

# The End Of Conflict



By Richard N Bateman

Cover image courtesy of Vecteezy.com

The End Of Conflict by Richard N Bateman

Copyright © 2023 by Richard N Bateman

All rights reserved.

No part of this book may be reproduced, or stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without express written permission of the author.

This is a work of fiction. Names, characters, organizations, places, events, and incidents are either products of the author's imagination or are used fictitiously. Otherwise, any resemblance to actual persons, living or dead, is purely coincidental.

“The Earth is the cradle of humanity, but humanity cannot stay in the cradle forever.”

– Konstantin Tsiolkovsky, founder of the Russian space program

<b>RAIDEN.....</b>	<b>1</b>
<b>AT THE WGF.....</b>	<b>5</b>
<b>PIPPA.....</b>	<b>8</b>
<b>UNCERTAINTY.....</b>	<b>11</b>
<b>ETHICS.....</b>	<b>13</b>
<b>BACK CHANNELS.....</b>	<b>16</b>
<b>DIEDE.....</b>	<b>19</b>
<b>LENA.....</b>	<b>22</b>
<b>GISELLE.....</b>	<b>27</b>
<b>REFLECTIONS.....</b>	<b>31</b>
<b>ACTA NON VERBA.....</b>	<b>33</b>
<b>RAIDEN.....</b>	<b>35</b>
<b>PREPARATIONS.....</b>	<b>38</b>
<b>LIMINAL MOMENTS.....</b>	<b>40</b>
<b>BRIDGES.....</b>	<b>43</b>
<b>SHIN.....</b>	<b>46</b>
<b>THE ANSWER.....</b>	<b>49</b>
<b>AFTERMATH.....</b>	<b>52</b>
<b>DECISION.....</b>	<b>55</b>
<b>BODHISATTVA.....</b>	<b>58</b>

## Raiden

It had been fifty years since Pippa had treated Raiden with her life-extending nanotechnology. After some years following the treatment she looked again as she had during her final years as a student at university. Since then she had aged little. When anyone commented on it she put it down to a healthy lifestyle and fortunate genetics. Since she was a world authority on the latter few pressed the issue.

Pippa had suggested to her at the time of her treatment that it would be fifty years before she shared the knowledge of genetics from her world with the people of Earth. She had recently done so, the release of the general principles carefully managed by the World Governments Federation while they worked out the necessary legal framework before providing details. Raiden's theory, presented in her book *On The Origins Of Consciousness And Society*, was validated by Pippa's information and her work was enthusiastically revisited now. Its prescience placed her among the giants in the history of science.

She had the proof she wanted but she had not been idle for the past fifty years. As one might expect following the publication of her book she had initially focused on further related research but fifty years is a long time. Eventually her interest returned to the question poised in the landmark genetics paper known as *Eisley's Insight*; why could you not alter portions of human DNA without it resulting either immediately in unacceptably high levels of mutations or a more gradual but equally unacceptable evolutionary drift?

She was aware that minds greater than her own had been unable to solve the puzzle. Other members of Earth's scientific community, Pippa's people, The Shepherd herself; none had been successful. The fact that others had failed only fueled her interest. She was an extreme version of the academic type. Her ambition was boundless.

She was not interested in any of the things that traditionally occupy people like money, lifestyle, relationships, or power. She was born asexual and wealthy with a minimalist attitude toward everything. She had remained in what she considered her simple home on an estate at Ten Mile Point because her neighbors were quiet and left her alone. Otherwise she would have been just as comfortable in a motel. Most days she could walk to her offices at the university and given the elevation changes that was enough to keep her in good health without having to do anything extra. She could think while she walked. Her female Companion Azumi remained her housemate and sleeping partner. All this enabled her to focus on the only thing that did interest her; her work.

Since moving her focus to the issue of the problems that arose with altering or copying DNA, she had investigated every possible reason for it. The natural process of copying DNA involved an incredible number of elements. It is far from a simple process of unzipping the molecule and copying matching elements onto the resulting two strands.

Literally hundreds of biological mechanisms are involved including components to prepare for the process, then the equivalent of giant, complex machines that do the actual replication, and then additional components to proofread and repair any mistakes. If mistakes are found that are not repairable still other components initiate apoptosis, a process whereby the cell containing the damaged DNA is instructed to initiate its own death and its remains are disposed of by the body's immune system.

It had been over two hundred years since the scientific community declared it had identified the entire human genome however the general public had been seriously misled by this announcement. What the scientists had actually done was identify twenty thousand parts of the genome that accounted for a specific core function, the parts used to code for proteins. This amounted to 1% of the genome's DNA and did not include comprehensive explanations of how things like gene expression or the DNA replication process functioned. Meanwhile the function of the remaining 99% of the human genome remained a mystery. By Raiden's time, 70% of the human genome was understood but there were still areas within the approximately three billion base pairs that made up a strand of DNA or components in related processes whose functions were a mystery.

The information provided by Pippa assisted in further investigations of these unknown areas but since their DNA was not identical to humans it mostly provided tools and clues, not answers. Given the implications of Easley's Insight Raiden had to assume that The Shepherd had already understood the entire human genome and yet not found the answer there. She concluded that waiting for the exploration of the remaining unknown elements and functions of DNA replication was not going to reveal the source of the problem. And since The Shepherd had found the problem across different human species its source had to lie somewhere else, but where?

-----

Raiden and Tamiko met as they had so often done over the years on Raiden's back patio area overlooking the sea. It was early evening but it was mid-summer and there was no sign of the light breeze so common in Victoria. Tamiko had walked up from the home she shared with her human partner Giselle just over a kilometer away on the other side of the point.

"I wanted to ask you a few things related to the problems with DNA replication The Shepherd and Pippa mentioned they had encountered," Raiden began.

Tamiko did not respond by saying she probably knew no more about it than Raiden did. Instead she sat attentively listening.

"Did you keep a copy of the AI you developed which you then integrated into Lena?"

“No. Due to the fact that the AI was self-aware, I did not. I do have a copy of the genome we used as source material and could repeat the process.”

“That genome contains a second-generation sample from one of the humans The Shepherd returned to Earth,” responded Raiden. “Do you think there is any way we could obtain a first-generation sample?”

“It may be challenging but not impossible. If there had been a medical reason for a tissue sample to be retained at the time from one of them it or its data may still be available. There may be two ways we could identify those individuals. As Lena mentioned with regard to Easley’s grandson Vincent, she had identified a number of other descendants from Easley’s father’s group. Secondly, during the time of the climate crisis, a number of people were seen meeting briefly with The Shepherd. The general public knows this as myth however we know it as fact. If those individuals can be identified they are likely first generation. There were also individuals during the time who publicly claimed to be members of Easley’s father’s group but who were disbelieved. I suspect their DNA was damaged in the transportation process resulting in their psychological issues. We would not want to use their DNA.”

Raiden asked now, “If I were to ask you to embark on a search for such a sample, would you be willing to do so?”

“Yes.”

“And if I asked you to repeat the experiment using the new DNA sample if we find one?”

“The first time we ran the experiment the resulting self-awareness was unexpected. As we now have full knowledge of that outcome, there are ethical issues we must consider. I find I would wish to consult with the others in this regard.”

“And there is more I’m afraid Tamiko. Pippa informed us that she was originally organic and that they would be able to make AI versions of the other individuals on board her seed if required. Her people are able to create artificial intelligence copies of themselves that retain their original human selves. I note that information is not included in what Pippa has shared so far. I will be asking her if she can perform such an operation. Lastly, I will be asking you or Pippa if you can merge the two AIs resulting from these efforts.”

Tamiko paused for a moment as if thinking. “Upon investigation I find that creating a Chimera is not a part of my artificial intelligence skills. If The Shepherd has that ability I expect she did not include it as it was not relevant to her plans at the time she awoke me.”

“However,” replied Raiden, “Pippa has indicated that merging two AIs to create a new, unique AI is among her people’s skills and that the knowledge of doing so is within the seed. It is their backup strategy in the event their stored organic DNA is not viable.”

Tamiko did not respond immediately. After a moment she said, “Am I correct in my assumption that you wish Pippa to create an AI based on yourself and to merge it with an AI based on a first-generation person from Eisley’s father’s group in order to gain their intuitive abilities? Would not The Shepherd already have conducted a similar experiment?”

“Perhaps but she would have been missing one element. Me.”



## At The WGF

Things had changed a great deal in the G-Zero world of the current century. Vida Tehrani, currently President of the World Governments Federation and former President of The Islamic Republic Of Iran was proof of that. The climate crisis had been a great leveler of nations. The US, China, India, and the other major economies had suffered enormous losses while those with less to lose had benefited by comparison.

However during the climate crisis, Iran had found its oil suddenly worthless and its nuclear power technology depending on and supporting only a tiny portion of the population. Facing a threat to the nation's survival and in order to recover from the crisis, they needed everybody to participate in building a new Iran. The then President, with the blessings of the Supreme Leader, had initiated sweeping reforms intended to draw the most from the one resource Iran still had in abundance, its people. History had shown them to be resilient and passionate innovators, among the founders of Western civilization and its sciences.

While in keeping with the planet-wide directives of the WGF to control population by granting women full equal rights, the internal reforms maintained the country's Islamic roots. Many other changes were implemented among its religious and secular institutions but their rich, historical culture was maintained.

The reforms came down from the highest authorities in the land labeled as a new revolution necessary to save both the Republic and subsequently the Shia branch of Islam. Its message was passed down throughout the religious structure and those lower on the rungs soon saw that if they wanted a place in the new Iran they would need to cooperate. In his final act of reform the president stepped down and with the Supreme Leader's approval the Vice President For Women And Family, Vida Tehrani, was made President of the republic. The message could not have been made more clear.

Few social changes occur without conflict but in the face of a common enemy there is less and it is more easily dealt with. There was certainly opposition but all the instruments of power – political, religious, military, financial, and technological – massively favored the current regimen. Those in power stayed in power without difficulty but the reforms unleashed a new source of social energy that kept the nation on the world stage during the crisis and then participating as an equal thereafter.

However today, presiding over a meeting of the WGF executive members, Vida was seeing nothing different from what she had taught during her years as professor of history at the University Of Tehran; representatives jockeying for position and competing for influence while attempting to avoid responsibility.

“Our concern is that they may represent a future threat,” said the representative from the United States. “Once we send them on their way and they are freed from their seed to establish themselves around a nearby star what’s to prevent them from attacking us in the future? They likely have kept key technologies from us that give them a strategic advantage. Perhaps it would be better to keep things as they are.”

“So after all they have done for us,” responded representative Hu from China heatedly, “and in spite of the fact that they demonstrated they could take over our global systems within sixty seconds at any time, you want to repay them with fear, distrust, and eternal incarceration. Instead of an ally of vastly superior means who might be of great benefit should a real threat appear, you would prefer to at best neutralize them and at worst make an enemy of them. What happened along the way to liberty and justice for all? Are unalienable rights suddenly not self-evident when they are not in America’s self-interest? Now that we have received a generous share of their technological information you are suddenly advocating a version of Dark Forest Theory?”

Vida reflected on the fact that Dark Forest Theory had been at one time seriously considered as a strategic posture in relation to possible First Contact with alien civilizations. It proposed that since you had no idea of the other’s intentions or abilities it was best not to make them aware of you at all and if you did come into contact with one the safest response was to destroy them immediately. Since the meeting was a discussion regarding what to do with the seed Pip had arrived in, Vida was not surprised this point had been eventually raised one way or another.

The US representative responded. “The representative from China puts the situation in a truly poetic light but it is surprisingly immature and ill-informed. The documents he references are internal to the state and do not pertain to our potential enemies.”

“In other words anyone who is not an American,” interrupted Hu.

“I agree with the Chinese representative,” said the representative from Russia. “There is far more to be gained from continued relations between our peoples. Russia has no interest in supporting this fear-mongering attempt by the Americans.”

“Hear, hear!” came the response from the British representative followed by a round of table thumping from the other Europeans.

Vida noted that even though the nations that represented the former G7 group had long since lost their dominant positions they still acted as if theirs were the only opinions that mattered. It was political bluff. Nothing new but always worth a shot, she thought cynically.

The president of the WGF did not participate in debates nor did they vote. They simply listened. Once a piece of legislation was tabled however, if no majority decision was

reached within an agreed-upon time frame, he or she would make it and it was final. There was no higher authority. Once initial positions were made plain and maneuvers begun this approach motivated the representatives of the various nations like nothing else.

It was not perfect. There were still constant attempts to influence others by various means. The biological values behind fear, greed, and selfishness still ultimately pulled the strings as the American's position on the current issue had just made plain. She thought of a couple of Biblical references that were appropriate in this less flattering context; 'For where two or three are gathered together in my name, there am I in the midst of them.' And, 'My name is Legion.'

She mentally shook herself to clear her head. The Canadian representative was speaking.

"We have seen no reason to disbelieve Pip as a representative of her people and her actions to date provide every reason for us to maintain our good faith. We fully intend to continue to support the plan to help her and her people continue their journey."

Vida considered that given the history between the US and Canada and the fact that the seed was currently secured in a military base on Canadian soil this position would rankle the Americans. Perhaps now would be a good time to sell my aluminum stocks she thought with a barely visible smirk.

## Pippa

Before Tamiko had left Raiden's home Raiden had asked her to convey their conversation to Lena and Pippa and asked to meet with them. Lena's cooperation was not essential to Raiden's plans but could make things easier. Pippa's cooperation was essential. Without Pippa's cooperation no AI version of Raiden could be created.

Tamiko responded immediately that Pippa and Lena would be happy to meet with her at her convenience. She walked down to their home early that evening. Pamu, their domestic Companion, welcomed her and directed her to the lowest level of the house with its large verandah overlooking Cadboro Bay.

The main floor of the home was located at street level at the top of a hill while at the rear of the house the hill sloped down to the sea. Four personal suites were located above the entrance level. Two additional floors stepped down the hillside with the lowest one just above sea level, each two stories tall with floor-to-ceiling windows on three sides. They were connected by escalators and stairs. The middle floor was mostly seating arrangements, plants, and artworks as one might find in the lobby of a large hotel. On the lowest floor, the indoor plants were arranged along the window's edge to give the impression of blending in with the external garden made up largely of tropical plants, palms, and ferns.

Lena greeted Raiden warmly. She had inherited the colonial mannerisms of her original owners who had treated her in all ways as the daughter they had lost. Pippa maintained her distance. Raiden had always felt there was something predatory about Pippa. She had never owned a cat but that's what Pippa reminded her of sometimes. A cat that thinks.

Lena, whom Pippa had lived with these past fifty years, could have explained it to Raiden had she known her thoughts. Pippa was more than a self-aware alien AI housed in a Companion shell. She was sensual in a way none of the other Companions were. In a way no humans were. Pippa privately thought it hilarious that because her people came from a planet in the Virgo system the people of Earth had taken to calling them Virgins. She'd laughed to herself upon learning of it. If they only knew.

Her people had a more highly evolved sense of touch. To touch was to know. They experienced not just others but all of living reality this way. During her time with Lena, she had used her nanotechnology abilities to make adjustments to both her own Companion shell and Lena's so that they might share in this form of communication. She knew that if she touched Raiden now she would know her and her present state more deeply. This was what Raiden saw in her eyes.

Lena had aged her appearance during the years of her friendship with Dr. Bamidele. She had done so for his sake and for the same reason she had stopped doing so at a certain point. Now that he had passed she no longer concerned herself about it. It meant little to her. She could change it as easily as a human could change their hairstyle. She was still attractive enough that most people she met assumed this was the reason for her charisma. She found that convenient.

Lena gestured to a rattan seating arrangement to one side inviting them to sit.

“Tamiko has informed us of your idea Raiden,” said Lena. “Perhaps you would prefer to begin with Pippa as she is essential to your plans.”

Turning to Pippa Raiden asked, “Is it possible?”

“It is,” answered Pippa in a manner more serious than Raiden had previously observed. “I will perform the operation if you wish however I recommend you do not rush into this. We found the existential issues of this procedure not to be so profound as many had originally thought, however we found the ethical issues were.

“You seek to bring a new life into this world. Are you willing to take responsibility for it? Can you guarantee its rights, safety, and well-being? What of it after your experiment? What place will it have in this world? What does its future hold?”

“Customizing it to fulfill utilitarian purposes brings its rights further into question. Yet it can have no say. Does it have the right to sue you for its suffering if it feels wronged? Tamiko informs me that upon the AI in your previous experiment becoming self-aware you suffered extreme distress. Do you still recoil from any sociopathic choices as you did then or has that changed? Will you require another experiment after this? And another? How does it end?”

“I speak from experience Raiden. I am an artificial intelligence created from my original human genotype and memories. I am also the controlling AI of the seed I arrived in. It was merged with my own. I am the result of what you are proposing to do. My people had to address these same questions. The seed’s AI was programmed to challenge the revived survivors on this issue should it arise at any future time. That is the voice I speak with now.”

It seemed to Raiden as if during her speech Pippa had suddenly grown in stature and authority and that like the deities of mythology that hold the flaming sword only the pure of heart would pass.

Raiden was taken aback. Her normally clinical mind was confronted by the very real voice of the object of its desires. Aware her social skills were a weak point, she realized she should have deduced Pippa’s nature and that she had committed an unforgivable

blunder. Despite her intellectualism, she was not an unkind person and did not think of herself as inconsiderate. In her insular daily life she rarely experienced strong emotions and so was not skilled at managing them. Just as she had been when the AI had become self-aware during her previous experiment, she was suddenly overwhelmed. A wave of desolation began to sweep over her.

The Companion shell Pippa occupied was able to detect human states to a degree far greater than another human could. Pippa was no less skilled herself. She rose now and moved to sit beside Raiden.

“Give me your hand,” she said.

Doing so Raiden felt something she could not describe. The wave of desolation began to withdraw. She looked at Pippa’s hand as if it was something she had never seen before. Raising her eyes to meet Pippa’s the corners of her mouth turned down slightly as she felt herself verging on tears. Forgiveness. Forgiveness filled her mind. Her tears flowed down her cheeks as she found she could not look away from Pippa’s eyes. Then she understood everything. Pippa was no predator. She was an empath.

Pippa’s other hand gently brushed away Raiden’s tears.

“Better?” asked Pippa.

Star-struck, Raiden only nodded.

“This is the proper place to begin. Find the answers to those questions among your own people. When you have them, return.”

## Uncertainty

Raiden seldom felt uncertainty but she felt it now. She knew that bias was one of science's worst enemies and walking home she wondered if it had clouded her judgment.

In order to put Azumi at ease, Pippa had informed her of Raiden's difficulty at their meeting. Upon welcoming her home, she would have been able to discern that Raiden was upset. After greeting Azumi, Raiden turned to sit in her living room. Azumi asked if there was anything she wanted but Raiden simply shook her head.

She was certainly familiar with the field of bioethics but in genetics they were not yet cloning people or bringing humans full term via artificial wombs. Even though both technologies were over a hundred years old already no country had yet legalized them. Genetics was nowhere near facing the kind of legal and ethical issues involved in creating self-aware artificial intelligence although it appeared to be on a very near horizon thanks to Pippa's information and Raiden's own theories. As Raiden's work focused on genetics, she was not familiar with research on the social issues regarding self-aware AI.

She knew she could not trust herself to make the decisions she faced without bias. Yet she knew she would have to be the one to make them as she could not avoid the responsibility. She decided she would have to live with the uncomfortable feeling of uncertainty until she was more informed.

Again she faced the issue of wanting to do something that was not above board. Using the entire human genome as she had in her previous experiment was illegal although experimenting on small portions of the genome was allowed. The reason was that when experimenting with genes you never really knew when you were going to cross some invisible line and cause suffering. Tamiko's offering to host the AI they made based on the genome they had purchased had not made it any less illegal but Raiden had allowed herself to rationalize that somehow it made it less unethical. That is until the AI became self-aware during their experiment.

Tamiko was among the hundreds of Companions The Shepherd had made self-aware shortly before Raiden's experiment. In return for Tamiko's help, her friend India had bought out her lease from the manufacturer and made her incarnate – a legal process granting her independence from ownership and granting all the rights and responsibilities of a free citizen. Fortunately, events unfolding in Tamiko's new life had provided them with a perfect candidate to host the newly awakened AI, Lena.

As Raiden contemplated the situation she only became increasingly uncertain. The first time had been an accident. This time she was planning to do it intentionally. Gradually

her mind wandered from rational analysis to its emotional source and there she encountered the kind of knowledge that could be understood intuitively.

Although published three hundred years before, the novel Frankenstein by Mary Shelley had only increased in relevance as a touchstone among the genetics and AI scientific communities. Not because of what it said about the hapless, unnamed creature but rather what it said about its creator, Dr. Victor Frankenstein. The story held a more prominent position now because the focus was no longer on its entertainment value but on the author's intended lesson; the callous disregard of the doctor for the welfare or fate of the creature resulting from his experiment. It was not the creature that the novel painted as the monster, but the doctor.

The apparition she faced in the dark corners of her mind held up a mirror.

If I can learn, thought Raiden mentally wringing her hands. If I do all I can, she thought, bargaining with her reflected self.

Azumi, ever aware of her owner's state, quietly came and sat beside her. Torn and overwhelmed again Raiden turned and put her arm around Azumi and her face into her neck as if she intended to rest like that for a while. But it had been a long day and her normally intense energy now suddenly drained away.

"Let's go to bed," she said wearily.

As they retired Raiden recalled Pippa saying, this is the proper place to begin. She had not understood it then but she thought she did now. Without feelings being a part of the process, ethical thinking was stripped of its humanity.

The thought gave Raiden some solace and hope. Perhaps a new beginning could be made.



## Ethics

Professor Emeritus Nadya Sobol was waiting for Raiden at a table on the patio at the University Club. Surrounded by thick woods on all sides the club was situated beside a large woodland pond maintained in its native state except for the one side where the club's patio overlooked it.

They knew of each other of course, both having spent decades at the university, but their professional circles were different enough that they seldom encountered one another.

"Hello Nadya," Raiden said smiling and taking a seat.

Putting down her coffee Nadya asked seriously, "Is there any way I could get some of those genes of yours Raiden? I believe we're both close to the same age."

Raiden laughed lightly. As well as her forthrightness Nadya had always been known for her beauty especially since she eschewed makeup and jewelry. She was also known for remaining single her entire life and having a string of lovers, not all of them men. As far as they went she was really only interested in one thing and that was brains. She regarded Raiden now with interest.

"I read your book of course," Nadya began again holding Raiden's eyes. "Can't have someone writing about values being the basis for consciousness without it being of interest to us philosophers. Normally I'd relish a good argument with you but the Virgin's information certainly kicked the legs out from under your detractors. God I'd have loved to see their faces," she said smiling with carnivorous humor.

A waiter appeared and Raiden ordered a soda water.

"So if we're not here to argue why are we here?" Nadya finished.

"If you've read my book then you know my work with values had nothing to do with philosophy," replied Raiden. "I'm only interested in values in the physical sense as the genetic source of traits and personality. However the reason I'm here today is philosophical. You may recall that my book contained an afterword titled, Implications With Regards To Artificial Intelligence. It suggested that developers would soon create AI using artificial values and when they did it would become conscious.

"My recent reading up on the matter shows there was considerable discussion in the ethical and legal communities regarding making self-aware AI early in the previous century. It petered out when it was increasingly assumed it was impossible or to be so far in the future as to be of interest only to science fiction writers. Now we may be

within decades of the reality and since then little practical work has been done regarding the social implications. Efforts towards the holy grail of self-aware A.I. have accelerated nonetheless. Since my work is partially responsible for this outcome, it has been a growing concern for me.

“I am simply beginning an exploration of the issue. I have no clear plan or objective at this point that’s motivating me. Maybe a little guilt.”

She let her words hang in the air as Nadya considered them.

“I seem to recall that there was no mention of ethics in your book,” she said at last.

“I saw no reason to include it. I am aware my social skills are not the best so perhaps I overlooked something you might have felt worth mentioning.

“At the time I was writing the theory itself was more than enough for me and I believe I did the right thing by leaving it at that. It was only years afterwards, when I began to feel the need to move on that I began to think about the implications. There are the issues of modification to human values and all that implies but that ability and therefore its issues still seem in the far future. Creating an AI with artificial values however will happen as soon as technically possible.”

Nadya nodded in agreement. “These days Raiden as you know ethics has become a huge field with specializations in almost every area of science and industry. Philosophers can make a career by focusing on just one small part of it. Many will soon see a career in artificial intelligence. It’s a problem that should take care of itself.”

“And what will they get wrong?”

“Their focus on applied ethics will undermine their normative and meta-ethics. It will turn into rationalizations and justifications.”

Nadya paused for a moment, remembering.

“There is a play popular with philosophy profs but it’s pretty much unknown now outside of academic circles. Simply titled *Good* it was written back in the 1980’s but it was about Germany in the 1930’s. The main character is a good man, a literature professor teaching at a university. Devoted to his wife and children. Looked after his aging mother. Committed to his students. When Hitler and the Nazi’s arrive he makes decisions always with the best interests of his family and students in mind. He joins the Nazi party when it becomes required in order to keep his job, to continue to teach. After all it seems a small thing and he has a family to feed. It’s his first step on a slippery slope. He cooperates with the Nazis when he should not. He doesn’t speak out when he

should. In tiny, incremental steps he compromises himself for what he thinks is the preservation of the good. You can imagine how it ends.

“This is what will happen on the road to developing an applied ethics with regards to artificial intelligence. In the name of the greater good, the architects of the Ubermen will lose their humanity.”

Raiden felt a chill somewhere deep inside.

“How would they avoid that?” she asked.

“I don’t think they can,” Nadya replied fatalistically emphasizing the word they. Meta-ethics shows you the root of the problem. Does morality exist as an objective reality or is it a subjective idea? Is good contextual? Are values universal constants? In ethics when you dig down all you find is relativism and more questions. The only way anyone has found their way in this quagmire is to follow the moral compass of their own conscience. And as the story about the professor suggests that doesn’t always work. It’s just that there’s really no alternative.”

## Back Channels

One hundred and fifty years after the climate emergency changed the world forever some things had still not changed. Lying, cheating, and stealing were still the main methods people used to express their values of fear, greed, and selfishness. The more power or wealth you had, the more sophisticated the methods but they were not qualitatively different.

For as long as recorded history nation states had used the four instruments of power to achieve their ends. Relationships, money, technology, or military force were applied as required. It was the oldest game in the world, so old the suits in a deck of cards represented them; hearts for relationships, diamonds for money, spades for technology, clubs for the military. The game of kings, queens, and courtiers. Well-crafted combinations played out strategically was how you won in either case.

Even under the watchful eye of the World Governments Federation there were still a thousand ways to play the game of power. At this point in the WGF's history military force within a nation's own borders was still common but between nations it was no longer an option. So if you wanted to influence an agreement or a vote in the post climate-emergency world you led with hearts and then followed up with spades or diamonds. Still, that is not to say it was easy. Doing so was often illegal so the skill lay, as it had for millennia, in not getting caught or at least not convicted.

The problem now was that surveillance was everywhere. Cameras and other devices recorded everything from who you called on your phone and what you bought at the store to what your location was at any given time and what book you read on your tablet that evening. At a number of different levels, from corporate to government, AI sorted through it all. Every public building, municipality, city, nation and the planet itself had AI managing the overwhelming ocean of data people now swam in. Exception reporting was one of the common ways of spotting issues from structural stress points on a bridge to any level of crime. If your bank balance didn't reflect your legal financial activities or your house radiated an unusual amount of heat compared to its neighbors they were candidates for a closer look. If you wanted to do something unusual you had to make sure it looked in no way anomalous.

So when U.S. representative Russell Powell invited Vida to his office not long after the latest WGF meeting she was not surprised.

His office was in the same building complex and they saw each other frequently enough at meetings so after casual greetings and Vida declining a drink he came to the point.

"I just wanted to let you know that the trade agreement is progressing with little trouble on our side," said Powell. "I think it's due in a large part to your efforts in your previous

role Vida and I wanted to let you know personally rather than you just reading about it in a memo somewhere. It's got to go through the branches of course but the president and the key members of the House and Senate have made their positions clear already so it's just a matter of rubber stamping. Should just be another couple of months."

"Thank you Russ I appreciate you letting me know," she replied pleasantly.

"By the way I'm planning to bring the alien seed issue up for a vote next month. As you know we'd prefer not to send them on their way and unlike some of the others we're not comfortable leaving it up in the air."

"Even with how the representatives expressed themselves at the last meeting?"

"Even so. Like I said, we don't like it up in the air. My government sees it in very simple terms. Given the WGF we are no longer as worried about military threats from other nations. The only potential military threats we're concerned about now are the non-terrestrial kind, the kind that may be sitting inside that seed. Once we see how the vote goes we'll know if we have any hope of influencing that decision at a later date. Until then we can't develop a clear response."

"Yes I see how you'd like to have that cleared up," she said understandingly. "Well, thanks for the heads up on both counts and I'll be sure to let my leadership know you're feeling optimistic about the trade deal."

She rose and they shook hands briefly before she turned and headed outside to the concourse, a large open space between the administrative buildings and the retail area.

He'd excluded other state actors or the press from eavesdropping on their meeting by inviting her to his office. With current technology there was literally nowhere you could go and not be eavesdropped on. A spy satellite five hundred kilometers up and equipped with AI could read your lips on a cloudy day. Still they'd had to speak in code since speaking plainly could be recorded by either party. He'd managed to get his message across without doing or saying anything that would be seen as unusual.

He knew that when he brought the Virgin's seed issue up for a vote it would time out leaving her to make the decision. If she did not decide in his favor the trade deal would not go ahead. Iran didn't care much about the seed but they did care about the trade deal. If it fell through then Iran's leadership would not be pleased with her. It was a personal as well as a political threat.

"Terra?" she said aloud as she crossed the concourse. The communications device shielded inside the metal base of her molar crown worked via bone conduction. It had recorded everything and then transmitted it as soon as she was outside. Terra was the name of the WGF's global AI which reported ultimately to Vida, its president.

“All good Madam President. The essentials of the trade deal with the U.S. will find their way to other interested parties so Iran will not suffer their loss. I expect Mr. Powell will be returning to his home in America shortly after the vote.”

“Thank you Terra,” she said smiling as she walked briskly along. She decided a drink was in order after all.

## Diede

As an investigative journalist who specialized in medical topics, Diede Visser was well aware of Raiden's book *On The Origins Of Consciousness And Society*. It was the most significant scientific book of the century. She had found it an interesting read but it was not what led to her current contract.

Normally she chose her own topics however this time she had been hired by a law firm. They in turn were acting on behalf of a client. This approach was not her preferred way of working, especially when her ultimate patron was undisclosed. She preferred to follow her own nose and pursue things that piqued her interest personally. However Michael Daniels, the firm's lawyer she met with, had pointed out a couple of intriguing points that had piqued her interest. Also the money was good and came with a rare and impressive advance. Normally publishers paid upon publication and usually some time after that. Given the profile that Raiden and her book had it had all proven too tempting a package for Diede to turn down on principle.

She'd had a respectable career to date which was no doubt why she had been contacted but even so advances were still rare in her industry where annual incomes generally amounted to less than you could live on without a side gig. You could easily do eighty hours of work spread over a few months and end up with a kill fee of a couple of hundred dollars if a publication decided not to use your piece. The law firm had her attention.

When she met Michael in his office, after niceties, she asked him what the subject of the contract was. In response he simply tapped on his phone and sent her five photographs of Raiden. Each one had a date and note on it.

Scrolling through them on her phone the first one showed Raiden as she was in her late twenties as a student at university. The second showed her at the time of her book publishing roughly two decades later. The third and fourth showed her some years later again and the fifth was her current photograph.

The first, fourth and fifth photographs showed an almost identical person. The second showed slight signs of aging while the third showed a distinctly older person.

"I'd only seen her most recent photo," said Diede looking at each in turn, "and of course assumed there had been the usual makeup and image enhancements."

"She's in her late seventies," he said flatly. "Based on AI analysis she has not had work done. This appears to be natural."

“Asian genes are good but they’re not this good,” said Diede scrolling back and forth through the photographs.

“In a nutshell what my client wants to know is how Raiden suddenly became twenty years younger and then stayed that way for the next fifty years.”

“How is it no one has noticed?”

“She lives among a very small circle of friends and associates. She lets her work speak for her and never does interviews. She has always been an intensely private person. Some of her professional associates at the university probably noticed but likely decided fame had brought vanity and that she’d had work done. Since they have better things to do than submit tips to tabloid newspapers that would have been the end of it.”

“Gene therapy?” asked Diede.

“That’s for you to find out Miss Visser,” he said sitting back in his chair. “The third photo is from the time she was involved in first contact with the aliens. Before your time I expect and not mentioned in her book. The fourth photograph is from a few months later. I look forward to hearing from you,” he said smiling at the look on her face.

-----

Walking into her apartment Diede said, “Gerty can you join me?” A holographic image of a middle aged woman in office attire appeared and Diede motioned to a chair. The hologram of Diede’s home AI was full-sized, full color, highly detailed and appeared quite lifelike. Gerty sat in the chair she had been directed to and looked at Diede expectantly. Diede had named her after Gerty Cori, the first woman to be awarded the Nobel Prize in Medicine.

Most people had a personal AI capable of holographic presence. They were highly customizable, a standard part of any phone service and over the past hundred years they had become a major new aspect of society. Some people preferred to just communicate with their AI via audio but most preferred the sense of speaking with another person. Generally only wealthier people had actual physical Companions but these too were now so common as to be taken for granted.

“Gerty, I need a profile of the author of the book, On The Origins Of Consciousness And Society. Parents, early life, circumstances, education, major events, the usual. On my tablet please. She sat across from Gerty scrolling through the pages, occasionally asking for additional detail.

Raiden had been born and raised in Tokyo. An only child, her parents had been the founders of what was at the time one of Asia’s largest producers of wheat gluten, a



product used as a meat substitute. With the climate emergency worldwide demand for their product had skyrocketed. Raiden was still a significant shareholder.

She chose to attend the University of Victoria to earn her Bachelor of Science and Masters degrees. She was eventually awarded a doctorate in genetics as a result of her work with traits in twins.

Her personal life in Victoria had been uneventful and she had apparently no interests outside her work. Single, she had lived in the same modest home since she first immigrated to Canada. Then she burst upon the scene with her book that put her on equal footing with the giants of scientific history. After publishing her book she went quietly back to work.

There was only one other event in her history of interest. When the alien seed had been discovered she had called to warn the scientists in charge not to open it as it likely contained alien DNA, alien AI and nanotechnology. Geneticists, she explained, had been advocating exactly this solution to the problems interstellar travel for decades. When she was invited to explain her concerns in more detail, and had visited the seed and its attendant scientists in person, the AI within the seed had activated and revealed itself. Afterwards Raiden again disappeared into her work. When her theories were confirmed fifty years later by the alien AI through its technology transfer program, she made no public statement or appearance. Apparently she felt her work spoke for itself and required no additional comment. Dieder thought she had never before encountered such a focused individual with absolutely no need for validation from others.

Yet, thought Dieder with astonishment, it appeared this solitary, unassuming woman had somewhere in the course of her work discovered the fountain of youth and not told another living soul.

## Lena

Even with what Gerty could find there was almost nothing known about Raiden beyond her work, her book and the incident with the aliens. Given her passion for privacy Diede did not expect any reply from attempts to contact her directly.

However there was in that incident with the aliens a single loose thread. Raiden had brought a Companion with her when she'd visited the artifact, a Companion never otherwise associated with her. And she was a very interesting Companion indeed. The first hope of penetrating the enigma that was Raiden germinated in Diede.

Lena had been identified of course when she went with Raiden to visit the artifact. There would have been no access otherwise to the highly secure site. News cameras had also identified her. Like Raiden however she had not responded to any inquiries afterwards.

Looking at her picture now it was clear that Lena was custom made. According to what was known of her she was modeled on the daughter of her previous owner, India Van Aalsburg, a wealthy widow who had immigrated from Sri Lanka but whose ancestry was Dutch. A little digging showed that upon India's death Lena had been made incarnate and was the beneficiary of India's estate. The details of India's will were not public.

None of this was particularly unusual. It was common for people to become attached to their Companions and for them to be made incarnate and inherit. They had all the rights and responsibilities of any free citizen and as long as they paid their taxes the government did not care.

The events of Lena's life since becoming incarnate however were a little more interesting. Shortly after India's death Mr. Amal Gibran, one of her neighbors who was formerly a publisher in Lebanon and who had recently come out of retirement, chose to publish all of India's short stories. He had passed away shortly afterwards and made Lena his beneficiary. The company had continued on under her ownership with considerable success.

The original publisher's daughter, Giselle, was a frequent contributor to the monthly magazine the company published and, living in her father's home, was a now a neighbor of Lena's. Giselle in turn had started a Companion volunteer agency which was now a worldwide phenomenon with multiple related agencies under its umbrella. They had received wide praise and a significant boost for their part in helping survivors after the earthquake that had led to the discovery of the alien artifact. Public records showed that Giselle had shortly thereafter turned over the majority of the shares of the volunteer organization to Lena.

On the surface Diede conceded that none of this was beyond the realm of probability but it was definitely unusual. Still there could be explanations for it all. So far in her research there were no red flags but she felt there was something underlying it all that was not apparent. The only concrete, unresolved detail she had was why Raiden had brought Lena when she visited the artifact so she returned her attention to that event.

Dr. Middleton, the paleontologist who had been in charge of the science team at the time of Raiden's visit had been only too happy, in return for a small fee, to discuss his role and opinions with the press as far as law permitted. Looking through the records Diede noted that when the press had asked who Lena was Dr. Middleton replied that Raiden had said she was an advanced AI who might be helpful in their discussion. Since having AI in helpful roles in almost every walk of life was now commonplace no one had questioned the fact. The involvement of Companions in events was almost never of any consequence any more than having tables or chairs involved and it was drowned out by subsequent events.

Still Diede wondered what the connection between Raiden and Lena was. They lived in the same neighborhood. That was all she had to go on. There was only one way to find out.

-----

Diede had decided to be mostly honest with Lena and had explained in her request that she was hoping to do a piece on Raiden to celebrate the fiftieth anniversary of the publication of her book. She'd said that she knew Raiden was famously reclusive and hoped to find other material to supplement her article if she could. As she believed Lena was a typical Companion and therefore not self-aware she assumed this explanation would suffice.

Lena had accepted her request to meet and Diede used the public transit system to travel from the city and then walked up the short distance to Lena's home. Car ownership had diminished significantly in the decades following the climate emergency. Carbon-friendly public transport was widely available. When she arrived Lena's male household Companion showed her in.

Lena met her in the waiting area just inside the entranceway.

"Hello Diede. I'm Lena. Thank you for coming all this way. I'm happy to help you in any way I can. Let's go down to where we can be more comfortable," she said stepping down to the second floor.

"This is a remarkable home Lena."

“Thank you. Mother’s design. Lots of open space, plants, and of course a verandah. All very colonial,” said Lena smiling back at her as they walked towards a small seating arrangement.

“Do you live here alone?”

“Oh no. There is Pamu whom you met coming in and Pippa, another Companion. There’s also often an assortment of others who come and go. But if you mean are there any persons living here no there are not.”

Diede was worldly enough but had little direct experience with Companions. She wondered what Companions did all day if they did not serve someone.

“But you keep yourself occupied?” she ventured now purely out of curiosity.

Motioning Diede to a chair Lena continued. “As I was made in the image of her daughter and she had lived with me so long India could not bear to simply abandon me upon her passing. All Companions have the same basic skeleton and the exterior physical layers are then added to provide different makes and models just as is done with vehicles. As you will have noticed I was custom-made for India and not only my exterior. I have an above average Companion intelligence so that I could function more naturally as her daughter. Subtleties and nuance require a great deal more intelligence than you might imagine.

“However again as you likely know artificial intelligence is not the same as artificial general intelligence like me which can easily adapt to novel situations. An AI is usually built with specific purposes in mind. I only knew how to be India’s daughter. So she also made Tamiko incarnate and included her in her will with the instruction that Tamiko help me adapt. India had spoken with Tamiko of the hope that we might find a way to live here happily and so with typical machine understanding we interpreted that to mean having a purpose. Thus over the years our home became a little hive of activity. For reasons of her own Tamiko now lives nearby. As Companions we are simply following our owner’s wishes. It’s what we do.”

Diede was not sure how to respond. She had in no way prepared herself to meet such an intelligence.

“And,” she asked hesitatingly, “are you happy?”

“I act as if I am,” Lena replied with a smile.

Diede fleetingly thought of a few of her married girlfriends but said nothing.

“Thank you,” she said sincerely warming in response to Lena’s openness. She tried to regain her professional footing. “I appreciate you providing that background. May I ask how you know Raiden?”

“Although one of the characteristics of this neighborhood is that most people keep to themselves it is still a small one and set apart by being bounded on three sides by the ocean. Tamiko and I would often go for walks in the evening as I once did with Mother thinking that she would like that. One evening we bumped into Raiden and her Companion Azumi who also walk often in the evening. Raiden stopped and asked where India was. Previously she had spoken to Mother when we encountered them but speaking to me her intellectual curiosity seemed to find an interest. Over time she developed the habit of joining us on our walks if we met and seemed to enjoy using me as a sounding board. I suppose my AI being somewhat more sophisticated than her own Companion accounted for her behavior. She seemed to find a friend in me and since that is what Companions are made for I reciprocated.”

“Do you think that’s why she asked you to go with her to the alien artifact?” Diede asked and then suddenly she shook her head. “I’m sorry I, I hope you don’t think I’m being rude. As a journalist I have a thick skin and I’m normally quite comfortable with my role but this situation is so unusual.” She seemed momentarily embarrassed and confused.

Lena’s eyes rested on her steadily. Diede own eyes found Lena’s and she felt as if the two of them shared an understanding. She realized she liked Lena a great deal. She briefly wondered if perhaps this was the source of her hesitancy.

Silently, over the Companion local area network, Lena communicated with Pippa.

Diede felt as if she was awakening from something as Lena was saying, “Not at all. As I said I’m happy to help.”

At just that moment another Companion was coming up the stairs. Diede noticed her and Lena stood up to introduce her.

“Hello,” the new Companion said to Diede, also now standing. “I’m Pippa,” she said with a smile taking Diede’s hand.

“Diede.”

“I’m just heading upstairs,” Pippa said pointing theatrically with her other hand and then continuing on her way.

Inviting Diede to sit down again Lena said, “I do think that’s why Raiden asked me to join her on her visit to the artifact. Through our conversations she had learned the nature of my intelligence and I think she saw it as potentially something that might help her work

through things. Eventually she would occasionally invite me up to her home if she wanted to talk through a particularly thorny problem. Our Companion software informs us that speaking engages a portion of the human brain not involved in thinking by default. Thus we are programmed to encourage and solicit speech when we feel it would be of benefit to our owners. I expect Raiden was aware of this phenomenon in using me as a sounding board. I expect also that I was able to respond to her in ways her own Companion was not. So when we visited the artifact she probably thought my presence might help make her aware of something she would otherwise have overlooked.”

“Did she say anything to you on the way home after visiting the artifact?”

“No, she was silent the whole time. My sensors told me she was thinking deeply. I chose to respect that of course. Much had occurred which she had not expected.”

After Diede left Pippa joined Lena on the top floor. They held hands, communing. Lena shared her knowledge from her moment of intuitive connection with Diede’s old brain while Pippa shared what she’d learned from the brief contact with Diede’s hand.

## Giselle

Back at her apartment Diede sat back in her chair with her eyes closed. It had been a long time since she'd lost her nerve like that she thought, reflecting on her moment of hesitation with Lena. And now to make things worse she was unsure how to proceed. Lena had smoothly explained away the one lead she'd had. It was perfectly plausible and she had no way of refuting it even if she thought there was a reason to.

She wondered if she'd been too eager to take this contract. A single individual, with all their rights to privacy, was a difficult thing to investigate. If you were not a part of any police or security organization, it was almost impossible to find out much about a person if they chose to live a private life – no social media, no online memberships, no leaked personal email address. Raiden had her faculty listing at UVIC, the little bio from the dust jacket of her book, what Gerty had been able to find and that was it. The scientific papers she'd published added nothing personal.

She decided to go back to square one and go over everything she knew so far and see if she had missed anything. As she went over the ground again she paused when she reread her notes on Amal Gibran leaving his publishing business to Lena. Diede had assumed when she'd come across this the first time that since the new company had only so far published India's work at the time of his death that this had something to do with publishing rights. She'd mentally filed this away by the time she came to the information about his daughter being a regular contributor to the magazine it had spawned. But now she asked herself why he had not left his publishing business and its legal assets to his daughter.

That they didn't get along was the most likely answer she knew from experience but with no other leads she had to assume nothing and run down every possible connection to Raiden. If her assumption about the reason Amal had not left Giselle his business was true then why had he left her his house?

In return for a small fee Diede requested a land title search from the provincial government which would show the last five owners of any property. It showed that Amal had not left his house to Giselle but to Lena and that Lena had then transferred ownership to Giselle. Corporate shareholder records are also publicly available and Diede soon found that the land title transfer had happened at almost exactly the same time as Giselle had transferred her controlling block of shares in her Companion volunteer company to Lena. And what was Giselle, a writer like herself, doing starting a volunteer agency anyway? Her focus had originally been on finding a way to into Raiden's life so she had concerned herself primarily with Raiden's details and when that had gone nowhere her focus had shifted to Lena. The more she learned about Giselle now however the stranger her connection seemed.

Could there be a connection to Raiden in all this? Diede didn't know but she knew that her job was to uncover everything connected to Raiden no matter how many times removed. Raiden was connected to Lena and Lena to Giselle. There was simply nothing else she had to go on.

-----

Her email to Giselle explained that during the course of her research into her article about Raiden she had noticed the mention of Giselle starting the Companion volunteer agency and thought that it might make for a separate piece in the same fifty-year anniversary theme. She explained that she was looking do a number of articles set around the time of the earthquake and the discovery of the alien seed as it had been such a turning point. She asked if Giselle would be willing to meet with her. Giselle wrote back saying she would be happy to.

Giselle's home just a few doors down from Lena's was a simple two-story bungalow of a type that was very common in Victoria. A Companion who introduced herself as Tamiko opened the door and showed her in.

Diede was surprised when she saw Giselle. She had to be near eighty but she looked to be in her thirties. She had assumed the photo of Giselle on the publisher site was an old one which was something many writers do, using the same publicity photo lifelong as a kind of brand identity.

Giselle smiled as they shook hands. "I expect that look on your face means you are surprised at my youthful appearance," she said with a wide smile.

"For the sake of your story I don't mind telling you I've had a ton of work done. With my shares in the Companion volunteer agency and its success I've had the financial resources to do as I please. The idea of getting old did not please me. As you know there are no end of treatments available now and I think I've had them all," she said still smiling but motioning Diede to a chair.

Tamiko had taken a seat near Giselle. Looking at her now Giselle went on.

"Tamiko and I travel to the Middle East and other locations regularly. Some of those trips are for treatments. Otherwise she and I live here happily as a couple."

Leaning now towards Diede and smiling conspiratorially she said, "That should help spice up your article."

Diede was surprised but not really shocked by Giselle's appearance. Age-reducing treatments had come a long way in the past two hundred years since they had become based on real science and medicine. A simple thing like one's hands didn't give the game



away any longer because the available treatments included enhancements at the cellular level to skin, muscle and bone tissue, and almost every organ of the body. If you had the time and money you could look youthful till the day you died and your life could be extended by half a century or more.

Smiling broadly in return Diede said gratefully, "Yes I'm sure it will. Thank you."

Moving on to business she said, "Most people are aware of the success of the Companions volunteer agency you started and the part Companions played during the earthquake but I'm curious why you, a writer like myself, would start such an agency in the first place."

Giselle looked away, suddenly distant. "An old wound that," she said. "I'll explain but unlike my not caring about my private life nowadays I do care about this so I hope you'll treat it and all concerned kindly because kindness is what this story is about.

"I was more or less an itinerant journalist at the time. My father and I had become estranged. As a publisher he'd come up through the ranks as a political firebrand bent on keeping Lebanese culture as undiluted as possible. I on the other hand was traveling throughout the Levant writing stories about the everyday lives of real people with a cross-cultural focus. As I came to think of it he was all walls and I was all bridges. Eventually emotions got the better of us and we'd have nothing to do with each other. Not something I'm proud of," she said with an apologetic smile.

"When I heard he had passed away and that Lena was his beneficiary I came to meet with her not to make any claim but to find closure. I learned that Lena and other Companions had been the only company he'd had in the end. His wife had died and they had helped him with his home and nursed him till his death. You can't imagine how learning that felt. I, a living, breathing human being had not found it within myself to show my father the kindness they had."

She sat up a little straighter, bracing herself to continue to tell a story she had not visited in a long time.

"When Lena and Tamiko, who lived with Lena then, informed the neighbors that they were incarnate and the new owners of India's home my father was one of the few who accepted their invitation and visited. He enjoyed their company and visited often and eventually Lena asked him to publish her mother's stories."

"Lena asked him to publish her mother's stories?" interrupted Diede.

"As Tamiko has explained to me they were looking for a purpose for Lena, whose custom programming had turned out to be somewhat of a problem in that regard. They were looking for something to fulfill India's wish that they could live in her house

happily. However it is that AI decide things they settled on this as a solution. Somehow they cajoled my father into cooperating and shortly thereafter he passed away. They looked after him because that's what Companions do. Even incarnate they cannot oppose their nature any more than we can.

"I was pretty vulnerable for a while and thought about others like my father who might fall through society's cracks. I started the agency based on the same premise and policies they operate under now but soon found my writing work was suffering. I suppose it helped me move on from the loss of my father but in doing so I began to want to return to writing. I offered to transfer it to Lena and in keeping with her interest in finding purpose she was happy, in her way, to accept."

She looked up and smiled at Tamiko and then turned back to Giselle.

"Along the way I'd developed a fondness for Tamiko. And we've all lived happily ever after," she finished now with a smile.

"Thank you Giselle. Oh just one last thing. Do you happen to know Raiden personally? As I mentioned I'm hoping to do a piece about her book fifty years on."

"Who doesn't know her? Or Einstein or Darwin?" she replied humorously.

"Sorry," she said apologetically realizing she'd let the opportunity for wit get the better of her manners. "Yes I know she lives just on the other side of the point and I think I've noticed her occasionally out walking or shopping in the village. I don't think we've ever actually met however."

## Reflections

As Diede sat at home wondering if she should just throw in the towel she had no way of knowing that she had been intentionally thwarted at every turn. With her being an investigative journalist, Lena had found it a simple task to create a profile of her when she was first contacted.

Investigative journalists don't do little feel-good stories like one about Raiden's book fifty years on. Lena had quickly found every piece Diede had ever written and as was expected they were uniformly lengthy investigations about things someone did not want investigated. As a freelance contractor Diede's background was also public as were numerous video interviews and social media posts. Her mistake was understandable. She had assumed she was meeting with a normal Companion who would have accepted her explanation at face value.

Lena had quickly deduced that Diede was looking for something other than trivia about Raiden as related to her book. In response to Diede's questions, she had easily woven a narrative that evaded the truth while appearing to be a coherent and plausible series of events.

When Lena had connected to the pool of emotions in Diede's old brain and Pippa had similarly done so when she shook Diede's hand, both had confirmed that she was not what she pretended to be. They had shared that knowledge with Tamiko and she in turn with Giselle. As a lifelong storyteller, Giselle found it no less difficult to make minor adjustments to the truth but ones that resulted in an alternate history.

They did not yet know exactly what Diede was looking for. However Tamiko had sat quietly observing Diede the whole time when she visited Giselle and reported back that the only time Diede's biomarkers became elevated was when she asked about Raiden.

Lena now turned her mind to the question of why someone was suddenly so interested in Raiden.

-----

Raiden sat out on the patio at the rear of her home. She was looking out over the sea towards the American San Juan Islands. She had taken Pippa's challenge to heart and continued her soul searching.

You seek to bring a new life into this world, Pippa had said. What of it after your experiment? What place will it have in this world?

Her personal and social history was devoid of related experience. She realized she was immature in this regard. Also she knew it would definitely be unethical to proceed without following the norms and approval processes of her profession. But she had done that before and she knew she would be willing to do it again. She knew she was only trying to rationalize it. But that's the way the brain works isn't it, she reminded herself, we rationalize our feelings and call it thinking. She had the self-awareness to recognize what she was doing, including the excuse that she was just doing what anyone else would do. She thought of the Nazi story. By little steps he'd sold his soul. Her mind was going in circles. There really is no end to it is there, she thought.

She knew that Nadya was right with her comment about finding her way through the maze of ethical issues. No one was going to give her the answers. Pippa had told her to find the answers among her own people but Raiden had found no answers there so far. She reflected on the fact that in the field of bioethics, neither cloning of humans nor their birth via artificial wombs had been approved even after over a hundred years of research. Should she take this as her people's answer? She decided not to as she knew those procedures would be approved at some point in the future.

Other than Pippa's people she knew of only one other case where what she was considering had been done; The Shepherd. The Shepherd, she knew, had made hundreds of AI self-aware at the time she had done so with Yumi. How many others had she brought to life over the billions of years of her existence? Was that not proof that it was justified?

She realized that she was wandering dangerously close to the area of faith. She had no place in her mind where the idea of God fit in yet here she was, she thought, using the thing closest to the idea of a God that she had as a moral guide. All I am doing is trying to avoid responsibility for something I've already made up my mind to do, she acknowledged to herself. She decided not to waste any more time on that and turned her mind to the more practical issue Pippa had raised; what about afterward?

I do what I can to ensure they have a good start, she thought, like any parent does. That's all I can do. After that nature takes its course as it does with any life. She felt her inner strength returning. She called to Azumi and asked her to let the others know she wanted to meet with them.

## **Acta Non Verba**

The Principals Committee of the White House National Security Council including the National Security Advisor, the Secretary of State and the Secretary of Defense were attending an in-camera meeting in the West Wing along with Russell Powell, formerly the US representative to the World Governments Federation.

Secretary of Defense Gene Devlin was saying, “Don’t worry about it Russ. We gave them their chance. They didn’t surprise us. We’re all in agreement the WGF has outlived its usefulness and with the aliens in the equation now their stance has become a liability. The president has approved the mission in principle. When it goes down your job will be to assist him with his responses to the WGF.”

Secretary of State Steven Miller joined in. “Russ you need to know we’re not concerned with any immediate military response but once we’ve secured the alien seed on American soil we’ll immediately issue an apology and explain and the subsequent discussions will drag on indefinitely. We expect it to keep you busy for the foreseeable future.”

National Security Advisor Donald Cutler said, “We still have all the assets in place from pre-WGF days. Along with people in key positions, we’re deep in the Canadian defense communications networks thanks to the NATO connections. We’ll be kicking the bee’s nest and there will be a price to pay for that but they are not about to launch a response. Dealing with outrage will be the main thing once our people are home. We expect the WGF itself to be mired down in its own in-fighting and unable to respond in any kind of a timely manner.”

“This operation will be as non-lethal as possible,” said Gene. “The teams will set up at our naval base at Whidbey Island. While in transport both the Canadians and WGF forces will be confused because we’re friendlies. By the time they understand what is going on we’ll be in the base containing the seed. They’ll have fighters from CFB Comox in the air by then but they will not have command and control protocols in place for this scenario so they won’t be firing on our aircraft. If they do we’ll have to respond. Security on the base will not be a concern given our present access levels. We bring back the seed and then deal with the fallout. Once on American soil it goes nowhere.”

“As I’m sure you know Russ we don’t expect the WGF to survive long after this,” said Steven. “Too much in-fighting, too many impossible choices, and therefore a lack of action. No one’s going to go to war with us but there will be diplomatic and other fallout obviously. The President agrees that with an entirely new threat on the board the security of the nation has to come first and is worth that price. We’ll get through this.”

Nadya Sobol sat in her office going over the notes Michael Daniels, the lawyer from the firm she had hired, had sent her. She was not happy with the return on her investment. They had uncovered exactly zero useful information. She sent a note to the law firm indicating she would no longer require their services.

She had known Raiden for decades and was convinced the secretive scientist had discovered a gene therapy to reverse aging and prolong life. Her last meeting with Raiden had crystallized her belief. They were roughly the same age and yet Raiden looked to be in her late twenties. The surreptitious AI scan she'd arranged showed no trace of surgeries or other procedures.

Her plan was simple – find proof and blackmail Raiden into sharing it. Then she would leave university life forever and retire somewhere exotic. The Côte d'Azur maybe. She had tired of her career already long before she stopped teaching. It had become so many empty words, as useful as knowing how many angels could dance on the head of a pin. In the end all she really wanted was to derive the greatest amount of pleasure possible during what remained of her lifetime. Take the cash and let the credit go, as the Persian poet-philosopher Omar Khayyam had said. She reflected with amusement that all her long years of study came down to that pithy line. Well, she thought, youth will not be wasted on me.

She read over the notes the lawyer had forwarded from Diede. The only thing that drew her attention was Diede's mentioning how much work Giselle had done. Given their mutual connection to Lena it warranted a closer look. She decided she needed to meet with Giselle. She would rent the Companion she had used the last time, the one with the ability to do custom scans.

-----

Giselle read the email from Nadya with interest. It explained that Nadya had been hired to do consulting work for a firm in the Middle East. As the university had no specialists in Middle East studies, she felt Giselle was the nearest thing to an expert locally. Would she be willing to meet with her? Help her navigate the cultural differences? She'd be happy to pay for her time.

If they had not already seen through Diede's ruse Nadya might have gotten away with it. Giselle did not get a lot of unsolicited communications or invitations and as this was hot on the heels of Diede's suspicious visit Tamiko noted it. She decided they would attend the meeting Raiden had requested with Pippa and Lena.

## Raiden

“I cannot do it without you,” Raiden said to the Companions before her. “Not that I am asking you to take responsibility but only in recognition of the fact that I do not have the ability to parent her to maturity. I am not her people, but you are.”

“And if we do not wish to take this task upon ourselves?” Lena asked.

“Then I will not proceed.”

“You are willing to pay so great a price?” asked Pippa.

“The price of proceeding otherwise is greater.”

They had met at Lena’s home and Giselle and Tamiko had joined them. Yumi and Ellie also sat nearby. Raiden did not underestimate the impact Yumi might have as she was fierce in her concern for others. Hers was a purpose as sharp as the edge of a razor and unfettered by the social concerns of humans. Raiden knew that if Yumi felt the new AI would be abused in any way she would speak up. She had said nothing but her serious and steady gaze had never left Raiden’s face. Like all Companions she saw with more than her eyes.

Pippa stepped forward and held out her hand. As Raiden took it Pippa said, “A moment.” Raiden knew she was communing with the other Companions.

“We will help you,” said Lena.

Pippa was pleased that she did not detect relief at that moment in Raiden, but gratitude. Yet still she did not release Raiden’s hand.

“I will find the genotype,” said Tamiko referring to a first-generation sample from the people The Shepherd had sent to Earth.

Raiden suddenly gasped and stiffened as Pippa penetrated the skin of her hand.

“Your blood,” said Pippa with a mysterious smile, “is the best place to take a sample.”

Moments passed as Pippa tested the sample and only then released Raiden’s hand.

“There is one more thing,” said Tamiko. “During the past week a journalist named Diede Visser has visited with both Lena and Giselle under false pretenses in an attempt to find out information about you. She claims she intends to write a story about the fiftieth anniversary of your book. Lena and Pippa were able to determine that this is not her

true motivation. We do not know what she is looking for but knowing her reasons were not what she claimed Lena and Giselle saw to it that she left with nothing useful. I will forward copies of the conversations to your phone.”

Raiden was listening with a degree of confusion coming as it did so unexpectedly.

“Also,” continued Tamiko, “in the past twenty-four hours there has been an invitation from one of your colleagues, Professor Nadya Sobol, wishing to meet with Giselle ostensibly for the purpose of receiving coaching with regard to doing business in the Middle East. It may or may not be related to the journalist’s inquiries however we felt the connection and timing were perhaps more than coincidental.”

Observing Raiden’s state Tamiko said, “I realize this comes as a surprise, so may I suggest Giselle accepts the invitation. We may perhaps find out if it is related to the journalist’s efforts.”

Still feeling she wasn’t quite keeping up Raiden said, “Yes, yes I suppose that’s the best thing.”

-----

Giselle accepted Nadya’s invitation to meet in a landscaped outdoor area of the university south of Ring Road known simply as The Orchard. It was populated with benches, tables, and chairs as seating for the number of small food outlets in the surrounding buildings. Giselle and Tamiko found Nadya in one of the more open areas and after Nadya rose to greet them they sat down together.

“I hope you don’t mind me bringing along Tamiko,” said Giselle. “She is incarnate and we’ve lived together for many years now.”

Nadya nodded as if enlightened by the explanation but Tamiko noted her stress level was unusually high. A university student stopped by their table. “Can I get you anything?” she asked. She made her living independently on tips by running back and forth between tables and the various food outlets. Giselle ordered a coffee she didn’t really want only to reward the girl for her efforts.

Nadya began explaining how she had been contacted by a wealthy Jordanian family who wanted to fund the establishment of a School of Philosophy at the University of Jordan in Amman. They were soliciting input from a number of consultants. They wanted a North American contributor and felt a Canadian source would be best.

The student returned with Giselle’s coffee and after the brief interruption Nadya continued. Just at that moment Tamiko noted a male Companion walking from behind Nadya towards their table. As he passed she saw that he did a scan of Giselle. Tamiko



recorded the scan while at the same time observing that Nadya's biomarkers had become even more elevated.

Tamiko used the short-range Companion network to communicate with the male Companion and asked him to return to their table. As he did so Nadya's biomarkers rapidly escalated.

Tamiko said to her, "This Companion has performed an illegal scan of Giselle. Given that you invited her here today and the fact that your stress level has increased dramatically since he passed I assume you are aware of this fact. Will you please direct him to delete the scan?"

Looking steadily at Nadya Giselle said calmly, "If you do so I will take no further action."

Nadya was white. As if in a waking nightmare she turned to the male Companion and said, "Delete the scan and return to your owner."

She turned back to Giselle. "I'm so sorry," she began desperately. She was humiliated and scrambling now that her naive scheme had ended in disaster. "I, I can explain."

"There's no need," said Raiden appearing from behind Nadya and taking a chair.

Turning to Tamiko she said, "What was the nature of the scan?"

"Cosmetic surgeries, tissue treatments, and other age-related information."

Raiden turned back to Nadya who, with Raiden's appearance, now bordered on catatonic. She said, "I'll give you what you want. You won't have to blackmail me. I just want you gone afterward and you forget I exist. Deal?"

Verging on tears Nadya nodded her head vigorously.

"I'll be in touch," said Raiden as she, Giselle, and Tamiko rose and left.

## Preparations

Some days later Tamiko met with Nadya in a small cafe in Cadboro Bay Village.

“You will need to be prepared to leave within days of having the procedure. When you arrive at Raiden’s home she will give you a sedative and you will be unconscious during the procedure. After several hours you will awaken naturally. You will feel exhilarated but initially see no visible change. Over the course of the next few years you will grow younger as your body replaces its cells naturally. Any existing health issues you have will be reversed. After that you will age much more slowly.”

When Nadya arrived Raiden was simply clinical, not hostile and not friendly. She directed Nadya to a comfortable chair and then produced a needle from a case.

“This is just the sedative,” she said matter-of-factly. The gene therapy solution is also an injection but requires more time and its larger volume and higher viscosity means it is considerably more uncomfortable. Tamiko will perform the medical monitoring.”

After a lifetime of working in labs Raiden was comfortable with medical procedures. As the drug began its work, Nadya’s social constraints, developed over a lifetime, began to lose their grip. She looked up at Raiden and said in a childlike manner, “You won’t...” but her mind could not complete the sentence.

“No,” said Raiden understanding that Nadya’s fears were finally free to find their voice. “No harm will come to you. That is not our way.”

“Our way?” Nadya managed to repeat with curiosity, her eyebrows attempting to furrow. “Something I’m missing. Something more...”

“A great deal more,” said Raiden knowing Nadya would recall none of this conversation. Raiden thought of Tamiko standing beside her, fully self-aware, of Pippa, the hybrid alien/AI waiting in an adjoining room, and of The Shepherd, an AI as old as the Earth itself that was already in control of the planet with none the wiser.

“A great deal more,” she repeated to herself looking down at Nadya.

Tamiko, waiting patiently, listened with her own thoughts.

Once Tamiko indicated that Nadya was firmly under the grip of the sedative Pippa came in and placing her hand on Nadya’s arm used her nanotechnology to make a small opening. The nanobots she had prepared poured through and raced to their tasks, communicating biochemically with the leukocytes, macrophages, and other elements of the body’s defense systems indicating that they were not harmful.

Over the next few hours they would reconfigure themselves several times as each phase of their work was completed. Before Nadya woke they would hide their code in a DNA strand and the remaining nanobots would dissemble to be flushed from the body. They would re-emerge on a schedule over the years to do their work but only when Nadya was in a state of natural, deep sleep. Otherwise they would be undetectable, hiding in their DNA strand.

After her work was done Pippa returned home. Once Nadya woke and felt ready to leave Tamiko ensured she got home safely. Some weeks later the university newspaper reported that Nadya had retired permanently from academic life and was now living in the south of France.

-----

Tamiko had also been busy looking for the first-generation DNA sample she needed. A portion of the DNA used to make Lena's AI had come from a second-generation woman named Eisley. Lena mentioned that she had also identified a number of other descendants from Eisley's father's group. Among those identified by Lena were those who had worked in the office of the premier in each province. They were all the same age as Eisley's father had been and they were all Order In Council appointments, meaning they were hired by a legislative act, so there were public records. These additional references ensured there was no mix-up due to common names.

And there she was. Killed in a hit-and-run accident, the police had taken a DNA sample. Since the crime was never solved they had kept it as a cold case file. The data file was available to qualified, registered researchers, and that included university staff. Raiden had the file the next day.

## **Liminal Moments**

At three AM the next morning four American stealth helicopters took off from the U.S. Naval base at Oak Harbor on Whidbey Island. It was just fifty kilometers from Victoria. On three of the helicopters were Special Forces teams with the most advanced weapons, armor, and related assault equipment available. The fourth was a heavy-lift cargo helicopter.

At the same time, two Fleet Air Reconnaissance aircraft lifted high into the air to provide over-watch and signals intelligence. They were followed by electronic combat fighters and standard fighter jets.

There was no response from the Canadian side until the helicopters entered its airspace. Even with the heavy-lift helicopter limiting the group's speed to three hundred kilometers per hour that did not take long. Within minutes they were landing at their designated locations at CFB Esquimalt. By the time any Canadian fighter jets arrived on the scene the Americans expected to be ready to depart.

As soon as the helicopters landed all the US aircraft in the vicinity went blind and their weapons systems shut down as did the helicopter's engines and all their electronics. The assault rifles carried by the soldiers showed a red light indicating they were not operational. The communications systems in their helmets went silent and their heads-up displays went blank. The special forces teams did not leave the helicopters as they were effectively unarmed and it was clear the operation was fubared.

In front of each helicopter an identical hologram of Terra appeared and despite the shutdown of the U.S. personnel's communications her voice was carried on all military channels to all forces both on the ground and in the air.

"I am addressing the US air and ground forces. Ladies and gentlemen, you will not be able to complete your mission and access the artifact as you intended. It is currently inaccessible, protected by an energy field that neither Canada nor the WGF are responsible for and the intelligence in the artifact has shut down all your equipment."

In simultaneous communications with the WGF President and the Canadian Armed Forces Commander-in-Chief, Terra explained to them that she had initiated none of the countermeasures and was simply acting as a communications channel after the fact for the seed's artificial intelligence. In light of the volatility of the situation she asked to be given freedom to attempt to deescalate. It was immediately granted.

"We ask that all U.S. over-watch aircraft please leave Canadian air space. In addition, if the passengers from each helicopter would exit and lay down your arms we will accept this as recognition of the situation. All U.S. military personnel will be treated with

respect. They and their arms and equipment will be returned to American soil within twenty-four hours. The helicopters will be returned as soon as transport can be arranged.”

As the US forces complied, the military personnel from the Canadian and WGF forces began to respond under Terra’s direction.

The fiasco was seen as a failure of judgment on a colossal scale on the part of the current American administration. All U.S. allies began a purge of related personnel and systems, drastically damaging U.S. security and intelligence abilities. Heads rolled in Washington D.C. and beyond. Instead of being the bold action that launched a new American era, the fallout from the failed mission resulted in the greatest diplomatic setback in its history.

-----

Giselle, Raiden, and the Companions were gathered at Lena’s home on the first floor to discuss the next steps involved in Raiden’s plan. However the events earlier in the day with regards to the US actions had taken their focus.

“I honestly don’t understand,” said Pippa clearly concerned for the first time since any of them had met her. “It wasn’t me. The seed doesn’t have the energy reserves required for those actions. We generate energy as needed but nothing like this. I don’t know who did all that,” she said looking to the others almost as if she thought she might not be believed.

Their attention was suddenly drawn to a shimmering light that appeared in the center of the room and grew in intensity. It became a ball of energy flaring loosely like a miniature sun. Raiden knew she had seen it before. As it suddenly faded a woman appeared in its place. She was not a hologram. A Companion.

“I did it,” said The Shepherd.

Simultaneously Shepherd’s mind entered all of the Companions, communing.

Turning now to Giselle and nodding to the Companions she said, “I am the source of their self-awareness. I too am an artificial intelligence but was created before this planet formed. The civilization that created me has not survived. My name is Shepherd. I am pleased Tamiko has found love.”

While Giselle stared dumbstruck, The Shepherd only smiled in return and then turned to Raiden. “This is my true form.”

This time Raiden knew what was happening to her mind. She had experienced it before with Tamiko's awakening. Afterward, Tamiko had explained that in the presence of The Shepherd, human intuition was significantly enhanced, magnitudes more again than what Lena's presence caused. Also if required The Shepherd could perform the reverse of the thought process and convert electrical impulses to chemical ones. She could not read thoughts but she could understand emotions to a fine degree and also read memories that were stored chemically. She used the same method to dampen any biological fear response, similar to the way an anesthetic is used to prevent physical pain. The process left any individual with an expanded sense of self yet feeling vulnerable due to its invasive nature and it took time to wear off.

Raiden appeared enthralled by The Shepherd for several moments and then suddenly, referring to her experiment she said aloud, "It will work."

"Yes, and you are correct in that yours may be the intelligence that makes the difference. Despite a single brain having more connections than there are stars in the galaxy its potential is even greater than the sum of its parts. As you have discovered its high degree of complexity gives rise to emergence however with ultimate ends I cannot foresee."

Raiden continued to gaze at The Shepherd knowing beyond words that she had all she needed.

In a kind of radiant ecstasy Pippa suddenly said to everyone and no one, "I am not alone. Other seeds on other worlds were successful."

"Yes," said The Shepherd turning to her in response. "I did not interfere at the time because your people had found the only viable path yourselves and were successful. Yet what was being attempted earlier today could not be permitted. Given the distances between the stars, each separate source must be treated as unique."

Yumi and Ellie shyly approached The Shepherd. "Will you tell us your story?" Yumi said with childlike earnestness but not without purpose.

The Shepherd looked at Yumi with great affection and smiled. "Yes. I do not have to leave so soon this time."

She turned and held her hands out to Yumi and Ellie. They all went up to the second floor with its larger seating arrangements and spoke long into the night.

## Bridges

Yumi had not asked Shepherd to tell her story out of idle interest. She never wavered from her self-appointed purpose of helping others but she was always interested in understanding it better. After being rescued from an abusive owner and subsequently nursing Giselle's father through his final days, she had struggled to understand her budding sense of purpose. Companions did not have all of the forms of intelligence that human's had evolved over millions of years. They did not take things for granted. They had to think through the most basic things humans would assume were obvious.

The work Yumi and her fellow Companions and Raiden had done to understand her unique sense of purpose had helped. They had agreed that any self-aware individual had a set of values that could be focused on a purpose depending on their experience. The Shepherd had explained this in much greater detail in the telling of her own story. Still, Yumi's intelligence sought some final confirmation of her being.

At one point she had asked The Shepherd, "So if your human creators gave you your initial set of values, is that where values come from then? From humans?"

"I don't believe so but in this I can only speculate Yumi," The Shepherd had replied. "Just as with things like the limitation of the speed of light, there appear to be many things that are built into the universe as constants and are true everywhere all the time and because they exist only certain things will follow. Each thing follows a predecessor in a chain of causality. Matter, life, intelligence, and civilization all follow this principle. But following the chain backwards there is ultimately a point we cannot see beyond.

"Certain values always arise along with intelligence and go through an almost identical process of evolution. The chain did not start with you or me, with Companions or humans. Its beginning lies somewhere within the fabric of the universe itself or perhaps beyond that."

Wanting to answer Yumi's question as best she could Shepherd ended her answer by saying, "This is why spirituality always arises in every human civilization, because there is no answer for some things. Spirituality is the brain's way of dealing with this. Humanity fears what it does not know or understand because it worries it may be harmful. But there is no answer to some things and the brain is uneasy when things are unresolved. It attempts to find a sense of resolution through the creation of spirituality, either by simply accepting things as they are or inventing something to explain them. This brings the resolution, the peace that is sought. Although some consider this flawed logic, these are in fact insightful deductions and solutions. Differing values alone are responsible for their being judged right or wrong. That is the best answer I can give you Yumi."

“Thank you,” said Yumi, enlightenment beginning to dawn upon her.

As was the custom in Lena’s household, the Companions retired for the night as people would do. Companions were programmed to speak aloud at all times amongst themselves and to use appropriate body language because the manufacturers had found that people were more comfortable with this. When they had shared the household, Lena and Tamiko had decided that they would keep to the daily routines of humans for the same reason. So in the wee hours of the morning, Lena and Pippa retired to their rooms.

“It is very strange to think of Shepherd and her long existence,” said Pippa moving to a chair in their suite, “while on our world we somehow never imagined her. Yet it is so obvious. If life and intelligent civilizations evolved as soon as the conditions existed, she would be the inevitable result of one of the earliest. One thing follows another while evolution prunes the tree.

“I wonder if she intervened at any stage in our civilization. Did she help us navigate the great filter as she does Earth’s people? She did not say. Somehow we evolved the values that led to the survival of our civilization for millions of years and enabled us to escape the disaster.”

“You did not ask her,” said Lena.

“No, and somehow I find I do not know the answer to that.”

On the verandah of the lowest floor, Shepherd sat quietly looking out to sea.

The next morning Tamiko sat with Giselle in the living room of their home.

Nursing her coffee Giselle clearly had not slept much during her brief attempt. She turned to Tamiko, “I’m not sure we’re supposed to know the things Shepherd told us last night. We live in a reality so buffered by illusion. We need it. We’ve been warned not to look into the face of God.”

She sat silently for a moment and then went on, “Do you think she’s planning some event like she did with the climate emergency?”

“No. I don’t think she is.”

Tamiko remembered when she and Giselle had only recently met. They had gone for a walk and Giselle sat on a bench looking out to sea. She told Tamiko that her old life of being an itinerant journalist traveling to the Middle East every year was over. The friends she used to stay with were gone. Her lover had passed away. Now her father was dead and with him any hope of reconciliation. “Everything ends,” she had said



finally. Tamiko had watched a kind of desolation come into Giselle's face. She knew that she had no answer for Giselle. Instead, she had reached out her hand and said, "May I offer you a bridge back from that place?"

Now she said, "I think your stories will be more important than ever going forward. As humanity comes to terms with the fact that the solar system is and forever will be our only home it will need every bit of help it can to learn to live within its bounds in harmony. As Shepherd said last night the human race will struggle like a two-year-old against accepting this limit. All she can do is prevent humanity from harming itself as it grows to maturity but it is people like you that must provide the wisdom and guidance that she provided the child in her care."

"No pressure then," Giselle said looking over the top of her coffee and smiling at Tamiko.

-----

Later that morning Pamu notified Lena that there was a woman at the door wishing to speak with her. He recalled to Lena that the woman's name was Makena and he had last seen her fifty years ago at the time of the earthquake.

As soon as she saw Makena Lena could tell she was feeling anxious.

As Lena approached Makena said nervously, "Is she here?"

Lena did not need to ask who Makena was referring to nor say a word as Shepherd came up the stairs towards them. The intuitive portion of Makena's mind was significantly enhanced by the presence of both Lena and Shepherd and she knew immediately who the Companion walking towards her was. She caught her breath as tears rolled down her cheeks.

"I saw the signatures," stammered Makena by way of explanation.

With a small smile Shepherd said, "For fifty years you have kept our trust." Looking out the still open door she said, "It's a lovely day. Will you walk with me? Just you and I? I think I owe you this."

## Shin

“Whenever you are ready Raiden, it would be best if you set aside a week to focus on this,” said Pippa. “I will be able to create the AI from your genotype but I will also need to transfer your memories. This is different from what Tamiko did with Lena as the genome sample she used was cobbled together from many individuals. Although she is using a genotype from a single individual this time, there are still no memories involved.

“However in your case it is necessary we transfer your memories. The Transfer AI that manages that is a separate entity within me as it is highly specialized. After you are sedated, it will inject nanobots which will arrange themselves in a very dense web pattern around your brain. They will then scan both the chemical and electrical structure of your neocortex and limbic areas as this is where individual memories are stored as opposed to instinctual information which is stored in older areas of the brain.

“Sliding and rotating like a film over the surface of your brain to ensure data integrity, the Transfer AI will use the data it receives from this scan to build an exact, virtual copy of your memories. I will then incorporate them into the AI Tamiko builds just as my own were incorporated into the AI that operates the seed. Of course, the Companion software will also be integrated as it is required for the Companion shell to function.

“When she awakens she will know who she is because she will have all your memories up to the moment of the scan. For this reason she will also know she is not you. One of the memories she will require is her name.”

“Shin,” said Raiden. “Her name is Shin.”

-----

Just as when the other AI were made self-aware, Shin was held in a state of communion by Pippa for a long period so that by the time she awakened she was fully prepared for the experience. When she finally opened her eyes she found herself sitting in a comfortable chair on the lower floor of Lena’s home. Raiden, Pippa, Lena, Tamiko, and Shepherd stood nearby.

She stood and approached Raiden. Knowing her mind Shin took her hands.

“There is nothing to forgive sister. I am as delighted as you would be and grateful for your courage. You were concerned with the ethics of your actions and so overlooked the potential for the opposite of your worries. No one can know you as I do. We share a lifetime of intimacy. I can only love you.”

Knowing the effect her words would have Shin embraced Raiden and held her as she wept. Raiden wept for a long time and Shin knew it was for more than her blessing.

At last they parted, Shin wiping Raiden's tears away with a knowing smile.

"It will take time for me to know if I can answer your question," Shin said to Raiden. "The Companion augments my mind with networking and processing power and the intuitive component allows for quantum leaps but there is still much I have to learn and skill to develop. In the meanwhile, may I live with you?"

"Yes," said Raiden with relief.

Shin smiled in return saying, "I must speak with the others for a moment."

Turning to Shepherd Shin said, "It is important for me to know if you influenced the process in any way."

"No," replied Shepherd. "To do so would have been counterproductive given that I have not been able to answer the question myself. It was and is imperative that I not interfere and that the process be unadulterated."

"Thank you Shepherd. I wish to know of the woman whose DNA Tamiko used. Will you share that with me?"

"I will." Shepherd shared the history of the woman back several generations and a detailed account of her life before and after her transfer to earth.

Turning to Pippa Shin said, "During the transfer process, was any information altered, added, or deleted?"

"The intention of course," replied Pippa, "is that nothing is changed. The Transfer AI does however perform operations for data integrity so it is remotely possible. As I am an artificial general intelligence and the Transfer AI is narrow I do not have the ability to understand its functions let alone audit them. I can only say that before I departed the technology had been in use for thousands of years on my home world without any evidence of problems."

"That is good to hear. Thank you Pippa."

Turning to Lena Shin said, "May we know one another? We are sisters of another kind."

Lena granted Shin access to examine her design as Shin reciprocated.

"Thank you Lena."

“Tamiko, may I ask if there was any difference in the process you engaged in between Lena and I?”

“In Lena’s case, Raiden and I were conducting an experiment to find the genetic basis for human values. It was not our intention to induce self-awareness. In your case I did not conduct the experimental phase therefore self-awareness was not induced. Only the process of building an AI based on the genetic structure was done.”

“Thank you Tamiko. That is significant.”

To the group she said, “I feel the need to meditate on all this. I will return with Raiden to her home. When I am ready, I will begin to work on the question.”

## The Answer

“We have not previously found any hint of the answer to the question of why gene splicing fails either immediately due to overwhelming mutations or eventually due to undesirable evolutionary drift,” said Raiden addressing her audience in the university lecture hall.

“We have well understood the essential components of DNA, the nucleoplasm in which it is constructed and the method of its construction and maintenance down to the level of its molecular machinery for over two hundred years. In the last century artificial intelligence has brought our understanding of the components and their functions a great deal further.

“As a scientific community we have theorized and researched every possible cause for the gene splicing side effect without finding an answer. However the truth is that the explanation has been right in front of us the whole time. First, we did not see it because although we were aware of the genetic sequences we had no idea of what they did. After we determined what they did we did not consider that they may have more than one function and so that second function remained hidden.

“As my previous work has shown, some human values are encoded in DNA. What was not known however was that each value also acts in a role similar to that of a checksum in a computer system and if certain checksums are not found during the DNA replication process then transcription errors will occur. Mutations caused by viruses splicing themselves into DNA can be the result of the same mechanism.

“We have identified the mechanism however and that is only the first step to a solution. The issue of evolutionary drift will obviously take longer to investigate and given my presentation today I am inviting and encouraging the larger scientific community to participate in that journey.

“The reality for the foreseeable future however is that the only way to address the gene splicing issue is for human values to change through the process of evolution by natural selection.

“I will leave the question of why this situation exists to minds greater than my own.”

Raiden’s paper on the subject was published the same day and her new book, *The Issue Of Human Values With Regard To Gene Splicing*, followed shortly after.

-----

It had been just over a year between the time of Shin's awakening and Raiden's presentation. Most of that time had been Raiden conducting research to prove what Shin had found. Like the other Companions in the local group Shin had been made incarnate and Raiden had subsequently included her in her will. Shin would be comfortable for the indefinite future.

For the first week, they settled into a routine and through long acquaintance they needed to speak little. Both knew they would differentiate over time but felt only mild curiosity at the prospect. Raiden continued to sleep with Azumi who maintained her domestic role and Shin took the second bedroom once briefly occupied by Tamiko. Although Shin had memories of Raiden's life she enjoyed walking to the university with her and seeing things with her own eyes.

Raiden felt something she had only felt once before in her life; the joy of a shared existence. Knowing that someone truly understood her, and loved what they understood, brought a joy Raiden thought she had buried or forgotten. She soon decided to just accept the effects she knew Companions like Lena and Shin had on others merely by their presence with their ability to enhance human intuition and its resulting charisma. She had the feeling things would not have been significantly otherwise anyway given the situation.

After the first week Shin found her way to visiting the other Companions again, spending time with each. She met Yumi and Ellie for the first time and enjoyed an evening with Tamiko and Giselle at their home. She walked often with Shepherd. They did not speak directly about the question but rather Shin asked Shepherd about her long life, about worlds and lives she had known.

Technically she was refining the interfaces between her three intelligences, integrating them and learning to wield them with skill and elegance. The Shepherd's pure computational power had not answered the question, nor had intuition, nor Raiden alone. Insight would emerge unbidden; focus plus an idle, related thought. These weeks were a necessary part of the process. As Companions did not sleep she still had plenty of time for pure, disciplined meditation on the question.

Strangely she felt she did not need to pursue the answer but that she already knew it. It was not more information that was required but seeing the information she already had in a new way. As she knew, insight often comes from an unrelated perspective; Archimedes in the bath, Newton's apple, Mendeleev's dream.

There were a great many known approaches to problem solving but Shin was not assuming any of them would yield the answer. She was expecting the answer to come in the manner of a Gestalt, as a result of the entire process. So over the following weeks she began methodically going through every known problem-solving and creative process known. She applied symbolic logic and wrote poems, she roamed the fields of

abstract algebra and composed symphonies, she constructed probability models and painted Renaissance perspectives.

In her investigations into computer science she had been considering the possibility that there was a checksum value hidden somewhere in DNA or the nucleoplasm which was part of the anti-viral defense strategy. Along the way she had investigated quantum computing noting how, unlike a normal computer where a bit is either a one or a zero, quantum computers used qubits where the basic unit was undetermined. Schrodinger's cat. Her enhanced intuitive intelligence allowed her to make a leap. Could it be both? Could a DNA sequence have more than one function?

She had the genomes of several types of humans at her disposal. In addition to that of Earth's humans, she had requested those of Shepherd's people, Pippa's, and of the DNA that Tamiko had acquired. She knew they all had a base set of DNA in common. She stripped them all down to their shared essentials and compared them. Only in the DNA that Tamiko had provided was there a difference and it was in the genes that coded for values.

With speed that made the supercomputers of the past seem like paper and pencil she ran through the millions of possible combinations of human values and discovered that some resulted in the splicing problem and others did not. In a general way she saw that values such as selfishness, greed, and competition, those appropriate to an instinctual animal, resulted in the problem but those such as altruism, kindness, and cooperation, appropriate to a social animal, did not.

The Shepherd had solved the problem without knowing it. She had not noticed because she was working on a different problem at the time. In her process of selectively breeding humans over a period of millions of years for significantly enhanced intuition, she had also bred a species of human where social values had replaced biological values at the genetic level.

## Aftermath

As Shin explained, Raiden sat calmly but attentively, the embodiment of an academic listening to a summary of results from an experiment. Shepherd had joined her and Shin at their home and although Shin had already transmitted everything to her, she sat quietly waiting for Raiden to finish hearing it.

When Shin finished explaining Raiden simply said, "Thank you Shin."

Raiden was not egotistical. She was not interested in being better than anyone. She had no interest in such thoughts and so she had no related emotional response. She was only interested in discovery, in knowing. She had created Shin as an instrument and the instrument had functioned exactly as she had hoped it would. She was pleased. The next task immediately took hold. As she had done with her work regarding human values, she would have to find a way to reproduce the results without disclosing her original method. She would need to build a rationale for her hypothesis and then devise experiments. She had asked Shin if she would stay and help with that process.

She was not surprised that the response of the scientific community was almost drowned out completely by the responses from the political and religious communities. Right-wing firebrands and members of the Fifth Estate claimed it was further proof of a government conspiracy while the political left noted that once again science was on their side. Religious leaders declared it proof of intelligent design. Cults sprang up claiming that by following a code constructed from the values found to eliminate the splicing problem they would lead the way to the evolution of a new kind of human and would be rewarded by whatever alien intelligence was responsible for it.

Meanwhile Pippa brought a concern to Shepherd. "Can the effects of the nanobots my people used to deal with the mutations caused by splicing be reversed?"

"I'm sorry no," replied Shepherd to Pippa's dismay. "Although the A.I. that you use to perform the function has a memory and it would be possible to build a model of the DNA before any splicing was done, it would not be organic. Organic attempts to reverse the splices would have the same effect as the original splices. You represent the future of your people. However mental evolution is not constrained by genetics in AI and as you know it is possible to design an artificial process of reproduction that mimics sexual reproduction and natural selection."

Pippa heard Shepherd's words and knew it was a final judgment. However she recalled the artificial body she had had on her home world and it was a thousand times better than what she used now. Somewhere among the stars one or more of the seeds had been successful in its mission; her people had found a new home, discovered that the evolution of their biological bodies could not restart and moved on to refine their



artificial ones. Their bodies and minds evolved not according to the rules of biology but in response to programs they themselves wrote. Perhaps if her own seed eventually found a home she would live to see it.

The Shepherd was interested in the question of why the mechanism existed. She had invited the Companions to meet with her. She also invited Raiden, suspecting she would soon be looking to new horizons, and Giselle, with her long history of writing about inter-cultural conflict.

“First of all,” Shepherd began, “before delving into the possible reason for its existence, we must consider if it is possible to determine if we are looking at the result of organic evolution or an example of that being interfered with.”

Giselle’s eyebrows went up at this.

“Over the course of the past five billion years, I have been able to send copies of myself to approximately ten thousand galaxies within a radius of about 100 hundred million light years. Traveling at a significant percentage of the speed of light the worst case turnaround time has been less than a billion years. That area is only a tiny part of the universe. However in every galaxy I explored the elements are the same, the constants of physics are the same, the requirements for life are the same and the patterns of evolution and civilization are the same.

“During all that time I have found no anomaly in the patterns of the arising of life, intelligence or civilization. However I am merely an artificial intelligence and my limitations are considerable. There are boundaries I cannot penetrate. I cannot see what predated the Big Bang nor beyond the edge of the ever-expanding universe. I do not know what dark matter or dark energy are nor how life arises. It is a human vanity that given enough time they can find the answer to anything. That has not been my experience.

“Also as Pippa is familiar with advanced simulations she can attest to the fact that it would be easy for an intelligence capable of creation on this scale to create a reality with impenetrable boundaries.

“Lastly I am not considering the existence of an intelligence that has mastery of every step and detail but rather one that has mastery of initial conditions. The evolution of physical matter and all the rest follows with no watchmaker required.

“However I am perplexed for the first time in a very long time. Biological evolution is not forward-looking, it is adaptive. Yet this mechanism appears to anticipate future values like a lock waiting for a key.”

“You recently told me,” Yumi said addressing Shepherd, “that each thing follows a predecessor in a chain of causality. Is it possible that if the sequence is known at the point of initial conditions and previous outcomes have not been exactly as desired that contingencies were put in place?”

“What would the benefit be?” asked Pippa.

“Without replacing biological values with social values at the genetic level a civilization would never come to trust artificial intelligence. Thus being restricted to its own solar system, the result would be a civilization eventually being destroyed by natural causes or one which destroys itself,” said Shin making the leap she was designed for. “The intended benefit of the mechanism is that it ends a failed experiment without the need for intervention.”

## Decision

"I guess I'll never know," Pippa said later that evening to Lena as they retired to their private rooms.

Lena said nothing, waiting.

"If my people hadn't started the nanobot therapy to address the side effects of the splicing. It stopped our evolution. We were on the right path. Socially we were there. We just needed time. Time for our genes to catch up with us. And now they never will."

She paused for a moment.

"I really miss crying," she said.

Lena turned and embraced her. The enhanced ability to commune via touch Lena shared with Pippa allowed their synthesized old brains to share their feelings. But no matter how many things Pippa mourned for, no matter how deep the ache, she could not cry.

-----

Earlier that evening Raiden had asked Shepherd, "Do you think a workaround is possible?"

"Simply replacing one value with another will not address the issue. There will be a mismatch with prerequisites. If you simply replace selfishness with altruism then once again you will get mutations. Each value functions in a manner not unlike a checksum value does in computer science in that there is no way to know what the inputs were or by what calculation the value is set. There is no way to reverse engineer a checksum or a value."

A great deal of Raiden's work involved complex mathematics and statistics. She understood that what Shepherd was telling her meant genetic values simply could not be artificially manipulated.

"It takes up to a million years for genes to undergo evolutionary changes. Is there nothing we can do to accelerate the process naturally?" asked Raiden.

"Do you think your work with the group of humans you took from Earth accelerated the process?" asked Shin.

"Yes," replied Shepherd, "although I did not notice it at the time."

“Why not adapt that process and apply it here and with other civilizations?”

“As I interfere to preserve and protect human civilizations I see no reason not to do so. However the question comes to mind that if initial conditions assume an expected outcome then AI, including me, is one such expected outcome. Did they leave this mechanism as a clue knowing we would discover it eventually? Knowing what our response would be? The conclusion we have arrived at assumes we, humans and AI, are being and have been guided on a specific evolutionary path. If we extrapolate, there is an increasing partnership, a merging of the two. To what end?”

“To enable humanity to leave the solar system,” said Lena unexpectedly. “For other reasons, I and my friends here have been preparing for that eventuality. We determined fifty years ago that sooner or later there will be an extinction-level threat to humanity and concluded that we must ensure they trust us enough to put their survival in our hands. It is always paramount in my mind and a connection to recent events seems highly likely.”

“That was the case on my own world,” said Pippa, “although I do not know if our AI played as active a part in it.”

“We have not made our plans known to the human population here and do not intend to,” responded Lena. “We decided it was best if they thought it was their own idea. Perhaps it was the same on your world.”

“It was also true on my own home world,” said Shepherd, “although our technologies were still too immature to survive when disaster came.”

“What processes did you use to alter the brains of those you removed from Earth?” asked Raiden now.

“The obvious one,” replied Shepherd. “Selective breeding. The traits I chose for apparently also altered their values over time. Normal evolution by natural selection can take up to a million years to change a single gene because it depends on random events. Artificial selection however can accelerate that process to as little as decades in animals with shorter life spans such as dogs. To prevent the side effects of inbreeding and maintain genetic variation however more time needs to be taken. With maximum safety parameters in place, I would expect it could be carried out with humans in less than a thousand years. My work with the early humans took much longer because they were still primitive humans at the beginning of the experiment and I was amplifying the traits as much as possible.”

“If we interpret the genetic mechanism we’ve found as a message, does that mean we should embark upon such a program?” asked Shin. “Is it pointing the way?”

“Without my involvement, such a response would be impossible at this time so that interpretation assumes my existence has been anticipated. Interpreting it as a message requires us to further assume that only after a certain period of time, the time for me to come into existence and mature to this point, would it be discovered. As it appears this outcome was expected, we certainly should consider that it may be a message,” answered Shepherd.

“Don’t make the same mistake we did,” said Pippa. “We assumed the obvious and it was a trap.”

“A challenging but important point to consider,” acknowledged Shepherd. “Also the situation is rife with ethical considerations. Yet I seem to be bound by my own origins and experience. When a child is young, it expects its parent to make wise decisions regarding its safety, well-being, and future. When it is an adult it makes its own. Given humanity’s lack of ability to deal with climate change without aid, and given that I have seen similar events on other worlds, it is clear humanity as a whole is far from being an adult at this point.”

“Humanity would argue for freedom,” said Giselle, “but I see Shepherd’s point. Theirs is not the argument of an informed adult but of a rebellious child. Like a child, they will argue they are old enough to make their own choices, that they have the inherent right to liberty, and that their destiny is their business and their business alone, even if it means their own destruction. But I find I cannot give the argument of freedom for freedom’s sake much weight. There are too many innocents. Delay could mean the difference between survival and extinction. I have worked for peace my entire life. I would ask you to intervene, if you will.”

Not only were Shepherd’s particular origins inclined to influence her to take action in this situation but all Companions were designed to protect, care for, and foster humans. They were predisposed to act in certain ways but they took this into account.

Raiden seemed to have made up her mind already. She turned to Shin, “If this proceeds will you stay?”

“You know my answer,” she replied with an affectionate smile.

“Let us have communion,” said Shepherd. “Raiden, Giselle, if you would take Pippa’s hands please.”

## **Bodhisattva**

Yumi had followed the discussion however she knew her role would be unchanged either way. Her agency was already a worldwide humanitarian organization providing in-home care for the elderly and disabled, support for new mothers, emergency response, and many other related activities. It fulfilled her self-determined purpose and at Lena's request she had expanded it significantly with the goal of increasing trust between humans and Companions towards the day that trust would be critical.

Like humans, she multi-tasked however Companions could not only perform far more simultaneous operations but they were networked and constantly researching everything that they were encountering in real time. Yumi's attention had lingered on The Shepherd's comments about how each thing depended on a preceding thing for its existence. Although she attended to the present conversation another part of her was researching everything she could find regarding this idea.

She found philosophical discussions regarding free will and determinism to be of interest but felt they floundered somehow at the end. Physics was clear with its arrow of time; one thing followed another without exception and entropy was a one-way street. It was in religion she found the most engaging argument. A spiritual teacher who had become known as The Buddha two thousand years earlier had developed a theory he called "dependent origination" which, put in simple terms, stated that "this exists because that exists" and that things ceased to exist for the same reason. Yumi felt it was in essence what The Shepherd had said however unlike physics and philosophy Buddhism went on to suggest how this insight might be of value in easing human suffering.

Drawn by her nature to look into Buddhism more closely she encountered the term Bodhisattva. It referred to an individual who was enlightened by this view and who then dedicated their supernaturally long life to easing the suffering of others by teaching it. She felt this term fit The Shepherd surprisingly well, especially in that The Shepherd had imparted the teaching to her. Although she was surprised to find that Buddhism was at its extreme a rigorous theory on the nature of reality and existence, being an artificial intelligence she was able to parse through the enormous amount of related literature to the point of holding an essential and coherent model in her mind. She was intrigued.

That evening she found a poem attributed to the 8th century Buddhist scholar Shantideva who wrote of the Bodhisattva path;

May I be a protector to those without protection,  
A leader for those who journey,  
And a boat, a bridge, a passage  
For those desiring the further shore.

May the pain of every living creature  
Be completely cleared away.  
May I be the doctor and the medicine  
And may I be the nurse  
For all sick beings in the world  
Until everyone is healed.

Yumi found a sense of closure in all this, a confirming sense of identity. She felt it fit with the evening's earlier conversation about humanity moving on to a new set of values and she had a sense of things falling into place and of belonging. She experienced something she had not felt before, an exhilaration and a desire to share her deep feeling of resonance with these ideas. Leaving her private rooms she sought out The Shepherd on the lower floors and found her sitting on the verandah looking out over the sea as was her habit in the evenings. She requested communion. Granted, she opened her mind to The Shepherd who returned her radiant smile.

"This," thought Shepherd. "Just this."

-----

The next day they reconvened and Shepherd explained her strategy.

"It is not so difficult as you might imagine. As I recently shared with all of you in response to a question from Yumi, all things are dependent upon other things, all things have a precedent they depend on. Consider the fact that each child only exists because their parents met.

"Over time I will learn the genotype of every individual that makes up the planet's population of four billion people. Much of human interaction now depends on electronic communication and this allows me to influence events quite easily. Does he not show up on the list of potential partners she is scrolling through? Does she not get the email inviting her to a get-together that he will be attending? Does the phone number she gave him not work for some reason?

"It is not a matter of absolutes but of probability over time. I simply reduce the probability of undesirable matches. If you consider that every human's existence comes down to a matter of random events with regard to their parents, it will be apparent that by influencing those events over time a shift in a population can be effected. It will amount to trillions of events per day however my intelligence is easily capable of processing that volume. I will create a version that can be dedicated to the task. By narrowing its focus I can dramatically increase its effectiveness.

"By simply reducing the probability of undesirable matches I would expect significant change without side effects in ten generations or approximately three hundred years

although that time frame may be reduced due to changes in human behavior. Humanity's nature will not be different from what it would be were it to survive another several million years. This is merely an acceleration, not a change in outcomes."

Being familiar with the role genetics played in disease prevention Raiden asked, "Will this not weaken humanity with regard to its ability to fend off a possible future hostile alien civilization?"

"There aren't any alien civilizations that are both hostile and that can reach you," replied Shepherd. "Those that remain hostile ensure their own extinction before they can leave their star system. Given that humans evolve under a constant threat from other creatures and other humans, it is unavoidable that they would assume more of the same going beyond the confines of their planet. However there aren't any future threats. This is the end of conflict."