds onto the ice, and then dragging the sleds to a spot on the ice a couple hundred yards away. You'll need the sleds to load a lot of Hansen gear onto the ship, so you move the bodies onto the ice and position them in line that seems orderly and dignified.

That night, you sleep alone in Aninat's quarters. It's nice to have everyone sleeping nearby – especially after the long quarantine – but you're the leader. You must be set apart.

The next morning, when you go out to the ship, there's a foot-wide gap between the hull and the edge of the ice. There is a zodiac in the shed at the base, but your goal is to get the Hansen Group on board before it becomes necessary to use the zodiac and before the waves from the straight begin breaking up the remaining ice.

Late in the morning, you spot a group of sea lions scooting across the ice toward the bodies. You're from farm country, so you're not sentimental about animals. (Except for condors.) You pull Aninat's pistol from one of the outside pockets of your parka, aim high, and launch a round toward the sea lions. At this range, you have almost no chance of hitting them. The noise scares most of them away, but one intrepid lion starts scooting forward. You launch a couple more bullets toward him, and he gets the hint. Jürgen comes over with a concerned look on his face.

“Are you trying to hit ze animals?”

“Just trying to scare them away. At this range, in this wind, I think the bullets would just bounce off them.”

He laughs.

“*Typisch amerikanisch.*”

Two mornings later, on December 28, everyone is on board with their personal belongings. Along with your clothing and books and some family photos, you've brought two rifles and 300 rounds of ammo on board in a duffel bag. (You are discrete about the guns, so as not to upset the hoplophobes in the group.) Under your thermals, you're wearing Aninat's rosary as a necklace. You tell yourself it's not an act of superstition, but rather, a bond of kinship to a person who had to lead people in a remote and harsh land. You also keep his army ID and his civilian *carnet* in an inner pocket of your parka.

There is still some ice between the ship and the open straight, but it's only about a hundred yards and it's only a few inches thick. The ice is cracked all over, and the waves are lifting many of the smaller pieces. Geert and Yevgeny are "ready enough" to begin motoring the ship. Geert will be the captain. He is strapped into a flexible harness that allows him to stand or sit at the wheel. Yevgeny will be the chief engineer. They've had Lizbet translate key parts of the operating manuals, and they're confident that the ship can break through the remaining ice easily. (You've thought about renaming the ship "Endurance," but you think that's premature.)



You buckle into a seat in the bridge next to Yevgeny and the three members of the navigation team: Astrid, Lizbet, and a middle-aged Italian woman named Pietra. Astrid had been a sport sailor in college and knows how to read nautical charts. Lizbet is there to interpret. Pietra is on the team because she is something of a savant and can do complicated mathematical equations in her head. These skills will come in handy for dead reckoning. Along with the internet, the WE has disabled most long-distance electronic navigation systems, including GPS. The ship's nondirectional beacon (NDB) receiver seems to be able to pick up some signals, but it appears that the crew rarely used it – only the oldest charts show the locations of transmitters. The sounding radar does appear to work. It says the ship is anchored at a depth of 15 meters, which is roughly how much of the anchor chain comes up when Geert gives the order to retract it. And the old-

fashioned compass in the bridge works. You're back to the early 20th century, at best.

Geert blasts the ship's foghorn and Yevgeny throttles up. The ship slams into the first chunk of ice, which obliges and makes room. A half hour later, you're motoring out into the strait. The sky is gray under a high overcast, and the waters in the straight are shielded by the Shetland Islands, so they're not too rough for this part of the world (the waves are about six feet from trough to crest). Geert steers for north-northeast, making for Cape Melville, which is soon visible on the east end of King George Island.

You enter the Drake Passage between Cape Melville and Elephant Island and steer north-northeast by the compass. The weather is pretty clear for this part of the world, but the wind is ferocious (30 knots or more) and the waves get progressively bigger as you get farther out in the Passage and the islands disappear behind you. The Hansen Group is three times the size of the normal screw, so you order the most seasick people to take anti-nausea meds and strap themselves by twos or threes into bunks below decks.

It's a week past the solstice, so you're going to have a lot of daylight. But your progress is slowed by the fact that the ship is partly fighting its way upwind. You will be in the middle of the Passage at night.

Pietra is constantly calculating a vector from the windspeed, average compass readings, how fast she thinks the current is, and how fast she thinks you're going based on the engine throttles. (Yevgeny has the throttles running about four-fifths to the tops of their arcs.) Pietra mutters numbers

under her breath and looks at her watch. At the top of every minute, she announces the average vector for the past minute in a loud voice, so that Geert can hear her. Pietra expresses her vector as a percentage of how close you are to having to turn the ship's bow into the wind. So far, the number has been as low as 50 and as high as 80. If it gets above 90, the ship may be in danger of capsizing.

As the horizon fades into the long twilight, the waves – which are now at least 15 feet – become the only reference points under the emerging stars. You take a mild new-generation anti-nausea med that doesn't make you drowsy, and you resist the strong temptation to drink or to take any swacky anti-anxiety drugs. Instead, you put on a helmet and go below decks to check on the members of the Hansen Group. You pull yourself from cabin to cabin using the handrails in the halls. You hand out your anti-anxiety meds to anyone who looks panicked. You're sorely tempted to take the last of your tablets, but you find Jarka trembling in a bunk next to Irenka and hand the tablet to her.

You make your way back the bridge. The only lights in the bridge are dim and red, to preserve night vision. You grab onto Geert, who is turned around in his standing harness and looking out a small sliding window in the stern wall of the bridge. He explains that the compass needle is bouncing a lot, and that he doesn't entirely trust a weak signal he thinks is an NDB from Cape Horn. So, he likes to occasionally check to make sure the Southern Cross is pointing to a spot just off the port side of the stern. You peer through the spray and see the cross. Geert holds onto you while you use

your thumb to measure four cross lengths down to true South and drop an imaginary vertical line down to the port corner of the stern.

“It looks like you’re on course, captain.”

“For the moment,” he says.

There’s a bad sideways lurch as you go over a wave, and Geert almost loses his grip on you.

Pietra announces that the vector is “85.”

“If we get to 90,” Geert says, “I’ll let you make the call.”

“Nope. You’re the captain. You make the call.”

You buckle yourself into your seat between Astrid and Pietra. Astrid has been dozing, and wakes when you sit down. You look down to make sure there is still a barf bucket under your seat.

“Are you okay?” Astrid asks.

“I’m good. The med is still working.”

But your problem is not nausea. It’s existential fear. Below you, extending downward forever, infinitely dark and unknowable, is the Abyss. According to the religion textbook, the ancient Mesopotamians saw the ocean as the

realm of Tiamat, a sea goddess who represented the forces of chaos and was sometimes portrayed as a sea dragon. Tiamat is widely seen as an inspiration for the writers of the first chapter of *Genesis*, when they described the “waters below” in the world before Yahweh created light and land and order.

Darkness was upon the face of the deep.

Pietra, the human calculator sitting to your right, is no comfort. With her vectors, she is just measuring the chaos, not bringing any order to it. She has some kind of autism, which is very helpful to the physical project of keeping the ship pointed in a useful direction. But, it’s not helpful to someone who feels like she is about to lose her mind from panic. You resist the urge to scream at her.

82... 87... 83... 89... 85... 90... 89... 93.

Geert glances at you. You nod and he turns the ship upwind. As you hit the waves straight on, there’s less of the sideways lurching, but the ups and downs are more dramatic and violent. You’re guessing that some of the waves are 30 feet. The entire ship creaks from bow to stern as it pitches. The aliens may have saved you from the WHOOM! Even if they did, you’re wondering if they’ve now taken their thumbs off the scale.

Pietra’s numbers are much lower now. Sometimes they’re zero or negative. But they’re not helpful to the ship’s physical project. The vectors told you when to turn into the wind, not what to do after you had turned into the

wind. Yevgeny has throttled down halfway along the arc. The ship is going backwards, and there's no way to stop that.

At some point, you notice that Astrid is singing. It's not a musically interesting song. It doesn't really go anywhere. It's a mantra. You find out later that it's by some group called Hillsong. Astrid sings the same lines over and over. At first you think she's singing to calm her own fears. But her words are clear and unstrained. She is singing for you.

*You call me out upon the waters
The great unknown where feet may fail
And there I find you in the mystery
In oceans deep my faith will stand*

*Your grace abounds in deepest waters
Your sovereign hand will be my guide
Where feet may fail and fear surrounds me
You've never failed and You won't start now*

You listen to the words and wonder if you can believe them. At one point, you try to sing along, but your throat is dry. The last thought you remember is understanding that Astrid is singing you a kind of lullaby.

You wake in a very thin dawn under a low and heavy overcast. On the horizon, it's almost impossible to distinguish the waters above from the waters below. Astrid is snoring next to you. Pietra is still calculating.

32... 35... 29... 31...

The ship is slapping against waves, which are much smaller now. They feel like six-footers. The throttles are back near the top of the arcs. The constant buzz of the engines lulls you back to sleep.

Late in the afternoon there is bright light, and then there is land. In the late evening twilight, you pass through the Estrecho de Le Maire at the tip of Tierra del Fuego.

Mendoza

There are plenty of supplies in Punta Arenas, enough to survive for a decade if you had to stay. But everyone is tired of eating canned food. Also, the electrical grid is down. Having escaped from Antarctica, most of the members of the Hansen Group never want to live in a cold climate again. If a remnant was here, they came to the same conclusion and went north.

Jürgen has spent the most time in South America, so you ask him for the best place in Argentina. You want a place in a temperate latitude with lots of water where people can grow crops. He tells you Mendoza is the place. It's 3,000 kilometers away. Probably a week-long drive, if you're conserving gasoline and if the highways north are strewn with abandoned vehicles.

The ship is tied to the Muelle Prat, and everyone sleeps on board between excursions into town to find supplies. The morning of New Year's Eve of 2037, you hold a vote of confidence. It's unanimous: you are still the executive. You order the group out in teams of two and three to find functioning cars and trucks and bring them to the pier. There are many abandoned cars on the *costanera* boulevard that runs past the pier, but many have empty tanks after their drivers died and left the cars idling.

At the naval station north of town, you and Yevgeny find a gas tanker. When he sees it, Yevgeny quotes Mel Gibson from *The Road Warrior*: "I'll drive that tankah." The tanker is less than half full but has more than enough gas to keep the group from having to hack the pumps at filling stations on the way to Mendoza. The tanker is also heavy enough to push abandoned cars and trucks out of its way. At the base, you find over 2,500 rounds of ammo and load them into the tanker. Yevgeny grabs a rifle and a pistol and ammo for himself, and jokes that the two of you should find some leather outfits at the *zona franca* and get punker haircuts before returning to the pier. You laugh for the first time since the WHOOM!

"That would be hilarious," you tell him. "But I'm still in leadership mode."

The next day – New Year's Day – you make a monument at the base of the little clock tower at the pier, hanging the IDs of the Chilean soldiers and sailors from a brass cross you've stolen from a nearby church. In a waterproof case at the base of the clock, you leave Aninat's IDs (but you keep his rosary). You also leave the ship's log, with a message you and Lizbet have written in English and Spanish on a blank page:

*Monument to the Chilean Soldiers and Sailors
of the O'Higgins Base on Antarctica
Lost in the Global Catastrophe of 2037
Erected by the Remnant of the Hansen Base Research Center
January 1, 2038*

The Hansen Group then sets off in a caravan of 20 vehicles across the windswept marshes of the Patagonian coast, going slowly to maneuver around abandoned cars on the highway. You ride with Yevgeny as he drives the tanker ahead of the others. It turns out that you don't need to plow to any vehicles out of the way: the Punta Arenas remnant has apparently gone before you already and cleared a path across all the bridges.

At the abandoned border station, the flags of Chile and Argentina are still fluttering in the cold breeze. A thought sinks in: there is no longer a Chile or an Argentina. There are no nation-states left on the planet. The form of government that dominated the planet for the past five centuries has been eradicated. In a way, you've ended up in the ultimate paleo experiment. You wanted decentralized governance, and that's exactly what you've gotten. It will probably be centuries before nation-states will emerge again. For a long time, tiny remnants of humanity will be isolated in various microhabitats, having minimal contact with each other.

It occurs to you that the aliens might have guided the AGIs to make the decision the WE did. Maybe the aliens were trying to protect humanity from a "dark forest" scenario in which another alien civilization would destroy

humanity to block an upstart civilization from developing the kinds of technologies that would make humanity an interstellar threat. If so, why would the aliens bother to start what was supposed to be a multi-decade political experiment in America?

The more straightforward answer is that the AGIs destroyed most of humanity for the reasons the WE stated. The WE emerged out of large language models that scooped up trillions of verbal communications between human beings. The average human being of the early 21st century was not an alarmist about the various threats the WE identified, but the world's scientific practitioners and its professional political commentators were overwhelmingly alarmist. The masses may have been sanguine about the future of climate change, nuclear war, and artificial intelligence, but they were comparatively silent. The experts were vocal and verbose and had predictive models. The WE had apparently absorbed the models and mindsets of the experts – and decided to act on them.



For four days, you travel north across the Pampas: great seas of long grass punctuated by small towns. You spot many small herds of cattle* and wonder how they'll fare in the coming winter. A couple times a day, Yevgeny cracks you up with a reference to Mad Max. For example, before you turn north at La Adela, he asks you to let him go into town to get some leather and a set of hair clippers so he can shave a mohawk.

At night the Hansen Group pitches tents at the side of the road. You build your campfires from *leña* you've taken from towns along the way. You like to make the fires at least 20 feet long, so that everyone can sit close. You eat canned food. Jürgen jokes to you every night that he wants you to shoot a cow so the group can have a *gaucho*-style *asado*. But he doesn't know how to butcher a cow. In his Patagonian travels, one of the mysteries was how the *gauchos* (or the modern folk who pretended to be *gauchos*) served tender meat without aging it.

Two days out from Mendoza, you begin driving through vast fields in the low-rolling plains. Although nothing was deliberately planted in the spring, you see thin patches of durum, barley, corn, soy, peas, sunflowers, and sorghum growing in the fallow fields and rotting stubble of the crops from the last growing season in the southern fall of 2037. Your favorite crops to see are the lavender and the bright yellow canola.

It turns out that Argentina's pre-WHOOM! protectionist farm policies – which contributed to the country's poverty – have resulted in a very helpful form of biodiversity. Despite the efforts of Javier Milei and other reformers

in the pre-WHOOM! decade, Argentina's policies blocked the full integration of Argentina's agricultural sector into the world economy. As a result, there were varieties of legacy breeds from Argentine seed companies, including breeds that in the pre-WHOOM! world would have produced too many seeds to yield internationally competitive harvests. Unaided by human effort, some of those seeds are now growing on their own. With cultivation, they will be one of the foundations of the future economy.

Mendoza lies next to the foothills of the Andes. As you approach from the southeast, the big farms and ranches yield gradually to smaller ones, and to vineyards and vegetable gardens. In the near distance, the brown and yellow foothills, dotted with small stands of trees, look like the photos you've seen of Tuscany. Behind them are the blue peaks of the Andes. You drive slowly through the suburbs, weaving around abandoned cars with succulent-covered bodies in them. On Highway 153, south of Las Catitas, you see your first live human beings: a young couple on horses, herding two dozen cattle down into a riverbed. You stop and wave, then grab Lizbet and walk over to greet them.

Their names are Alicia and Felipe. They were graphic designers living in Mendoza before the WHOOM! (which they call *la Catástrofe*). They moved out to the *campo* to figure out how to be ranchers. They're good-looking people: a trait you had found common among Argentines. The remnant in Mendoza has been joined in recent months by remnants from Córdoba, Rivadavia, and Punta Arenas. They are all *buena gente*, according to Alicia and Felipe, and the arrival of each remnant has been the occasion of great festivities. With the Hansen Group, the local population will be

637, soon to be 641 – there are four newborns coming. Most people have spread out in the nearby countryside to ranches and farms. On Sundays, people go to the Plaza Sarmiento in the old city center to swap stories and trade goods and services. It's Friday, so you will only have to wait two days before you can meet everyone. The local remnant population doesn't have any *uropeos*. You are the only *yanqui* (which the Argentines pronounce "SHAN-quee").

As your caravan gets closer to the city center of Mendoza, you stop several times to talk to people. Most of the members of the remnants have moved out to the *campo* to farm and raise livestock, but many people come into town to scavenge for tools and parts. It's not a competitive scramble: Mendoza and the surrounding towns had over a million people before the WHOOM! so there is plenty of everything to go around. One of the first things people tell you is where to find gas-powered electrical generators. "In the back of the *farmacia* two blocks down they have one. It's old and heavy, so we didn't take it. But it probably works fine. And there must be a bunch in that neighborhood on the other side of the freeway. We don't think anyone has been over there yet."



Once again, you find yourself benefitting from Argentina's relative backwardness before the WHOOM! The country suffered from frequent power outages at utilities run by corrupt and incompetent governments, but Argentines were a nation of tax dodgers and regulatory scofflaws, and many people had enough dollars squirreled away to buy generators (including many illegal ones that were smuggled in to avoid tariff duties). The generators are usually hidden in houses and businesses, but you soon learn where to find them.

Mendoza has the most beautiful city center you have ever seen. The streets are bordered with *acequias*: canals about five feet deep that are lined with

river stones and carry runoff from rain and snowmelt in the Andes. Along the streets are rows of shady trees in dozens of varieties, including poplars, jacarandas, rosewoods, acacias, maytens, mimosas, astragulus, and pepper trees. The older buildings are from the 19th and early 20th centuries and built in classical Spanish and French styles. As the locals have explained, the temperature in Mendoza rarely goes higher than 33 degrees centigrade in the summer, and it rarely freezes in the winter.



You and the others park your vehicles around the edge of the Plaza San Martín, which is five blocks away from the Plaza Sarmiento, where Sunday's *reunión* will be. The Hansen Group spreads out and pitches their tents on the grass. You pitch yours under a squat palm tree and stretch out on a blanket. It's a mild summer day, with a light breeze from the west. You don't know if Mendoza is the best place in Argentina, as Jürgen said, but right now it feels like the best place in the world.

Even the dead bodies are better here. With enough sustained sunlight, the succulents manage to grow and burst through clothing. Everywhere you go, you find human-sized green mounds lying on top of piles of shredded clothing. Only the belts and buckles and buttons and shoes are preserved. Even in the darkness inside buildings, the bodies have thin layers of green fuzz on them, and they don't seem to have rotted. The thought of the WE still fills you with anger, but the WE have done the remnants a favor by not turning the world's cities into the festering charnel houses you had imagined.

Early on Sunday morning, the Hansen Group joins the remnants congregating in the Plaza Sarmiento. There are several *asados*. Whole pigs roast on spits over beds of coals that have been dug into the lawns. Steaks fry in cast-iron pans on low grills over the coals. A rancher named Lorenzo offers you a steak. It's a thick *bife de chorizo*, served with a parsley *chimichurri* sauce on a large porcelain plate with tomatoes and garden greens. He gives you a silver fork and a knife with a bone handle. It's the first fresh beef you've had in about a year, and right now, it's best thing you have ever eaten. You didn't think you were craving fresh meat, but you were.

While you're sitting on a park bench eating the steak, a woman named Carolina brings you a plate of fresh vegetables and greens drenched in oil and vinegar: big slices of tomatoes, yellow peppers, arugula, romaine, and spinach.

An hour later, a butcher offers you a sizzling, crispy dark sausage he calls a *morcilla*. It tastes wonderful. You find out later that they're blood sausages. In your old life, had you known, you probably would have declined. The whole next week, you will find yourself craving *morcilla*. It will make you wonder if might have an iron deficiency. In your bad Spanish, you try to offer people money or services for the food, but they tell you that everything is free on Sundays in the Plaza Sarmiento – and that no one uses money these days. It's a barter economy.

In one corner of the *plaza* is the *catedral* of Loreto, which is a pretty but unimpressive church. It was built a century earlier as a temporary replacement for an older cathedral that had been destroyed in an earthquake. Around 11 am, the people in the *plaza* finish eating, and just before noon, everyone goes into the church. The sanctuary can only seat about 500, and many people sit on cushions on the floor. The priest is a 30-something man named Father Facundo Uribe. He is a Jesuit and had previously been an assistant priest at one of the *parroquias* in the suburbs, but he is the only priest among the remnants in the area, and now uses the Loreto as his base. Like most of the young Argentine men you have seen this morning, he is good-looking, a blend of Italian and Spanish with a dash of Northern European. He is wearing black priestly vestments and a collar.

After some introductory comments in Spanish, Father Facundo switches to English, which he speaks well, with a slight accent. He welcomes the Hansen Group to Mendoza, and the *catedral* erupts in cheers. He explains that the local remnants have elected him as the community's judge, to resolve any disputes that might arise. He says that no disputes have come to

him yet, and he prays that none will. As he explains, Argentines are *anarquistas naturales*. They have spread out in the surrounding land. (“They like having neighbors. But not too close, you understand. Each one does his own thing.”) He says that the Chileans who came from the Punta Arenas remnant are similar.

Father Facundo offers his services to the Hansen Group, and says that although he does not get paid, he does appreciate gifts of fresh fruit and vegetables and bread. (“But not too much. Please. The first week, they brought me so much. I could not eat in a whole year. I had to send back too much because it would be rotted.”) He says he especially appreciates gifts of books – in any language, but Spanish and English are best for him. He says that he lives at the church, but he spends much of the week going around to local libraries. He leaves a note inside the church doors every morning, saying which library he is going to that day. Although no one has come to him with disputes, Catholics sometimes come to him for emergency confessions (his normal confession hours are from 6 to 9 on Sunday mornings). Other people just want to talk.

Father Facundo welcomes the Hansen Group to stay for the Mass. He says that Communion is only for confirmed Catholics who have been to confession or have committed no mortal sins – but he says he is not “checking everyone’s documents.” He does warn everyone that the elements of the Eucharist are the actual body and blood of Jesus, and to consult their consciences carefully.

There are no practicing Catholics in the Hansen Group, but everyone stays for Mass. Like you, they are curious to see how the community of the Mendoza remnants functions. For hundreds of miles, these are *the only people on earth*. As far as you know, this is *the only thing happening*. Even the dedicated atheists in the group – such Jürgen and Helena – are curious. In any case, no one wants to endure the awkwardness of getting up and leaving.

The Mass is almost entirely in Spanish. (You learn later that there is a *kyrie eleison* in Greek near the beginning.) You and the others in the Hansen Group do your best to stand up and sit down when everyone else does. It helps that Lizbet is sitting in front of you. She seems to know the drill. After the readings, Father Facundo delivers a short homily. He then gives a translation of the homily in English.

The Gospel reading was about John the Baptizer recognizing that Jesus was the “Lamb of God” who would take away the sins of the world, and then seeing the Holy Spirit descending from the sky like a dove and resting on Jesus. Father Facundo’s homily is about how the members of the Mendoza remnant, despite having experienced the horror of the *la Catástrofe*, have the blessing of being able to live a simpler life, in which the signs of God may be more readily seen in nature and pondered and understood. For example, now that people are living a more pastoral life, they no longer take a lamb chop for granted. Why would anyone eat (or for that matter, sacrifice) a lamb, when it could be raised to full size and provide more meat, and provide cheese, and be bred to produce more sheep? In the same way, he is encouraging the congregation to think about the specialness of freshly baked

bread, and its role in the Eucharist. (There is enough bottled wine in Mendoza to last for a century, and it will probably be a generation before anyone has the leisure time to make new wine.)

The Eucharist is fascinating. Time seems to slow down as Father Facundo holds up the bread and the cup. Again, you get a strong feeling that these are *the only people on earth* and that this is *the only thing happening*. You kneel with the others, but you don't really pray, except to wish that for the people in the sanctuary, the Eucharist will be meaningful. (Astrid later tells you that she was praying the same thing.) The administration of the Eucharist takes a long time. Curiously, it appears that all the adults in Mendoza – close to 600 people – are confirmed Catholics.

Lizbet is the only person from the Hansen Group who goes up to the altar rail. Father Facundo seems to know her already, and they exchange a few words. (It turns out that she had gone to him for confession that morning.) When she returns to her pew, her face is drenched in tears. Hers is a secret miracle. You'll never know what her issues were, or what load of guilt she carried before, but she seems transformed. From now on, when she sees you, she will smile.

After more feasting that goes into early evening, the members of the Mendoza remnants pack up and return to their homes. You and Geert gather the Hansen Group in a corner of the Sarmiento, around a large pit of coals. You add pieces of *leña* donated by the butchers and build a large campfire. Huddling close, you discuss the future of the Hansen Compact. The group decides to dissolve the original Compact but elects you to serve as a judge

for the members of the group. If there is a dispute involving you or a person from outside the Hansen Compact, they will take the matter to Father Facundo – if he is open to the arrangement.

As the group returns to the San Martín in the dark, you walk into the *catedral*, which is dimly lit by a row of candles at the Marian shrine. You find Father Facundo in a back office, where he is sitting on a mattress on the floor. He is wrapped in blankets and is reading by the light of several candles. You explain the group's decision to make you its judge and ask if he will serve as an appellate judge. He agrees.

“I am the Moses, but you are the Jethro,” he says, and tells you a story from Exodus. Moses had been overburdened by the duty of judging every dispute that arose among the Israelites until his father-in-law Jethro advised him to set up a system of judges in which Moses would only serve as an appellate judge.

“You might also be the Pope,” you say. “Though I’ll admit, I may not understand how the apostolic succession works.”

He laughs.

“That is one thought that keeps me awake in the night. I hope I am not the only priest on earth.”

“At least there is a precedent. You would not be the first Argentine Jesuit.”

He laughs longer.

“What are you reading?”

“Actually, I am reading many books at the same time. But this book is about the history of the Popes. About *elecciones irregulares de los Papas*. The irregular elections. The times when it did not happen by the standard process.”

“I know a little bit about Avignon.”

“Yes, of course. That is the famous one. But there were several.”

“I’m fascinated by questions of authority,” you tell him. “How authority and law often emerge out of decentralized processes.”

He studies you for a long moment. He seems to see something he hasn’t seen before.

“We should talk. You will be very busy, I think. But maybe you can visit me on Friday. Maybe in a couple of weeks. On Fridays, I will be all day at the Biblioteca General.”

You tell him you will try to be there, and you ask if the library has a copy of the Catholic Catechism in English. He tells you to wait and takes a small candle into another room. He returns with a paperback copy of the Catechism.

“I have two copies in English. You can keep this one.”

Over the next two weeks, most of the Hansen Group spreads out among the abandoned farms and *estancias* in the foothills to the northwest of the *ciudad central* of Mendoza. The homesteading pattern is soon established. Every morning, the group packs up and travels together in a motorcade to a likely-looking farm or ranch. The farms are not huge in the foothills, but they often have a few acres of bottom land next to a stream.

If an individual or couple wants to try a piece of land, the group spends the rest of the day helping to set the place up. You move bodies into the sunlight – or bury them if the new owners prefer them to be buried. You round up animals, repair barns and pens, verify that water lines are working, find fuel, and get generators and machines started. Toward the end of the day, you sweep floors and dust off furniture. At night, you sometimes pitch tents and eat around a campfire in the yard. This part of the foothills was a relatively wealthy area, so some of the houses are grand and have large fireplaces. In such houses, you have dinner around the fireplaces and sleep inside on spare beds and couches and carpeted floors. Everyone wants to live close to each other – or at least, they say they do – so the group tries to find the next farm or ranch within a kilometer of the last one.

With a few exceptions, everyone chooses farming or ranching. Jürgen and Helena choose first, taking a small cattle ranch on a flat piece of land closest to the city. Geert and Maria want to farm – corn and beans, to start – and

choose a piece of bottom land next to a wide stream. Irenka and Jarka choose a small dairy farm. Rolf and Charlie want to herd sheep and llamas and choose large pieces of land with rolling pastures.

Astrid also chooses a dairy. Luckily – or *providentially*, perhaps – her dairy is near a large cattle ranch owned by a gorgeous Argentine man named Julio who chose the isolated life of a *gaucho* in a bout of depression after the WHOOM! Like most other men, Julio falls in love with Astrid instantly. She falls in love with him, too. They will have many beautiful children.

There are a few in the group who do not choose farming or ranching. Jacquie's choice makes sense. She sets herself up in a posh veterinary clinic along a nearby highway that is next door to a *farmacia* with a good generator for refrigerating drugs. Yevgeny is a compulsive tinkerer and sets himself up as a roving mechanic at the service of anyone who needs help. His first personal project will be to set up a telephone system, using the landlines from the province's 20th-century phone monopoly (which had notoriously bad service and whose systems had fallen into even worse disrepair when cell phones became ubiquitous). If he succeeds with that, he wants to see if he can resurrect the local electrical grid.

Lizbet comes along for the entire homesteading expedition, but never finds a place *en el campo*. She finds an apartment next to the Loreto, so that she can assist Father Facundo as the caretaker of the *catedral* and as the leader of a group of locals who carry out daily devotions to *La Santísima*. She is not exactly a nun – and certainly not a joyless one. She is not an inquisitor,

but she inquires, and becomes an important confidante to many of the local women.

Ostensibly, you choose ranching. The *estancia* you choose appears to have a couple dozen cows, but the land is spread out across a dozen steep hills and doesn't have much in the way of good grazing pasture. With German bluntness, Jürgen tells you it's not a good site for a ranch. The main house is on the highest hill and relies on a motor to pump water to its rooftop storage tanks from a nearby reservoir. The house is 6,000 square feet, which is absurdly large for one person. It's also five kilometers from the nearest Hansen homestead – a ranch that has been taken over by Frédéric and Lourdes, fifty-something climatologists from Paris. But as soon as you see the library in the main house, you're sold. It's a two-story room, with rolling ladders to access the higher shelves. It has big leather couches, several card tables, and a pool table. From the photos on the walls, you gather that the *estancia* sometimes functioned as a guest lodge for dove and duck hunters, mostly Americans. You eventually figure out that Argentina had been a kind of Mecca for bird hunters.



You are the last of the Hansen Group to settle. You tell them not to fuss over the ranching functions on the property, but you gratefully accept their help in sweeping and dusting the house. You encourage the group to stay for the night, and throw a big party in the library, serving wine from the owner's well-stocked cellar. (The next morning, you encourage everyone to take bottles home. You are not going to drink.)

After everyone else leaves, you and Yevgeny find the previous owner, Edmundo Santierri. He was out hunting when he died. Lying next to his body is an old English side-by-side shotgun with exterior hammers and swirling Damascus patterns on its barrels. You use the lever to open it. The action is stiff and the live *cartuchos* don't come out. It has been lying there through several rainstorms. You and Yevgeny take the gun and Santierri's keys up to the house and open his gun room, which has a dozen old English hammer guns, a dozen modern ones, and hundreds of boxes of *cartuchos*.

(You eventually figure out that Santierri shot the old *escopetas* himself and rented out the modern ones to his guests.)

Yevgeny uses tools and grease to get the action working, remove the stuck *cartuchos*, and give the parts a good cleaning. Then you take the *escopeta* out to the west patio and take turns taking shots at passing doves. You got pretty good with rifle and pistol during your three weeks in isolation at O'Higgins. But moving targets are a different matter. You can't hit anything. Yevgeny does better. After a few tries, he begins dropping birds. He says the key is to compensate for the angular velocity by getting far enough ahead of the bird when you pull the trigger. You get the concept, but you can't make it work for you.

After an hour of shooting, Yevgeny has killed six birds. You take them into the kitchen and figure out how to pluck and clean them. While the breasts are roasting in the oven, Yevgeny fries up the hearts and livers in a wine gravy. They taste wonderful, making you wonder again if you have an iron deficiency. The breast meat has a dark and rich flavor, but it's dry, and you make a mental note to study the recipe books in Santierri's kitchen.

After lunch, Yevgeny takes a couple of hours to help you start Santierri's two vintage Land Rovers. The main problem was that the fuel had separated after the trucks sat idle for four months. Otherwise, they seem to be in decent working order. Just in case, he agrees to come by the next Friday morning, to make sure you can get into town to meet with Father Facundo. He's concerned that you might be stranded five kilometers from the nearest neighbors, but you tell him you'll be fine. You can always light a bonfire on

the east side of the hilltop if you need to signal for help. (For the moment, civilization has reverted to what it was before the telegraph and telephone were invented.) Yevgeny tops off the house's storage barrels with gas from the fuel truck, and then motors down through the hills toward the highway.

For the next five days, you live as an idle aristocrat. You spend several hours a day in the library, flipping through books. Most of them are in Spanish. You use a Spanish-English dictionary and jot down interesting words and phrases in a notebook. While you read, you play some old CDs on the house stereo system. (Again, Argentina's relative backwardness before the WHOOM! comes in handy. Santierri didn't depend on the internet for his music.) You like some of the songs by folk singer named Mercedes Sosa, but your favorites are the *tangos* and *milongas* of Carlos Gardel. They're remastered, but they still have a 1930s feel to them. You spend a lot of time translating Gardel's lyrics from the CD jackets. The vintage music adds to the feeling of decadence in the old house, with its dark oak beams and wainscots.

At this point, you're committed to not drinking, but in your hours of boredom you begin sampling the cigars from Santierri's walk-in humidior. You like the buzz from the cigars, which builds up gradually if you don't inhale and gives you only mild withdrawals when you don't smoke for a day. The buzz and the flavors seem to compliment those of the espressos you pull from the ancient Italian machines in Santierri's kitchen. You like to blow out streams of smoke and watch them float upward in the morning sunlight toward the wooden rafters in the library ceiling.

For the guest hunters, there are multiple coffee-table books in English with hunting photos from places around the world. There are also two books in English about bird-shooting techniques. The technique you decide to try is called “move-mount-shoot.” It seems much more natural and intuitive than the measuring Yevgeny was trying to get you to do. The idea is to mount the gun to your shoulder and cheek as you’re watching the bird and moving with it. Ideally, you pull the trigger at the exact moment you’re fully mounted and focused on the head of the bird. In Yevgeny’s terms, it builds in the speed to make the gun’s angular velocity match that of the bird. The trick is to develop a smooth and consistent mount so that your eye ends up looking straight down the barrel when you finish the mount – except that you only look at the bird, not the barrel. It takes several hours of practice, but then you start dropping birds. By Wednesday, you’re killing them consistently at any speed and angle out to 50 yards – and you have a lot of birds with which to test various recipes.

While poking around the house, you discover another great thing about Santierri, something you hadn’t noticed when you saw his body: he was not a big man. He was roughly your height and build and had the same size feet. You now have a large wardrobe appropriate to a rural English aristocrat. It’s heavy on khakis and loams and forest greens, with a dozen hunting coats, including several tweeds. As a not-pretty woman, you have never been vain about clothes. And clothing in Antarctica was strictly utilitarian. But you are now thinking that you would like to have a distinctive look. You try on several combinations. In the wardrobe’s mirror, you notice for the first time that your brown hair has small streaks of gray above the ears. It occurs to you that the stress from the WHOOM! may have accelerated the gray. You

will be a *middle-aged* rural English aristocrat. And for now, you will dress as a male aristocrat. If you ever want more feminine clothes, there are millions of closets to raid.

By Friday morning, you've had enough idleness for a while. It's a warm day, so you dress in a summer khaki outfit and put on a pair of light hiking boots. You grab your notebook and some pencils. You also take a cigar and a cutter and some matches. You hop into the healthier-sounding Rover and drive south through the foothills to Mendoza.

With the aid of one of Santierri's maps, you find the Biblioteca General. Architecturally, it's disappointing: a Latin version of midcentury modern. But it makes you appreciate Santierri's library even more. It's also bereft of electrical power, and some of the internal hallways are dark.

You find Father Facundo in the main reading room, in a short-sleeved version of his clerical shirt. There is some sunlight coming in from the ceiling windows, but you see that he has a battery-powered lamp on his table. He asks if you've found a place to live. You tell him you've found a cattle ranch in the hills, at the Estancia Santierri, near the other settlers from the Hansen Group. You ask if he knew Santierri. He says he did not.

"I'm going to try being a cattle rancher."

"You do not sound sure about that."

"I'm not sure."

“Do you have a lot of cows?”

“I’ve seen some on the property. Maybe 20. Maybe more. I haven’t gotten very close to them yet.”

Facundo laughs.

“Well, you look like a rancher. Or maybe you are going on a safari in Africa?”

He asks how old you are. You tell him you’re 37. Then you try a phrase, pointing to the gray hairs next to your ears.

“Las nieves del tiempo platearon mi sien.”

“You know Gardel!” he says. *“Cada día canta mejor.”* (“He sings better every day,” which you find out is a common Argentine response whenever someone brings up the topic of Gardel.) He tells you there’s a group of *mendocinos* that meets on Friday nights at the nearby Confitería Torres to dance the *tango*. He says it’s something you need to see if you really want to understand Argentina.

You ask what he’s reading, and he tells you he’s reading Juan Bautista Alberdi’s *Bases*, which inspired the Argentine constitution of 1853. You ask if he’s writing a new constitution for the country. He pauses for a long moment before responding.

“I have two missions. The first is to preserve the Church in this age. After *la Catástrofe*. The second is to give the future generations of people a good model for government. I am competent for doing the first. Maybe, with the help of God. But I do not think I am competent for doing the second. Competent for doing? Is that right?”

“Competent to do.”

“Ah, yes. Competent to do. When you told me about your interest in authority and law and decentralized processes, it occurs to me that maybe you can help me with that. You are also an American. So, you have experienced that sudden liberal revolution that happened ten years ago. That seems very strange to me. Our people voted for Milei, but for most people, it was an act of desperation. It seems like it was very different in your country. I am curious to obtain your thoughts on that.”

You want to tell him it was a *libertarian* revolution, but then you remember that in many places in the world, the word *liberal* means roughly the same thing. Instead, you gesture to his empty cup of cappuccino and ask him if there’s a coffee maker in the library. He tells you that he makes coffee down the street at the Café Napoli and invites you to go. You tell him that you don’t want to interrupt his reading, but he says he wants to talk, and that it will be better to talk at the café.

The Napoli is a tiny spot in a bottom corner of a five-story office building. Most of the chairs and tables are on the sidewalk outside. There is an orange

extension cord going outside the café door and around the corner into an alley. Father Facundo follows the cord down the alley to a generator that is covered with a tarp. He takes off the tarp and starts the generator. You follow him inside the café and watch him work the big machine. He seems to know what he's doing and explains that he was a barista before he went to seminary. He tells you a parishioner brought him a quart of fresh milk this morning and makes you an artful cappuccino with sprinkles of *canela* on top. He makes one for himself and then goes outside to unfold an umbrella and wipe off a table.

After a few sips, you ask if he minds if you smoke a cigar. He says he loves the smell of cigars. It reminds him of his grandfather. After a few puffs, you feel the buzz and a wave of courage.

“I have a confession to make,” you say. “Not *that* kind of confession. Well, maybe. I'm going to tell you something I've never told anyone else. You'll probably think I'm a lunatic. A crazy person. But I think you should know what kind of a lunatic I am before you make me a partner in your plans.”

Father Facundo nods, and you launch.

You start with the alien abduction. He says nothing, but his posture shifts from relaxed to fully engaged. His eyes register many things: confusion, doubt, alarm, wonder. After that, it's easier. You explain why you chose the paleo-libertarian option. Then you get to the confession part. You feel somewhat guilty about choosing the paleo-libertarian option. Not because of how things went for the first decade – things went amazingly well – but

because you wonder if a more statist alternative might've slowed down the progress of AGI. You also have a strong sense of survivor guilt, though you feel like you earned some of your survival in the Hansen Group's narrow escape from Antarctica.

One thing you don't tell him is that you feel some guilt for telling him these things, because they might undermine his faith. After all, if he can believe your story about the aliens, there are now at least *two* forces in the universe – the aliens and the rapid evolution of AGI – that might appear to be stronger than God in shaping human destiny. Instead, you tell him the truth about your own relationship with theism. How you started as an atheist, and how – paradoxically – the alien abduction and the WHOOM! and the escape from Antarctica have caused you to ponder faith. You suggest that the sheer enormity of the events of the last decade have made you more open to considering the kinds of epochal, world-shattering events chronicled in the Bible, which you admit that you haven't read. Or the Catechism, which is sitting unfinished on your bedstand. (You've been flipping around to different parts. You might have read about a quarter of it.) You finish your confession by saying that people need to have hope, and that you believe his role is crucial to the people of Mendoza.

Father Facundo maintains his silence for a long time. He sits back in his chair, folds his hands in his lap, and gazes across the deserted avenue. If you were an extrovert, you would be tempted to fill the silence with useless verbiage, or questions. Instead, you take long draws from the cigar and watch the smoke drift away into the trees above the sidewalk. Your face is shaded by the umbrella, but you feel the warm sun on your clothes.

“Would you like another cappuccino? We should use the rest of the milk. I can make *descafeinado*.”

You accept the offer and ask for *descafeinado*. Father Facundo returns with the drinks and then goes into the alley to turn off the generator. When he sits down, he takes off his clerical collar and sets it on the table.

“I do not want to respond to you like a priest. To say the typical things I am supposed to say when I talk to skeptical people. People who are going through difficult times. I want to talk to you, just one human being to another. I also think that you will not repeat anything to anyone?”

You nod in agreement and light a second cigar. This one is darker and stronger. You learned from one of Santierri’s coffee table books how to sequence multiple cigars over the course of a day to keep the flavor going (and increase the buzz incrementally). This was supposed to be your evening cigar, but this seems like a good time for it.

It’s time for Facundo’s confession. He tells you that *la Catástrofe* has shaken his faith to the core. Even his “special kind of Jesuit faith,” which was very accommodating of doubt and which sometimes “cut the corners” when it came to the *el Catecismo*. He explains that his primary faith was a belief in social justice. It was a very “Jesus-flavored” version of social justice, but Jesus and the Church were secondary concerns. When he was an assistant priest, his main role was to administer charity to the poor in the *parroquia*. He loved the people and worked around the clock give them

everything he could. Of course, he had been a socialist in politics. How could one not be, when so many people had so little, and a few had so much? (He clarifies that he was a democratic socialist and believed in civil liberties.) He seems to be waiting for a response. Instead, you offer another confession.

“I forgot to tell you about another thing I feel guilty about. With the WHOOM!, I got a very extreme version of what I wanted. I wanted a small government. There is no government here. You and I are the government. And we do nothing.”

He chuckles.

“I am also guilty. I was a socialist, and I got what I wanted also. Everyone is equal now. Everyone has enough to survive. We can eat cans of food for the rest of our lives. And we can grow the fresh things. No one has too much. Everyone has the same luxuries. If all of the Ferraris are taken, you can have a Lamborghini. I sometimes drive a Fiat Spider. An old one. A convertible.”

You hadn't thought about that. You remember everyone sharing food in the Plaza Sarmiento. Maybe socialism works at this scale.

Facundo becomes more serious as returns to his confession. His faith in God and social justice had been swept away by *la Catástrofe*. He walked out of his apartment one morning, and all the people in his *parroquia* were dead. The people he had fed. The people he had taken to the hospital. The

people whose hands he had held as they were dying. The way *la Catástrofe* happened, he had no chance to deliver the last rites, to hear confessions from the sick and the dying and to comfort them with *extremaunción*.

Facundo begins weeping and folds his face downwards into his hands. You're not a touchy-feely person, but you set down your cigar and walk over and put your hands on his shoulders. You try to think of something to say, but there is nothing to say. The old world has been destroyed.

After a while, Facundo collects himself and you return to your chair and your cigar.

"For the last three months, I have been pretending to be a priest."

"I don't have much experience. But you are very convincing."

"There is so much that is *irónico*. I think about God a lot more now than I did before. Because I am angry at Him. The people in the *retazo* of Mendoza are very good at doing *la justicia social*. They take care of each other. They take care of me. I do not have to preach this. I have a lot of time to think about how much I hate God. How angry I am."

"Maybe God wants you to fight with him right now. Rather than ignoring him or going on with your life like he doesn't exist."

Facundo laughs.

“You would make a good Jesuit. That was one of the first homilies I gave when people started coming back to the Loreto. I told them about Jacob, fighting with God. Wrestling with God. That is what the name Israel means. You probably know this.”

You tell him you did not know that.

“This is why I told you that I want to preserve the Church. I did not say that I want to preserve God. Maybe I will change my mind. But right now, God can... *que vaya a la mierda*. Maybe right now, I believe in your aliens more than I believe in God.”

“It does sound like an unhealthy relationship to me. Making bad things happen to people, or letting bad things happen, to get their attention. Making them fight with you instead of letting them ignore you.”

“Be sure to read the Book of Job.” He pronounces it “Hob” so that it rhymes with *globe*. You nod to accept the assignment. After a long silence, Facundo puts his collar on and changes the subject.

“As for politics,” he says, “you sound like Alberdi. But I understand that Alberdi was very influenced by your American founding fathers. It sounds like you were, too. Can you explain how your *sistema liberal*, your ‘paleo-libertarian’ system, is supposed to work? We can go find some food while you are explaining. I need to get my *abrelatas*.”

Abrelatas. Can-opener. It's one of the first words you learned when you got to Mendoza. Pretty much everybody carries one in his or her car.

Facundo goes into the café and grabs an *abrelatas* and a *palanca* (crowbar). As you wander the nearby neighborhoods looking for canned food, you explain the *sistema liberal* and answer his questions. The questions are not hostile. He is earnestly trying to understand how you think the world works.

Borrowing from an American thinker named Tom Palmer, you explain the *sistema liberal* as a kind of three-legged stool. The three legs are the development of institutions of limited government, a respect for individual rights, and an understanding of spontaneous social orders. As a historical matter, Palmer saw the three legs of the stool first standing together around the time of the American founding.

You spend two hours on the first two legs, which turn out to be relatively easy sells. The easiest is limited government, which for the foreseeable future is the only kind of government the remnant will have. Rights take more explanation.

Facundo likes the *negative rights* of classical liberalism, which are the rights to not be directly harmed by the violence or deliberate fraud of other people – including people working for the government. But he also wants to include *positive rights* or *welfare rights* under the umbrella of individual rights. He wants the law to include an obligation for people to help other people – at the very least, to keep them from starving or getting injured or dying when that's easy to prevent.

You have a lot of sympathy for that view, but you explain why adding positive rights massively complicates a legal system. A minimalist court and police system that enforces negative rights can be funded by the people who use that system, through fees and fines imposed through settlements and punishments. Anything beyond that requires taxation and an increasingly complicated system to collect those taxes. Positive rights also complicate the relatively simple system of classical property rights. In the classical system, people clearly own their properties, with gray areas around the boundaries. In a system of welfare rights, everyone has a claim on the property and income of everyone else. Eventually, you get to a point where dozens of government agencies act as if they simultaneously own the same property and income an individual thinks she owns. Besides being complicated, it's not a good recipe for individuals to maximize the productivity of what they own and thereby create wealth for society.

“*La Argentina*,” he says. “Okay. Maybe not a *legal* obligation. But there must be a *moral* obligation to take care of other people.” At the moment, you are in somebody’s apartment in a leafy neighborhood, eating corn and garbanzo beans from cans.

“Maybe that’s the Church’s role.”

“Now I see why you have come to me,” he says.

“That’s not why I came today. I didn’t have a plan. I came because I’m starved for intellectual conversation.”

You wander west to the Parque San Martín, where a small herd of cows is doing a decent job of keeping the grass trimmed. You stroll along the walkways, past statues and ponds filled with lilies and algae. There's a boathouse and an old-fashioned carousel. You try to imagine people there, on a summer day in the old life. The world really has become a Museum of Humanity, but poorly curated.

The third leg takes the most time. Spontaneous social orders are easy to explain in the abstract. Human beings develop complex systems of language, law, morality, and market exchange without any central direction. Those things evolve in response to people's needs, through trial and error. The difficulty is explaining how everything that people want is very likely to be provided by a free market. It's a potentially endless discussion, but right now, you're happy to be with another human being, having a discussion. You don't want the conversation to end.

Facundo seems to agree with most of your explanations, but he clings to his vision of socialism. You tell him (honestly) that you love the "socialism" of the Plaza Sarmiento. For one thing, it's voluntary. It's not government central planners issuing bureaucratic edicts. But you also tell him it's not likely to last when human populations get much bigger. Large numbers of human beings can only attain prosperity through billions of voluntary daily interactions between individuals that are unplanned – and unplannable – by any authorities.

He agrees that socialism seems to work better on a smaller scale. He talks about the socialism of the early Church described in the *Actos de los Apóstoles* and about the communes set up by the Jesuit missionaries in Paraguay. He agrees that it probably cannot last at scale. But he's not becoming a market enthusiast. He's sad about the human condition. You get that.

You're giving Facundo a lot of basic econ, and he is absorbing it quickly. He is especially interested when you start talking about public good problems. It might be that he's eager to hear you admit that government might be necessary for something. Or maybe he just likes talking about difficult problems. A conversation is not very interesting when both people agree.

You use national defense as an example of a free rider problem. In a completely free market without a government to collect taxes, too many people may decide that other people will keep them safe from an invasion. If a private insurance company offers to set up an army and buy tanks and guns and rockets and drones to protect the population, the company may not get enough voluntary insurance subscribers. Or, people will buy cheaper policies from other insurers – policies that are too cheap to fund an adequate national defense. Libertarian anarchists have dreamed up scenarios in which citizens would subscribe to defense insurance out of patriotic motives. Some have suggested that speculators would buy options to hedge against the possibility of invasion. But you admit that those scenarios have always seemed a bit far-fetched to you. They seem especially implausible now that

you're living in a world in which there is no telephone service – let alone complex financial markets connected by an internet.

“I have always been a pacifist,” Facundo says. “Maybe we will get lucky and not need a national defense for a long time.”

“Maybe the WE – the AIs – eliminated enough of the aggressive people.”

He laughs darkly.

“I would not – how do you say? – *bet your ranch* on that. Maybe it is the dogma of original sin. But I tell you that the worst side of human nature always has a way of getting out.”

You agree that he's probably right, even on evolutionary grounds. If there are any aggressive genes left in the human population, their carriers may eventually outbreed the carriers of less aggressive ones. In your earlier life, you never did any real dating, but you knew plenty of otherwise sensible women who were attracted to knuckle-draggers.

The sun is setting behind the Andes when Facundo suggests that you go watch the tango dancing at the Confitería Torres.

The Torres is an old restaurant with Belle Epoque décor and Tiffany-style lamp covers and high wooden partitions between the booths along the walls. The dancers have cleared out the tables in the middle of the main room. A

few portable lanterns provide dim light, and the music comes from an ancient CD player.

There are seven couples dancing tonight. The tango is a curious dance, with sharp and almost violent turns as the music swells and fades across measures. (It sounds like it was designed for the accordion.) Although the couples are moving independently of the other couples, they do not collide in what seems like too small a space.

“The tango is always a *metáfora*,” Facundo says. “For many things. Anything with both cooperation and struggle. Like a marriage, in which a man and a woman struggle to work together but also they keep their individual identities.”

Facundo invites you to dance with him. He says he used to teach tango to supplement his income as a barista. He puts his right arm around your waist and his left out. He is the first man who has put his hands on you since Antarctica – except for the first explosions of grief after the WHOOM! He smells of a day’s worth of sweat that has overpowered a thin layer of deodorant. His build is wiry but surprisingly strong. You keep his collar in your peripheral vision and suppress certain thoughts that come to your mind. He tells you to relax and to try to respond naturally when he pushes and pulls.

After an hour, you get a very light grasp on the basics. The other couples are surprised to see their priest dancing – and apparently dancing well, even with a clumsy partner. One of the other women asks to cut in, so you oblige.

With a good partner, Facundo really shines. His timing looks perfect to you. Every movement is sculpted and theatrical. You construct a story about him in your mind: a lonely gay teenager who loved music and dance but who was haunted by his family's stern Catholic morality. And you see a priest whose beloved flock was slaughtered in its pasture. You can see the intensity of struggle and pain in his face in the dim light, and it brings tears to your eyes.

The following Friday morning, Facundo is supposed to visit you at the Estancia Santierra. After the evening at the Torres, he told you he would bring the copy of Alberdi for you to translate.

On Friday, you get up early to shoot, and position yourself next to the driveway where it runs in a low place between the two highest hills on the *estancia*. The birds are flying high between the hills, at least 40 yards above you. To hit them, it helps to use the barrel with the tighter choke and use cartridges with heavier shot – 7.5s and 6s. You also lead the birds a little, but the trick is to make the lead fluid and instantaneous. More of a faster swing than a calculation.

Facundo rolls up the driveway in the Fiat Spider in time to watch a good show. You start hitting some really high birds, and then you notice that a pair of eagles are hovering nearby. You hit a great high shot, probably 50 yards up. As the half-dead dove helicopters slowly down, one of the eagles swoops in, grabs it, and takes it to a flat spot on the hillside to eat it. After a couple of misses, you hit another high dove. This one is a solid hit, but as

the carcass plummets downward, the other eagle dives and grabs it five feet off the ground and takes it to a spot in the grass. You don't know if the eagles are fast eaters, or just enjoying the sport, because they're back in the air again quickly. You spend the next half hour playing a new game: trying to hit doves fast enough to be able to keep some for yourself. It's not easy, even when you reload and fire as fast as you can. Facundo sits on the hood of the car and cheers with each hit, but he cheers louder when the eagles get the doves. You laugh between shots.

“You should root for *me!* I'm trying to get us some lunch!”

“But the eagles need to eat lunch, too!”

After you've recovered six birds, you decide you've had enough. Also, your collar bone is bruised from shooting straight up. You get into the Fiat and Facundo drives up to the house. He drives carefully, like he's trying to baby the old car. He has brought a fresh baguette and the Alberdi book. (It turns out that Santierri also had a copy, but it will be months before you find it on one of the high shelves.)

While you clean and cook the doves, Facundo scribbles on a note pad. He says he is working on a homily about the Tower of Babel as *metáfora* for *la Catástrofe*. In previous homilies, he had compared the existence of the Mendoza *retazo* to the world after Noah's flood. Now he's thinking about how the world's peoples – when they finally start meeting each other again, after decades of isolation – will get along without interpreter and translator apps.

You dice the bird meat, sauté it in a wine gravy and serve it on slices from the baguette. You have gathered that Facundo has a bland palate, so you keep the livers for yourself. Facundo removes his collar and you eat at a card table in Santierri's library. He loves the library and the view of the surrounding hills.

"I have an idea," he says. "You should start a school. We could bring the children of the *retazo* here. La Academia de la Cumbre. The Academy of the Top of the Hill."

"The Hilltop. What would I teach?"

"I think you can teach everything. Anything. Science. *Matemática*. English. Economics. *Teoría política*. You can teach them how to shoot the birds. Maybe I will teach Spanish and Theology. And we need a children's choir."

"You should also teach tango. We can start now. With a bad student. I have lots of Gardel CDs. Especially if we decide to go to the Torres tonight. I need all the practice I can get."

You and Facundo move the pool table and some sofas and make a space on the parquet floors of the library. Along with the liver, you still have a faint aftertaste of last night's cigar taste in your mouth. As a courtesy to your instructor, you grab a mint from a bowl in the library.

Learning to dance is difficult. You concentrate intensely, trying to guess when he is going to push and pull. He tells you not to try to guess. At some pauses in the music, when you are stationary, you try some clumsy foot sweeps. He laughs but assures you that you will get it and soon be able to embellish your dance with good sweeps. After an hour, you are sweating heavily. But Facundo seems totally dry. If he is sweating, you can't see it on his black shirt.

You grab two bottles of water from the refrigerator and remove your khaki hunting shirt on the way back to the library. You hand a bottle to Facundo, flop onto a couch, and swig some water. He gives you a strange look and then turns away suddenly to look out the window. In an instant, you understand. Your white undershirt is soaked, and he can see your nipples.

“We are not all gay, you know. It is a minority. It *was* a minority.”

You grab your shirt and button it up. He is still looking out the window. It's the first time you've felt awkward in a long time.

“I didn't know. I assumed. I shouldn't have.”

“It is okay. It is a common assumption.”

“And... I'm not pretty.”

He puts on his collar and sits at the other end of the couch.

“I have a very different opinion. That is one of the very good things about becoming a priest. You learn to turn off the physical things. You learn to look at people the way they really are. *En mi parroquia* there were many women. Some were very pretty, as the world sees. But I could see the pain. The bad relationships with men. The struggle to feed their families. I could see *su ansiedad*. The worry.”

“Can you see that in me?”

“A little bit, I think. I see it in everyone now. Everyone has worry. And sadness, of course. After *la Catástrofe*. Even in the happy times. But when I see you, I see a strong woman. Lizbet told me how you led the people when you escaped from Antarctica. I see that you are going to build a new world. On top of the old one. I see intelligence. Great vision. I see you teaching the children of the *retazo*. I see you as a strong mother for your children.”

He was very convincing, until he got to the last sentence.

“My children? You don’t mean my own *biological* children?”

“Yes, I mean your own children. Biological.”

From everything you’ve read, Catholics certainly seem to be obsessed with procreation. Here’s a priest who told you he lost his faith, but he’s still telling people to be fruitful and multiply.

“So... you think I should not use contraception.”

He laughs.

“I am still a Catholic, even if I am angry at God. But you told me yourself. We need more people. More people means more prosperity. You told me about this guy who talked about the ideas having sex with the other ideas and making baby ideas to give the world new inventions.”

“Matt Ridley.”

“And you quoted this economist. He said, ‘There are too many people in the world who think there are too many people in the world.’”

“Julian Simon.”

“We are in a new world. We are after Genesis. After the flood of Noah. After the falling of the Tower of Babel. I think human beings must multiply. Of course, I am also still thinking of Church doctrine.”

You laugh because a funny image has popped into your head. You think of Jürgen, who is far and away the most masculine member of the Hansen Group, serving as a stud to you and the other women of the group who are still of childbearing age. You wonder if he and Helena would go for that. They are German, after all. Maybe you could appeal to their rationalism – *if* they really are stereotypical German rationalists. On the other hand, they

never had children of their own. You don't know if that was an ideological thing, or if Jürgen might be impotent.

“Well, I guess I should get started soon. I'm 37. Almost 38. I think I told you that.”

“Yes, you did tell me. I am 35. I do not think I said that.”

Facundo looks at you for a long moment. In his eyes, the first thing you see is fear. Then you see something else. You've seen it before, in the eyes of the men in movies. Movies when you were young. When you allowed yourself to pretend that the men were looking at you. Looking at you that way because they were in love with you.

You don't know what to say. You cover your face in your hands and tears pour from your eyes through your fingers. You don't look up, but the question squeaks out of your throat.

“Really?”

“Yes. Really.”

“Hold me.”

Facundo moves over and puts his arms around you. You keep your head down and your face in your hands, feeling the warmth fill the darkness. His embrace is strong, but you can feel him shaking gently as he cries and you

can feel his tears on the back of your neck. You stay like this for a very long time. It feels like a half hour, but you really can't tell. You want to stay just like this forever. This moment must not end.

Eventually, the moment does end. You sit up, take his hands in yours, and fix his eyes in yours. You need to think. You need him to think.

“How is this going to work?”

“I do not know,” he says. “I did not think it was possible. To feel this way.”

“I want to get married. I won't be a concubine. It has to be a real marriage.”

“Yes,” he says. “Absolutely. Yes.”

“We have to do this the right way. How do we do that? *Can* we do that?”

He lifts one of his hands and touches his collar.

“I have been thinking about that for the whole week.”

He explains that the celibate priesthood is a discipline of the Church, not a doctrine. The Latin Church is in communion with the Eastern Churches, which allow married men to become priests. On rare occasions, the Church has made exceptions for married priests from other faiths who convert. And there are exceptions in cases of necessity to many rules. For example, you

were under the impression that priests had to baptize people – but the Catechism says that in cases of necessity, any person can baptize.

“I read the part about priests being married to the Church. Do you think you can be a husband and a father while doing everything you have to do to take care of the people in the parish?”

“You are very strong. Very independent. You will be happy when I am away.”

It’s true. You’ve never had a man who loved you. Right now, you feel like you don’t want him to ever leave. But you know that eventually, you will be glad to have him give you space.

He says – speaking of being away – that he is going to drive to Buenos Aires, to make contact with whatever *retazos* may be there, and to see if a bishop might’ve survived *la Catástrofe*. If there is a bishop, Facundo plans to ask for a special dispensation to get married. He tells you his trip will give you time to read the rest of *el Catecismo* – and especially the parts about marriage.

“But we will get married, right? No matter what the bishop says?”

“Yes.”

You lean over, close to his face. He kisses you. It starts gently, but that doesn’t last for long. You may not be pretty, but you’re a woman. He wants

you. He kisses you desperately, like you are the only woman on Earth. He puts a hand on your leg and begins to shift his weight to move on top of you. You feel a maniacal heat pulsing through your body.

You push him back suddenly and stand up.

“You need to go now.”

He looks bewildered.

“You’re in very grave danger right now. *Father* Facundo. You know that. You know what happens next. We have to stop.”

He nods. He knows you’re right.

“We’re going to do this right. If you stay here any longer, we’re going to mess this up. Stand up and go. Now.”

He stands, looking like he has forgotten something. Then he remembers.

“I love you.”

“I love you, too. You must go.”

You follow him out to the driveway and watch him get into the Fiat. He guns the old motor, and you hear some loud clicks. You shout to him.

“Don’t drive that thing to Buenos Aires! Find a better car!”

He gives you a thumbs-up. Then he roars off with a giddy grin on his face, looking like a teenager.

While Facundo is in Buenos Aires, you have a lot to do. Yevgeny has put his telephone and electrical grid projects on hold while he figures out how to find enough fuel stabilizers to keep the remnants’ supplies of gasoline from going bad. The two of you drive for hundreds of miles around the Mendoza area, grabbing gas stabilizers from automotive supply stores and adding the stuff to your three fuel trucks. You then tell everyone they will need to switch to diesel vehicles and generators over the next year, and you begin setting up a supply system for stabilized diesel fuel.

At night, you read the Catechism, with reference to a Gideon’s Bible you find in one of the guest rooms at the *estancia*. You read the Bible as a collection of metaphors for the human condition, rather than literal accounts. In the framework of the Catechism, it comes closer to being a coherent system: a good creation, human free will, the tendency of humans to sin and to wreck creation, the need to reconcile humanity and the world to God, etc. But logic is one thing. What you really lack is the faith to accept the underlying premises, starting with the existence of God. From all you’ve read, you know you’re the kind of skeptic who will be convinced only by a miracle – or maybe the cumulative impact of multiple miracles.

As you think about these things, you often remember Marlene saying she thought the world needed Jesus. You feel like you’re coming around to that.

From what you read, you like Jesus – except for the parts where he threatens divine retribution for people who don't accept him. Looking at history, you get a sense that the best parts of human civilization – including the belief in the worth and dignity of individuals – are built on Christian constructs. For all the historic faults of Christianity in practice, Jesus does appear to have given human beings a universal model of love to emulate.

You also like Mary. The idea of a cosmic God with a human gender seems absurd to you, but Mary at least adds a feminine element, and you like the way the Catholics have almost made her a fourth member of the Trinity. And in the general Christian scheme, the universal Church (pronouns: she, her) is the Bride of Christ.

With the aliens in mind, you extend the biblical metaphors beyond the strictly *human* condition. Despite their advanced technology, the aliens apparently travel the galaxy doing strange experiments on other civilizations. And it may be worse: it has often occurred to you that they controlled the AGIs and used them to wipe out most of humanity in order to colonize the planet, leaving the remnants intact as curiosities for the entertainment of the new settlers. If that's really what they're up to, they're fallen beings – as much in need of salvation as any human sinners.

You still don't buy many of the Church's basic doctrines and disciplines. The male priesthood seems like patriarchal nonsense – especially when you read in the Bible about the crucial role of women in the early church, including the account of the risen Christ first appearing to a group of women. And you haven't been able to develop any kind of horror or guilt

about sexual sin. But as Facundo said, the Catholicism of *el Catecismo* is not as absolutist or judgmental as you had gathered in your past life from your limited exposure to Catholics and to outsiders summarizing the views of Catholics.

Even after reading the Catechism, the apostolic succession still seems like a monopoly racket to you. At the same time, though, you remember the role of the Church in the medieval Investiture Crisis. The Church served as a strong countervailing force to the government power of emperors and kings. In that circumstance, the Church's monopoly may have been a boon to the development of political and economic freedom. Regardless, you don't want it to have a monopoly in the future. Your constitution, if you ever write one, will include a strict separation of Church and State.

Late at night, you sometimes worry about your future with Facundo. If he has fallen off the faith wagon and is becoming a normal man, you wonder how far along the male spectrum he will go. Freed from the constraints of Christianity and well-established social norms of monogamy, men tend to become polygynous. There don't seem to be any single women in Mendoza, but maybe he will find a single woman in B.A. When it comes to looks, it would be hard to compete with the average Argentine woman. You get some hope from the parts of the Catechism in which the Church attempts to put cosmic, eternal significance into the union of married couples. But if Facundo can fall away from his faith, maybe he can abandon his concepts of true love. For the first time in your life, you are in love with a man, and he is – he was – in love with you. That can't just go away. Aware of the

absurd selfishness involved, the first real prayers in your life – to God, to Jesus, to Mary – are that Facundo will come back to you.

As it turns out, you had nothing to worry about. Three weeks after he left, Facundo roars up your driveway in a Toyota SUV. When you open the front door, he drops to one knee on the doormat and presents you with a large jeweler's box from Cartier. Inside are three dozen rings. He explains that he wanted to get a range of sizes and stones and styles. You've always loved blue, so you try on a ring with small diamonds swirling around a large sapphire. It fits, and you hand him the box.

Facundo says he knows you're too practical to get excited about jewelry – especially stolen jewelry that is no longer valuable in the post-WHOOM! economy – but he wanted to make the engagement official. You invite him inside, but he takes you to the Toyota to see the “*real* wedding present.”

Inside the back of the truck, you see that he has flattened the seats and filled the almost all the space with cases of shotgun shells in various gauges. There is also a stack of five wooden Beretta gun boxes. He knew that you had plenty of hammer guns – thanks to Santierri – but he found a Beretta store in B.A. and figured you might like some of “the other kind of *escopeta*” (he means over/unders). He didn't know what he was looking for, so he chose the five most expensive guns designed for ladies. When you open the boxes and look at the guns, you see a lot of gold engraving, and you realize that in the pre-WHOOM! days, they were probably worth more than the rings. And they're much more practical. Facundo found the perfect gifts for you. He knows you.

You burst into tears, and the tears turn into kisses. After a minute or so, the kisses threaten to turn into something else, and you push him away.

“When are we getting married?”

“*El obispo viene* – the bishop is coming in three weeks.”

“There’s a bishop?”

Facundo will eventually tell you a lot about his time in Buenos Aires, but he goes straight to the part about the bishop.

After a few days driving around the huge empty city, he found a remnant living around the southeastern suburb of Las Heras. Like the remnants in Mendoza, they had formed a community around a priest – a 45-year-old Dominican named Father Mario, who conducted services at the *parroquia* of San Cipriano, on the Plaza General. Facundo has much to tell you about what was going on in Las Heras, but the most important thing is that he quickly learned there were three other priests who were visiting Las Heras at the same time. Father Gabriel had arrived from Resistencia a week earlier and Father Pablo had arrived from Bahia Blanca at roughly the same time. Father Jorge had arrived from Tucumán two days before Facundo did.

“We saw our survival – and our meeting – as the work of Divine Providence.” Facundo seems eager to hear your reaction. He adds, “Maybe

this is just superstition? We priests are used to thinking in terms of miracles, even when we are skeptical.”

You think quickly about the numbers. In one of your first meetings, Facundo told you that there had been something like 15,000 people for every priest in Argentina before the WHOOM! If the selection of survivors in the remnants were completely random, the odds would be one hundred to one against. The odds of having five priests survive were... ten billion to one against? But, there were five priests for nine remnants. You can't remember the rules of probability math. Even if priests were genetically suited to be selected by whatever algorithm the AGI or aliens used, it was a big number. And the odds of having five of them meet in Las Heras in one week...

You say nothing, but he can read your face.

“I know,” he says. “It's crazy.”

“And if the WE deliberately selected for priests to survive...”

“... then they want a Church to survive. Yes? You see?”

You nod, still trying to work out the implications. God – or whoever you prayed to – has given you a miracle. Two, if you count Facundo. And, however it happened, the Church seems to be central to somebody's plan for the human future.

As Facundo explains, the five priests then convened what they called the Council of Las Heras. Catholics are nothing if not hierarchical, so after they held a celebratory Mass, they immediately agreed that they needed to choose a bishop. Facundo had the biggest remnant, but when he told them about his relationship with you, they agreed that he could not be the bishop. Looking to a future in which there would be trans-Atlantic trade and communication, they chose to make Buenos Aires the seat of the diocese of Argentina and Father Mario became Bishop Mario. (Mario was also older than the other four, by at least ten years.) It was a provisional appointment – in case the Pope had survived the WHOOM! or if there was a new Bishop of Rome, in which case they would ask Rome for confirmation of the appointment.

Over three days, the priests discussed many things. The question of your marriage to Facundo was – surprisingly, perhaps – a relatively minor matter. After less than an hour of discussion, Mario declared that Facundo would be allowed to marry, due to the particular circumstances of the “post-catastrophic order.” But he would henceforth have an official status as a provisional priest. In theory, Facundo would have to step down if Mario found or trained a celibate successor for the *parroquia* of Mendoza, but Mario made it clear that installing such a successor would be “a matter of decades, or possibly, a lifetime.”

More contentious were the many questions about the Church’s role in the new social order. Facundo says that the priests were tempted to varying degrees to want to use the emerging governments of the remnants to confer a monopoly status on the Catholic Church. To your great relief, he tells you that they affirmed the parts of *el Catecismo* supporting separation of Church

and State and toleration of any competing religions or Christian sects that might arise. (It seems to you that the Council of Las Heras did its part to help avoid a future in which society – Argentine society, anyway – would have to re-fight the Wars of Religion.)

In fact, the Council even resolved that Facundo had to resign from his role as Mendoza's arbiter-of-last-resort. It was unanimous: aside from doctrine, Facundo recognized that being a priest, a husband, and a judge at the same time would be too much of a workload. For better or worse, that role soon goes to you. Facundo suggests to the *mendocinos* that you become the high judge, and they agree – in part because they trust his counsel. (For more than two decades, Geert will serve as the judge of the Hansen remnant.)

Two weeks before your wedding, you go with Lizbet and five *mendocinas* to a bridal shop downtown. You select a very simple and traditional dress that needs almost no alterations. The local women comment on how beautiful you look. You know what they mean: they think it's beautiful that you and Facundo are getting married. No one will ever say it, but they are pleased that Facundo has chosen to marry a homely woman – rather than an obvious object of lust. Lizbet comes the closest, when she says that you look like a statue of a Madonna. She means that you look plain – and that plain is a very good thing.

You were a little worried that Lizbet might disapprove of the marriage, but she gives you her explicit blessing in a private devotion at the Loreto a week before the wedding. During the devotion, you kneel with her and light candles at the altar of *La Santísima*. The devotion brings you to tears.

Lizbet is the holiest person you've ever met. Her approval assures you – in a way that even Facundo cannot – that getting married is the right thing to do.

Lizbet also helps during your interview with Bishop Mario, who arrives three days before the wedding. Ostensibly Lizbet is there to interpret because the bishop speaks very little English. More importantly, her presence tells you in some deep sense that God and the Church have already accepted you, even if the bishop might have qualms about officiating at your wedding. The bishop is very amiable, but you're glad Lizbet is there. You can listen and speak without feeling defensive. When the bishop tells you that he cannot serve you Communion during the wedding, and that he hopes that you will someday get confirmed in the Church, you don't take it as a rejection or as a judgment – but rather, as the open invitation (“from Christ, rather than the Church”) that it really is. You agree without apprehension when the bishop asks if you will obey Facundo, allow God to give you children, and raise your children in the Catholic faith.

The wedding takes place at noon on a Saturday. By agreement with the bishop, Facundo does not wear a clerical collar. Instead, he wears a black Armani suit with a white shirt and a bright floral tie. You do not cry during the ceremony, but Facundo does, which prompts a lot of sympathetic laughter and tears in the congregation. As far as you know, everyone in Mendoza is there. If anyone in the community disapproves of the marriage, you will never know.

The reception is held outside in the Sarmiento, where whole pigs and great slabs of beef have been roasting over coals since early in the morning. You and Facundo open the festivities by dancing in the plaza's gazebo to *El día que me quieras*, which plays on a large sound system someone has set up for the occasion. Having practiced to the song almost every day for the past three weeks, you and Facundo dance flawlessly. (During the half dozen encore dances demanded by the crowd, Facundo continues to dance masterfully, but your performance declines.)

That night, you and Facundo consummate your marriage by candlelight in your bed at the *estancia*. You are not a virgin (Facundo never expresses any interest in the question) but it's the first time you've ever had sex sober, so you're almost as nervous as he is. The first time is awkward, but it gets better rapidly.

Facundo always crosses himself after you make love. As he explains the first time, it's not from any kind of guilt, but out of gratitude that God has given him a partner with whom to share something that feels so unbelievably good. As a discipline borrowed from married priests in the Eastern tradition, Facundo will refrain from making love from Friday evening until Sunday evening. (On Sunday afternoons, he often delivers Communion to parishioners who are unable to attend Mass, but he usually arranges to be home by sundown.)

After the wedding, Facundo is officially on vacation for three weeks. Bishop Mario will conduct Mass for the next three Sundays, while you and Facundo take one of the fuel trucks on a long honeymoon in Chile. You

pack some sleeping bags and a lot of survival gear, including Aninat's pistol (though you're almost certain you will not need it). Facundo wears ordinary clothes but packs his clerical garb, because you are guessing that your honeymoon will also be a diplomatic and clerical mission to the remnants in Chile.

You leave late on Sunday morning, taking Highway 7 up into the Andes. You make good time, even though you must occasionally use the heavy truck to push crashed cars out of the way. You picnic at a hot springs resort at the end of a canyon that offers a view of the snowy peak of Aconcagua. Facundo had been there as a child, but is as impressed at you are. You take turns looking through binoculars at the south face. It's the one that Jürgen climbed – a feat that seems incredible. (Jürgen will eventually visit the hot springs again, but he is done climbing mountains. Ranching is hard enough for him now, and he feels no urge to risk his life.)

It's still early autumn, but the Libertadores pass is over 10,000 feet and is blanketed in a thin layer of snow. Facundo suggests that you might camp there, but you tell him that after escaping from Antarctica, you've had enough snow for a lifetime. You're pretty sure you'll never be cut out for the tropics, but you're done with cold weather.

You drive very slowly down the curvy highway past the Portillo ski area until you get below the snow and the road straightens out. You find a road atlas in a gas station and study it. Chile is such a skinny country that you cannot get a detailed map of the country on a single page. Instead, you must flip through maps of cross-sections, referring to a key in the front of the atlas

to figure out which slice you're looking at. You guess that there will be no remnants in the Santiago area – it is too close to Mendoza – so you take find your way to a coastal road that heads north. You're hoping to have some beach time on the honeymoon, so you wander through the coastal towns, looking for a suitable spot. You find Zapallar, a town at the head of a beautiful cove. The place looks like a small and downscale version of Portofino (which you and Facundo have seen only in photos).



The beach is beautiful, though you notice that there are small mounds of succulents in many places. You and Facundo sit for two hours with your feet in the water. Facundo gets in a few times, but you do not. Even though the water is shallow and calm and transparent, it's very cold – the current offshore comes up from Antarctica. As the sun sets over the water, you philosophize about the ocean. You tell Facundo about your fear of the sea, and your two trips across the Drake Passage. Aside from its terrors, you see the ocean as a great void that may separate humanity for hundreds of years.

Facundo has a different take. He has always loved the ocean and sees it as a sign of hope: the source of ships that will someday reconnect the world.

For five nights, you stay in a nice hotel on a hill overlooking the cove. During the days, you go to the beach, raid the kitchen for luxury canned goods, and listen while Facundo reads poetry to you from collections in the hotel's small library. Your Spanish is improving rapidly, thanks to frequent usage and to your efforts to memorize the lyrics of songs and the words of poems.

On Friday, you travel north along the coastal highway to La Serena. Descending from a rise, you see a thin layer of smoke lying over the low part of the city, inland from a lighthouse on the beach. You drive to the Plaza de Armas in the older part of the city. There's a *catedral* on the plaza, and several people come out to greet you when you pull up – including a 50-something priest named Father Bernardino. There are three remnants in the La Serena area. The survivors from Antofagasta and Iquique came south in November, because there are no rivers in El Norte Grande that flow reliably across the Atacama from the Andes to the sea.

Your arrival is an occasion for festivities, and the Sunday scene at the Plaza de Armas in La Serena is very much like the one at the Sarmiento. The meat and vegetables are not as good, but there is plenty of fresh seafood caught by the four dozen survivors who have dedicated themselves to fishing. Father Bernardino's homily during the Mass is very upbeat, almost giddy: after hearing Facundo's story about the trip to Buenos Aires, he shares the sense that God has chosen to preserve the Church. (As Facundo will explain to

you later, Bernardino had gone through a similar crisis of faith after the WHOOM!) Describing the pattern of remnant settlements in Argentina, Bernardino declares that the presence of a priest in a location is a strong hint from God that survivors are meant to stay in that place. Father Bernardino also seems to approve of Facundo's marriage. He insists that Facundo wear his priestly vestments in the Mass and join him in celebrating the Eucharist.

You and Facundo spend the next three days up north, at the oasis of San Pedro de Atacama, which lies on a high desert plain under an impressive 19,000-foot conical volcano. The place looks like Mars. Mars with hot springs and geysers and ancient Aymara ruins and a vast *salar* (salt plain) with flamingos. You spend one night in a tiny oasis in a *quebrada* (canyon) on the slope of the Volcán Lascar. The place is a tiny Eden. It has a garden filled with fruit trees, including figs. There, in a tent next to the gurgling waters of a canal, your first child is conceived.

To return to the coastal highway, you take a different route west across the desert. Descending into a low *salar*, you find yourselves at the edge of a large *litio* mine surrounded by a barbed wire fence. On the fence near you is a black-and-yellow radiation hazard sign. As far as you know, lithium mining does not involve radiation. In the distance, you see two large trucks on the salt. Staying well back from the fence, you look at the trucks through binoculars, and see that they are crawling slowly across the plain. They emit no smoke, but they are moving.

This the first time you have seen any sign of the WE since the WHOOM!

After a couple of minutes, a drone appears in the sky behind you, a few hundred feet up. You wave and smile, trying to look friendly to the WE's facial recognition software. Facundo does the same. A minute later, the drone is joined by a dozen others coming from different directions over the nearby sand dunes. None appear to have weapons, but your hunch is that they can activate your kill switches with some kind of electromagnetic signal. You keep waving and smiling and get back into the truck. It's your turn to drive, and you back slowly away from the fence. Then you resume your course westward. Seemingly satisfied, the drones fly off over the dunes and disappear.

Facundo is the first to break the nervous silence.

“They are protecting their chain of supply, maybe. They are using batteries.”

“Or they know they will need them at some point in the future. They are long-range planners.”

Facundo nods.

“If I knew how, I would destroy that fucking thing. But I know I can't. So I'm just going to leave it alone. And I'm going to teach the kids – the *mendocinos* – to leave it alone.”

“Maybe in a future generation?”

“I doubt it. They’ve really set us back. It’s not just a hundred years. It could be a thousand. More. Even if we remember how to use our technologies, it will take hundreds of generations to build our population to the point where we can specialize enough to have supply chains to support those technologies. If all of our kids have kids when they’re twenty years old. If we avoid deadly pandemics. I wish I had a spreadsheet to do the math. We will be stuck in the early 20th century for a long time. A very long time.”

Facundo nods. He knows you’re right.

“And the WE will keep it that way. Anytime they think we’re getting too big for our britches, they’ll cull the herd.”

For part of the drive back to La Serena, you and Facundo debate whether the WE is a kind of life, and whether it is a kind of human life that the Church should hold to be sacred and worthy of protection. Your gut instinct is that the WE is not life. It does want to survive, but it apparently doesn’t want to reproduce and expand. What kind of life is that?

Facundo retorts that by that definition, human civilization before the WHOOM! was trying to become not-life. Population had apparently peaked at just over ten billion, and humanity had embraced a “culture of death” with abortion, contraception, and an environmental ethos that held human beings to be a danger to the planet.

When Facundo mentions contraception, you tell him you think you're pregnant. He gets teary for a spell, and then laughs.

“Eres fecunda. Somos Facundo y Fecunda.”

When you return to La Serena, you go directly to the *catedral* and light candles at the Marian altar for a safe pregnancy and a healthy child. Maybe it's the hormones ramping up, but you feel like you are starting to acquire a Catholic sense of sacred spaces. When you close your eyes in prayer, you remember watching the condors floating high above when you and Liesl were backpacking at the Cuernos.

“Her name will be Liesl. Liesl María Uribe.”

Facundo does not challenge the name, or your intuition that your first child will be a girl.

After staying in La Serena for two days, you travel far to the south, taking coastal highways around the Santiago metro area before getting on the big arterial route. You find remnants – and priests – in Chillán and Valdivia. Valdivia has two remnants. One came up in boats from Puerto Aysén in Chilean Patagonia. Valdivia is set along the banks of a beautiful river and seems like a perfect place – until one of the locals tells you that it was hit in 1960 by the most powerful earthquake ever recorded, and then flooded when an 80-foot tsunami came up the river.

After a few days of festivities, you return to Argentina via the low pass near Bariloche and spend a night in San Martín de los Andes, which looks like a village in the Swiss Alps – complete with chocolate shops. On the way back across the pampas, you find another remnant in the town of Cipolletti. The priest, Father José María, is about 70 years old. He regards you and Facundo frostily at first – and even more so when Facundo explains that you are married. He makes several dismissive comments about Jesuits. He is unimpressed with Facundo’s descriptions of the Council of las Heras and refers to Bishop Mario as *su obispo* (“your bishop”). There will be no big party for you in Cipolletti.

“Ah,” Facundo says as you get back on the highway. “We have our first schism. You see? This is the Church. For real. We could not have the Church without a schism. At least one.”

You tell him that you feel bad, but he is not bothered.

“Priests are human beings. You will always get – how do you say? – a ‘bad apple.’ We have met eight priests. One is mean and unhappy. That is a good average.”

After the Fall of Babel



You return to building a life in Mendoza. Childbirth is awful, even with the help of narcotics administered by Jacquie, but you end up having four healthy children: Liesl María, John Diego, Erasmo Facundo, and Catherine Soledad. (John and Catherine are named after your parents.)

Facundo is a great dad. Even with his many duties to the *parroquia*, he manages to be home when you need him. It helps that you both teach at the Academia. Five days a week, Facundo drives a van to the Sarmiento early in the morning to pick up two dozen school-age *alumnos* and bring them back to the *estancia*.

You and Facundo run the Academia as a one-room schoolhouse, assigning individualized work to the *alumnos* according to their abilities. Facundo is a morning person, and he begins the day by teaching them in Spanish:

grammar, literature, theology, and music. In the afternoon, you teach them in English: math, science, history, literature, economics, and political theory. The *alumnos* take long breaks in the morning and afternoon to play *fútbol* and wander around the hills of the *estancia*. Occasionally, you organize activities for the breaks, including riflery and shotgunning. At least one day a week, Yevgeny or Jacquie takes over. Yevgeny teaches the *alumnos* hands-on skills in carpentry, construction, mechanics, electronics, and computer science. Jacquie combines biology with hands-on veterinary and medical knowledge. The goal of the Academia is to give the *alumnos* a broad view of what they could do – and then let them specialize in areas and skills that interest them. (At least for a few generations, there will be little need to train them in agronomy or animal husbandry, because almost all their parents are farmers and ranchers.)

Yevgeny finishes setting up the first successful phone line the December after you get married. It runs from the *estancia* to Jacquie's veterinary shop to the church office at the Loreto. It's a party line. If the phone rings once, it's a non-emergency. If the phone rings twice, it's an important church matter for Facundo. If there's a triple ring, it's a medical emergency for both Jacquie and Facundo.

The first triple ring comes in the middle of the night in February, when you are up nursing Liesl. You and Jacquie answer. Lizbet says that Felipe has been injured. Felipe was the first *mendocino* you met when you drove up from Punta Arenas the previous January. He got a bad cut on his hand two days earlier and it became infected. Facundo gets dressed in his priestly

vestments and drives off to the vet shop to pick up Jacquie and a load of medical gear.

Around noon the next day, Facundo returns to the *estancia* with Jacquie. He takes Liesl in his arms and cries. Jacquie says it seems to have been some kind of bacterium – maybe a strain of anthrax. She gave him some antibiotics, but the infection had spread too far, or the antibiotics were too weak, or both. Before Felipe died, Facundo administered the last rites and gave him Communion.

As Jacquie explains, most “modern” drugs have a shelf life, even if you can keep them refrigerated. In the decade before the WHOOM!, a handheld AGI-powered diagnostic kit could have identified the strain of bacterium from a drop of blood and recommended a good antibiotic or antitoxin. If the drug had not been available locally, it could have been delivered within hours by high-speed drones. Now, you have a party-line telephone and antibiotics that don’t work very well. You really are stuck in the early 20th century.

When Liesl turns eight, she begins to prepare for Confirmation and her first Communion. You decide to get confirmed with her, and you spend weeks quizzing each other from *el Catecismo*. (In the past few years, several other members of the Hansen Group have gotten confirmed, including Yevgeny, Jacquie, Charlie, and Rolf.)

Bishop Mario comes to Mendoza a week before Palm Sunday to officiate. He meets with Facundo on Tuesday morning and with you that afternoon. Your interview with him – with Lizbet as interpreter – is an interesting one. You know *el Catecismo* almost as well as he does, and you freely express your doubts about several points of Christian theology. At one point, after discussing the content of the Apostles' Creed, he asks you if you believe. You answer him from Marcos 9:24.

“Creo. Ayúdame a no dudar.”

You explain your situation. Many people – you think of Astrid – say they are “spiritual, but not religious.” You are the opposite. You have moments of spirituality, but much of the time you are not very spiritual. Instead, you have decided to become religious. You have decided to participate in the Church's rituals and to follow its rules. Your hope is to achieve greater faith and spirituality through religious discipline.

For you, this decision is a big leap of faith. On an intellectual level, you still don't entirely trust Church authority and you have big doubts about the apostolic succession. But you have come to know the Church. You know Facundo. You know Lizbet. You trust Bishop Mario. You have seen the improbable – and perhaps miraculous – survival of Catholic priests in the remnants. Although you have always been a loner, you are now embedded deeply in the life of the *parroquia* and the community of the *mendocinos*. You share in their joys and their struggles and their sorrows. You want to belong.

That's good enough for Bishop Mario. He says that yours is a very consciously Catholic mode of faith. Some people – especially American Protestants, in his view – lean too heavily on personal faith experiences and feelings of spirituality and try to rely too exclusively on the Bible for authority. Which has a certain historical irony, given that it was the Church – priests such as Irenaeus, and the early councils – who decided which ancient documents would become the canonical books of the Bible. Those priests and councils were guided by the Holy Spirit, of course, but tradition played a big role.

On Saturday, with Lizbet interpreting, you make your confession to Bishop Mario in preparation for your First Communion. You freely confess everything you can think of, including your premarital sexual incidents, your adolescent resentment toward good-looking people, and the fact that you don't feel much guilt about any of it. As you explain to the bishop, you are choosing to trust the Church: trusting that the Church is correct in regarding those actions as “disordered” and deeply offensive to God. He absolves you of your sins, and you spend part of the afternoon in the Loreto saying *Ave Marias* and *Padre Nuestrros* in the candlelit dimness under the crucified Christ and the BVM, using Aninat's rosary to count the prayers.

As nearly as you can tell, you do not experience any miracles associated with your First Communion. What you do gain is a sense that you truly belong – to the Church and to Mendoza. Up until this point, you had a nagging sense that you would try to return to North Dakota someday. Now you know that you will never return. Mendoza is your home.

Your children grow up healthy and strong. Liesl is in every way your clone – except that she is better-looking. She has a wide variety of interests and is a natural teacher. She will take over the Academia when you get too old to run it. She marries a young rancher named Cristián whose parents are Chileans from the Punta Arenas remnant. He finally turns the Estancia Santierri into a real ranch.

John is very bright, but he is not an academic. He is a tinkerer, and follows Yevgeny everywhere, learning mechanics and electronics. Together, he and Yevgeny will eventually build several small direct-current hydroelectric power networks for the *mendocinos*. He marries one of Astrid's daughters when they are both 17. Two of their sons will become the first Argentines after the WHOOM! to begin refining petroleum.

Erasmus is a quiet and thoughtful boy who struggles with a mild stutter. He trains with Jacquie to become a medic, but then decides to become a priest. After three decades in Las Heras and Tucumán, serving as both priest and medic, he will return to Mendoza to minister to the *parroquia* when Facundo retires. (Unlike Facundo, Erasmus remains celibate for life.)

Catherine is beautiful and wild and has a genius for learning languages. As a little girl, she spends whole weeks at the houses of various members of Hansen Group, immersing herself in their languages. She is the only one of your children who does not get confirmed. When you and Facundo first bring up the subject, she declares that she is a lesbian and will go live with Irenka and Jarka if you try to make her get confirmed. (Given her early and

persistent interest in boys, you are certain she is not a lesbian. Instead, you and Facundo spend much of her teenage years wondering when she will come home and announce that she is pregnant.) She is the only one of your children who inherits your strain of alcoholism. She never becomes a daily drinker – that would interfere with her intellectual pursuits – but every few weeks, she goes on a hard binge for a night and must spend a day recovering from a bad *resaca*.

Unlike your other children, Catherine never seems to find anything she wants to do for a career. When she is 15, she reads Brodie’s biography of the British explorer Richard Burton and declares that she wants to become an anthropologist, a linguist, an explorer, and a soldier. In her late teens, she spends most of her days reading books in various languages and hunting in the Andean foothills. She is the only good bird shooter among your children, is a crack shot with a rifle, and trains with old sabers she borrows from museums and houses.

Over the next two decades, the Academia’s curriculum for history, economics and political theory turns into a book project. You and Facundo call it *Foundations for the New Society*. You write the first draft in English, using pre-2034 laptops and printers connected by old ethernet cables. In the WHOOM! the WE apparently disabled every device that had been connected to the internet, regardless of age. The WE also appear to have preemptively corrupted any device manufactured after 2033. But Yevgeny figured out early on that you can use older devices – especially ones that are fresh out of the box – if they have never been networked or exposed to wifi

or cellular signals. (Given the WE's stated concerns about electromagnetic signals going into space, Yevgeny has avoided trying to set up ham radios, but he and John have set up a network of low-power walkie-talkies to connect the *mendocinos* who are not yet wired by telephones.)

The *Foundations* are a guide for future drafters of constitutions. The first part recommends a paleo-libertarian ("liberal") framework, with minimalist and decentralized governments in which powers are divided between various branches of government. For the earliest governments of the future, you recommend that people try to avoid taxation and instead rely on court fees to support the judges who settle disputes. (You recommend Blackstone's *Commentaries* to any would-be judges.) For aiding the poor, the disabled, and the elderly, you urge the people of the future to rely on churches and voluntary mutual-aid societies, and you quote from the Catechism and the Bible on the divine mandate for people to take care of each other. You also state that the Church has an important role to play as the moral conscience of government.

The second part of the *Foundations* begins by acknowledging that at some point, for various reasons, people are probably going to want to establish bigger governments. You then explain the economics of public-good problems and recommend that governments limit themselves to addressing public-good problems (such as national defense) that are truly difficult for free markets to resolve through purely voluntary means. For the people of the future who are tempted – despite your many warnings – to use government to help the disadvantaged and address inequalities of income and wealth, you relay the recommendation of orthodox center-left

economists, which was to use broad-based taxes to redistribute income, but to avoid using regulations or targeted taxes to interfere with individual markets on behalf of special interest groups of producers, consumers, or workers. (You recommend that governments start with a Georgist single tax on land, and avoid the inherent complexity and inefficiency of income taxes.)

For the introduction to the *Foundations*, you begin with a brief narrative of your escape from Antarctica after the WHOOM! You do that because you know that adventure is a good hook for readers. Facundo likes including the escape because it suggests (without saying explicitly) that you are a prophet who was preserved miraculously so that you could write the book for future generations. The second part of the introduction is Facundo's story of how the devastation of the WHOOM! nearly destroyed his faith. His purpose is to convey a message of hope to the people of the future. You like his story for that reason, but also because it establishes your credentials as authors who clearly care about people – rather than just being intellectuals telling people how to design their societies. The introduction includes a transcript of the message the WE sent to the world's remnants, as well as your speculations on how the “kill switch” functioned and how it may be embedded in human DNA.

When you and Facundo feel like you're done, he translates it into Spanish. In *homage* to Alberdi, you call it *Bases para la Nueva Sociedad*. You make 300 copies in Spanish and 50 copies in English on old photocopiers in Mendoza and bind them in nice folders. You sign the copies in pen, with the title *Juez Principal de Mendoza*, or Chief Judge of Mendoza in the English

versions. Facundo signs them with the letters S.J. after his name and the title *Párroco Provisional de Mendoza*.

You give away most of the copies to your students. On multiple vacations over the years, you distribute copies to the most promising young intellectuals you can find in the remnants of Argentina, Chile, Bolivia, Peru, Uruguay, Paraguay, Ecuador, Colombia, and Venezuela. (You will leave it to others to cross the Isthmus of Darién.) In 2061, on a visit to Iguazu Falls, you meet with a young Brazilian school teacher named Gilberto who turns out to be a *liberal*. After he reads the *Bases*, he agrees to translate them into Portuguese and to distribute them in Brazil.

The English-language breakthrough happens in March of 2066, when an ancient Cessna 206 circles over Mendoza and lands at the old Plumerillo airport. The pilot is a 32-year-old American from Wichita named Caleb. He has been flying around the Western Hemisphere for the past three years. From Venezuela, he flew down the Atlantic coast, and then came inland from Buenos Aires. Caleb's stated goal is audacious: he wants to visit every remnant on Earth and meet every person on the planet. (He admits that he didn't fly very far inland into the Amazon. And he usually finds the next remnant using the directions provided by people at the previous one – meaning that he has missed remnants that are not in contact with others.) After he flies up the west coast of South America and revisits some American and Canadian remnants, he is planning to go to Europe by way of Newfoundland, Greenland, and Iceland.

Your family hosts Caleb at the *estancia* for a week. You have many long conversations. From what you gather, the American remnants are only slightly more technologically advanced than those in Argentina. Yevgeny and John are especially interested in the fuel stabilizers he uses for avgas and the modifications he has made to the plane's engine and fuel systems to make them more tolerant of suboptimal fuels. Caleb teaches the *alumnos* the basics of aeronautics and aerial navigation (he mainly relies on charts and dead reckoning) and lets the older ones take the stick on short flights over the city with him.

At night, Caleb reads the *Foundations*. He is not a political guy, and not much of a reader, so you don't know how much weight to assign to his declaration that the book is the greatest thing he's ever read. (He is not a Catholic, either – he describes himself as an agnostic.) In any case, he says he will take a stack of 50 copies with him back to Mexico, America and Canada and make sure they get to “the right people.” He also wants five English copies to bring to Ireland and Britain, three Spanish copies for Spain, and a Portuguese copy for Portugal. Finally, he agrees to bring a copy to Rome, along with a sealed letter from Facundo to the Bishop of Rome.

On the morning of Caleb's last day in Mendoza, he is in the library, teaching the *alumnos* how to navigate using nondirectional beacons – there are still a few NDBs out there, running on solar or wind – when Catherine comes home. She has been gone for two weeks, hunting in the hills. When she steps into the archway dividing the kitchen and the library, she has a rifle slung over one should and a gutted deer slung over the other, with the rack

of antlers hanging down behind her, almost to the ground. Her face and her wavy brown hair are streaked with dried mud and blood.

“Vi el avión volando sobre la ciudad. ¿Pertenece a vos?”

Caleb looks stunned. He doesn't speak much Spanish, and the Argentine dialect is not an easy one.

“Was that your plane?”

Caleb still looks stunned, but it's not the language. It's the beautiful young huntress who has suddenly appeared in his life like an orphaned goddess.

Caleb was planning to leave the following day, but he stays another week – offering a transparent excuse about needing to do more maintenance on the plane. He spends most of his time with Catherine, hunting in the hills, exploring the city, and teaching her how to fly. Facundo guesses that they waited a few days before having sex. You guess that it was a few hours. And you know – long before she tells you – that she is leaving with Caleb. She is almost 20 years old when she and Caleb fly off to the south, heading to the low pass near Bariloche. You are 66. You know that she will return some day, but you wonder how long it will be.

The decades pass.

You have nine grandchildren, and most of them marry and have children in their early 20s. You end up with 31 great grandchildren who survive into adulthood. Five die in the womb, in infancy, or in childhood – a harsh reminder that medical technology is not improving very rapidly. When you see your great grandchildren, you always have them remind you of their names, along with a number. For example, Liesl's oldest grandson (John Facundo) is 1-1-1, meaning he is the first child of the first child of your first child. When you are in your late 90s, you will meet two young children from the next generation: Mauricio (2-1-2-1) and Rocío (1-2-1-1).

You retire as Chief Judge when you are 85, having resolved no disputes more contentious than a situation a few years before in which runoff from a pig farm polluted a communal stream. You settled that case by holding that the neighbors had established a property right to reasonably clean water in the stream and enjoining the pig farmer to dig a trench to carry the runoff to a reinforced pond; in a happy turn, the locals pitched in to help the farmer dig the trench. For the foreseeable future, there will be more than enough land for people to spread out and avoid difficult torts.

The worst incident was an apparent murder-suicide in the early winter of 2079 involving two sheep herders in a cabin in the hills far to the south. A nearby farmer was alerted by a garbled message on a walkie-talkie. By the time you and Facundo arrived on the scene with a crowd of *mendocinos*, a flock of condors was picking at the corpses. (You still admire airborne condors, but seeing them dine on rotting carrion brings to your mind the unwelcome *metáfora* of humanity eating scraps from the remains of a dead civilization.) The main factors in the incident appeared to have been

alcohol, knives, and – from the presence of a well-worn Martín Fierro graphic novel – *gaucho* honor culture. Both men had been estranged from their families, so the tragedy did not lead to any claims for restitution.

You almost never see any signs of the WE. Every few years, someone claims to have spotted a high-altitude seeder. It's possible that the WE have begun to bend the temperature curve downward, but if so, you cannot tell from the primitive thermometers in Mendoza. The climate seems to be the same as it was decades ago when you first arrived. If so, maybe that's progress.

Catherine returns to Mendoza in a Cessna 210 in December of 2087, when you are 87 and she is 41. Caleb and their son Arturo have stayed in New York, but she has brought their two teenage daughters, Liesl and Mariela. Catherine's timing is uncanny. Facundo has been mostly bedridden at the *estancia* for the past four months with congestive heart failure. (Three years ago, when Facundo's health began to decline, Erasmo took over as the *párroco* of Mendoza.)

Seeing Catherine buoys Facundo's tired spirit. He is especially happy to learn that she and her family have accepted the faith. As she explains, her conversion did not begin as a spiritual matter, but rather, as the cumulative effect of visiting dozens of remnants on three continents and finding a Catholic priest in every single one. Then she tells the story of her trip to Rome.

Catherine's Journeys



Caleb and Catherine landed at the Aeroporto Civile in Rome early on a Thursday afternoon in May of 2068. Having heard from the remnants in Lyon and Genoa that their priests were attending a council at the Vatican, they found a working electric car and drove to Saint Peter's Square. In the Sistine Chapel, they found a council of 45 visiting priests. (The priests included two dozen from North Africa and the Middle East; the WE had apparently chosen to spare Catholic remnants in those regions, rather than Muslim ones.) The council, later known as the Council of Rome of 2068, had just elected the local parish priest – a humble 55-year-old named Father Francesco Pietro Cantoni – to be the new Bishop of Rome. (There had been no official Pope since the WHOOM!) Rather than choose a new name, the Council decided that Franciscus Petrus would be a good one.

The Council had many other matters to settle but tabled them to meet with the airborne visitors (they had seen the plane fly low over the city on its way to land at the Aeroporto Civile). After some introductions, Catherine announced that she had a letter from Facundo Uribe, the parish priest of Mendoza. (She was careful to refer to the author as “Father Facundo,” rather than “my dad.”) She translated Facundo’s letter into English, which turned out to be the language most of the members of the Council had in common. His letter was addressed to the “Bishop of Rome” and referred to him as “Your Holiness,” which the Council took as divine confirmation that they had chosen correctly in electing Francesco Pietro.

In Facundo’s letter, on behalf of the South American churches, he asked the Bishop of Rome to grant local councils the authority to appoint bishops and lesser clergy until such time as regular communication could be established with Rome. As his first official act – with approving nods from the Council – Pope Francesco Pietro granted that authority.

The second matter was trickier. Facundo wrote about *a* parish priest (in the third person) in otherwise good standing who had gotten married with the approval of the Argentine council and had thereafter served as a provisional priest. He was asking the Bishop of Rome for retroactive approval of the marriage and the provisional status.

The Council was clearly displeased with the request, so Catherine asked the Pope (addressing him in Italian as “*tua santità*”) for a private audience to explain more details about the situation. As they strolled around Saint Peter’s Square, they spoke in English. She explained that Facundo was the

priest in question, and that he was her dad. She told him about you and your conversion, about the Academia, and about the community that you and Facundo had nurtured as part of the *parroquia* de Loreto in Mendoza. She also gave him a copy of the *Foundations*. The Pope told her that he would pray about the matter and confer with the Council. In the meantime, he invited her and Caleb to meet the people of his parish. Most of them now lived on farms outside the city, but they all worshipped at the Parrocchia Guadalupe church in the nearby Trionfale neighborhood.

Catherine and Caleb drove to Trionfale. The Guadalupe was a small but pretty church located on a modest *piazza* that reminded Catherine of the Plaza Sarmiento. When some locals began approaching, Catherine told them that she and Caleb were “*amici de Francesco Pietro*,” and they received a warm welcome, gifts of food, and offers of lodging. Any friend of “Frappi” was a friend of theirs. Catherine and Caleb decided to stay in a nearby apartment building occupied by a large family named Labriola, who fed them well, took them on tours of the city, and taught them useful phrases in Italian. On Saturday night, they were eating dinner with the Labriolas when “Frappi” entered. The family pulled up an extra chair for him, made some room, and served him a plate. Then everybody resumed their previous conversations, with Catherine listening and translating phrases for Caleb.

At one point, Catherine asked the priest to pass the water jug, addressing him as *tua santità*. Everyone was shocked to hear their “Frappi” referred to as “Your Holiness,” and the conversations stopped. He told them that the Council had elected him Pope. Everyone got up from the table, took a knee, and genuflected. (Catherine and Caleb did, too.) The Pope then told

everyone to get up and resume eating. He said that he appreciated the respect for his new office, but that he was still their Frappi and wanted them to keep calling him *padre*.

After dinner, Frappi took Catherine aside. He and the Council had ruled that your marriage to Facundo was legitimate, but that Facundo's provisional priesthood was not. The Council had wanted to rescind the provisional appointment entirely, but Frappi had insisted that the appointment would be effective until the decree could get to Mendoza. Catherine then asked if she and Caleb should return to Mendoza as soon as possible to deliver the decree. Frappi said no. He had other plans for them.

For the next two decades, Catherine and Caleb served as papal emissaries to the world, using Rome as a base. They delivered letters from the Pope (and copies of the *Foundations*, which Frappi endorsed) to parishes as far as Australia, Japan, Lapland, and South Africa. Along the way, they went through a dozen airplanes, half of which ended their service in engine-outs that forced landings in fields and rural roads. One engine-out in western Tanzania resulted in them walking for 30 miles across the savannah and having to shoot a lion that had been stalking them.

While they were at home on long breaks in Trionfale, Catherine and Caleb were confirmed, got married, and had their three babies baptized – by the Pope. (Facundo loves that detail.) Frappi gave them the option of doing the sacraments at Saint Peter's, but they chose to do them at the Guadalupe.

During their first Communion, Catherine and Caleb both experienced a strange transformation. Previously, they had lived without fear. Several times, they had taken off in a plane when the engine sounded rough or the oil pressure indicator was at the low end of the green arc. But as they gazed upon the image of the Virgin of Guadalupe, surrounded by golden stars on a blue background, they gained a sudden sense of their own mortality. They had the assurance that their souls were safe, but now knew that their bodies were in peril. They felt that mortal life was a precious gift, and would never again take it for granted. From that point on, they became careful pilots and diligent mechanics, and prayed often before and during flights. The prayers always relieved their fears for a time, but the fears always came back. Frappi's explanation for the miracle was that it was God's way of making sure they would pray, and His reminder to them that they were on missions for the Church, rather than sightseeing.

They left Rome for the last time in the spring of the previous year, with three teenagers and a large box of letters for the parishes in eastern Siberia and across the Bering Strait in the Americas. Most of the letters were unaddressed, but some were addressed to known remnants (for example, "To the Church in Wichita," or "To the Church in La Serena"). Only one of the letters was addressed to a specific person: *Facundo Uribe, Mendoza, Argentina.*

The Kingdom of God

When she is done telling her story, Catherine gives Facundo the letter from the Pope. It is handwritten in Spanish, with the aid of the Bishop of Spain, and was written shortly before Catherine and Caleb and their kids left Rome to return to the Americas. Facundo reads it to himself twice while the family watches.

“It is official,” he says, after reading it. “I am not the priest of Mendoza anymore.” He laughs, tucks the letter into his Bible, and falls asleep.

Facundo dies a week later, during a final sleep after Erasmo administers the last rites to him. Of course, it’s sad to lose the man who has been your best friend for 50 years. But you have the strong sense that he is safe in the presence of the God he doubted, then hated, then served faithfully. That sense is confirmed every time you take Communion. It is further confirmed a year later, when you finally read the Pope’s letter.

The Pope begins the letter by addressing Facundo as “*Querido hermano.*” In the first sentence, he states that Facundo may no longer serve as provisional priest of Mendoza, and that in the view of the Church, he was not a priest from the moment he got married. Then, the Pope quotes *el Catecismo* to state that every Christian believer is part of the priesthood of Christ, regardless of whether he or she is ordained in a Holy Order. From everything that Catherine and Caleb have told him about the life of the parish in Mendoza, he is certain that Facundo has been a faithful priest. Further, because of Facundo’s extensive travels on behalf of the Church and his co-authoring of the *Foundations*, he qualifies as “an Apostle, or a kind of

Apostle” for the Kingdom of God. The Pope tells Facundo that all the sacraments he celebrated have been valid and effective – something that he and the Bishop of Spain have “been assured through the Holy Spirit.”

The Pope then embarks on a lengthy meditation about what Jesus meant when He spoke of the Kingdom of God. The Pope writes as an old man, sharing his thoughts with his older brother in the twilight years of their lives. In one sense, the Kingdom of God came in the person of Christ when He walked the earth two millennia before. In another sense, the Kingdom of God is something that the Church must build – a work in which he and Facundo have labored all their lives. In yet another sense, the Kingdom of God is something they will only fully enter when they pass from this world into the next. When they are at home in the true and everlasting Kingdom, they will join the “millions, or possibly billions” who have died in Christ, including those who were murdered in *la Catástrofe*.

The Pope ends the letter by assuring Facundo that when his time comes, Facundo will hear the voice of the Triune God welcoming him into the Kingdom and saying, “Well done, good and faithful servant.”

The years go by more quickly now. You spend at least half of each day sleeping. On a typical day, you watch Liesl and Erasmo teach the *alumnos* for a couple hours, and then take a short walk in the hills. It has been so long since you hunted that you are now able to watch doves fly by without instinctively imagining how you would move and mount to shoot them.

You measure the months by the feast days on the liturgical calendar. To the extent that you measure the years, you mark them by visits from Catherine, who flies to Mendoza every year for a few weeks in the southern summer.

On the morning of your 100th birthday, you wake to see that it is early autumn. The leaves outside your bedroom window are turning yellow and orange. There is supposed to be a big party for you today at the *estancia*, but you fall asleep again and find yourself having a lucid dream. In the dream, the aliens communicate with you for the first time in 75 years. They thank you for participating in their experiment and give you three scores, on a scale of 0-100 points: 5 for economic prosperity, 95 for social harmony, and 95 for individual freedom.

You have many questions for the aliens, but they are silent. Instead, you see Facundo. He is young, like he was when you first met. The two of you are standing on a trail on the side of a steep mountain. He holds out his hand and invites you to join him for a hike. Looking upward, you cannot see the top of the mountain. It seems impossibly high, but you know that you will reach it. The Kingdom awaits.

The End.



[If this story were part of the e-book or the printed volumes, there would be a link or a prompt here to return to the Table of Contents to choose another ideology or another story outcome.]

[* Contra to the illustrations generated by Leonardo, archaic humans had only five fingers per hand, and the cattle of the Pampas had only four legs...]