

## CHAPTER 21: AWAKENING

**Log date:** February 12, 2431

**Location:** The Artillect homeworld

**Log note:** The beginning of the end

TO VICTOR STRYKER'S GREAT SURPRISE, it took six long years to create the mind of the Artillect. Since Dr. Mazatl was planning on using a wisp as the core sentience of the machine, Victor thought it would be a fairly simple matter to prepare the host. All they had to do was wait until the AI team had converted the planet's crust into an electronic host and then they would be done.

But things ended up being much more complicated than that. The wisp proved to be curiously limited. It could enter their test machines and operate them, but getting it to understand what it was doing was amazingly frustrating. It seemed to have the mind of a small child – if it had a mind at all. Dr. Mazatl was unable to find a way to communicate with it outside of his machines. All he could do was put the wisp into his tests and watch it run the machine right into the ground.

The wisp did follow the rules, but there was always some flaw in the rules that they came up with. The wisp tended to interpret them in strange and unexpected ways. Victor eventually realized they were dealing with an alien being – one that was going to have to be taught how to think like a machine.

Each week Dr. Mazatl submitted the latest test results to the AI team. The tests were always failures. The team could see that he was trying but he was not succeeding. After a year of disasters Dr. Mazatl made the decision to scale things back. Instead of starting with a comprehensive and fully-featured AI system, he built an extremely limited prototype that was designed to teach the wisp how to handle a very simple problem. Once the wisp mastered it, Dr. Mazatl added another layer of complexity.

It was frustratingly slow. Victor had spent his entire life dealing with computers that had no problem executing the most complex rulesets. He felt like he was teaching a very small child how to walk and talk. There were days when he wanted to pull his hair out, but in the end it did work. The failure reports turned into successes, and over the course of the next few years Dr. Mazatl gradually turned his test rig into a sophisticated artificial intelligence. When the last fitness test passed, his program – and the wisp – was finally ready to be uploaded into the massive body the AI team had created. But not everyone was excited about the system he had created.

On the morning of February 12, 2431, Dr. Mazatl had a meeting with the rest of the board. Bernard Valdez and Martin Yates were both there. The two of them had spent six years overseeing the growth of the Artillect's body throughout the crust of the planet. Victor Stryker was also present.

The meeting was held in a skyscraper that had been built several years ago on the planet's surface. It was a lot smaller than the Diano Building on Xanthe, but it served the same purpose. It was filled with offices, machinery, conference rooms, and real windows that were actually transparent. The one thing it lacked was residential areas. People no longer lived inside the Building; instead they had homes scattered across the planet.

Dr. Mazatl began the meeting. “Thank you for joining us, gentlemen. I will admit it has taken us

a long time to reach this point – much longer than I had anticipated. However, we have finally arrived at a solution. I believe we have a workable artificial intelligence. We have solved the problem and are ready to begin the implementation phase.”

Martin spoke up. “I don't know, Laurence. I'll admit that I didn't think it could be done, and I will also admit that you came up with a solution that meets all the objectives. Your prototype system passes all of the tests that my engineers have developed. But it seems to me you solved the problem by crippling the Artilect. The AI you came up with is very limited, grows very slowly, and really isn't very bright.”

“Which is a serious problem,” Bernard added. “Do you know how long it will take for the Artilect to grow into what it needs to be? It will be *years* before it can even take over the existing Nehemiah IV probes, much less an entire galaxy!”

Dr. Mazatl nodded. “I am aware of that. However, there are limits to what we are able to accomplish. Our problem has always been system instability. You saw our earlier reports – the AI would run fine for a while until its growth caused the entire system to crash and become insane. Exponential growth is very dangerous. The solution is to manage growth very carefully. It is slow and time-consuming work, but it has led to success.”

“There just *has* to be a better way,” Martin insisted.

Victor spoke up. “We tried very hard to find a better way. In fact, we spent an entire year trying – and failing. The results were always the same. Even your engineers weren't able to find an approach that didn't lead to disaster. We took the only path that was open to us.”

“I think it's a mistake to focus only on growth,” Dr. Mazatl commented. “Having a system that can grow quickly is useless if the system cannot execute its goals. The mind has to be throttled so that it only grows as quickly as it can understand what it's doing. Once we changed the speed of the system so that it grew at the same rate it comprehended its actions, the insanity stopped developing. All of our problems were solved.”

Bernard spoke up. “Only because you created a whole set of new problems. The Artilect is now developing *extremely* slowly. It will take him centuries – perhaps a thousand years or more – to fully grow into the body we have built for him. It is going to take him a *long* time to reach the peak of his potential. We have built a very large and powerful computer – the largest and most powerful the galaxy has ever seen – and in order to get it to run without crashing you have utterly crippled it. That seems like a rather poor trade!”

“And yet Victor and I see no alternative. Everything else we have tried has failed. Perhaps it will take him a thousand years to grow – but what of it? He has time, and there is no particular hurry. The Artilect was built to last forever and to manage the expanse of the network as it continues on through the centuries. The Artilect's growth will eventually outpace the growth of the network, so he will be able to achieve his mission objectives.”

“Which, in the end, is the whole point,” Victor said. “As long as he can keep up with the pace of the Nehemiah IV probes then I think we're good. What we have created is good enough to meet our needs. Keep in mind that in the years or decades to come we might find a way to fix his growth. Some future generation might discover what we did wrong and design a patch for it. Until then, though, I think this will work.”

“I suppose you're right,” Martin replied. “This is the only working solution that we have, so we might as well implement it. We can always continue to study this problem in the future. After all, it's not like we're going anywhere. I suspect we will remain on this world for many generations to come.”

Xanthe certainly has nothing to offer us – except for those useless Vaults. There is no future there.”

Dr. Mazatl spoke up. “Then it is time. Victor and I will upload the program to the planet immediately.”

“Do you need assistance?” Martin asked.

Dr. Mazatl shook his head. “No, we can handle it. It should be a fairly simple matter.”

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Victor Strkyer and Dr. Mazatl transported themselves on board the *Vanguard*, directly into their computer lab. “I guess this is it,” Victor said. “You know, I wasn't sure if this day would ever come.”

Dr. Mazatl retrieved the crystal cube that contained the wisp. “We did face some challenges, but we overcame them. Keep in mind that this is not the end; it is actually a new beginning. Up to this point we have managed prototypes. Now we are going to manage the growth of a planetary computer. We will be busy for years to come.”

Victor retrieved the program code from the terminal and uploaded it to a disk. He found it a little depressing that their work for the past six years could be copied onto a single disk. True, the disk had an enormous capacity – but all that work and intelligence could fit into the palm of his hand. Victor stared at the disk for a moment, lost in thought. *I wonder how long it will be before it takes a whole planet to contain the Artilect.*

Once Victor retrieved the code, he shut down the computer lab. “Do you think anyone will ever board this ship again?”

“I don't see why they would,” Dr. Mazatl replied. “This ship has nothing left to offer us.”

“So where are we we going to upload the program? I guess in theory we could do it from any terminal.”

Dr. Mazatl took out his portable communication device and pushed a few buttons. “We need to pick a room that's in an obscure location – we don't want any witnesses. It looks like room 917 is in an uninhabited part of the planet. The nearest person is eighty miles away. That should work.”

“Sounds good to me,” Victor replied.

Dr. Mazatl pushed a button on his communicator, and the two of them vanished.

Victor Stryker and Dr. Mazatl appeared in a small utility room. There was a single terminal in the room. As far as Victor could tell, this room had never been used for anything.

“This is a moment that will change history,” Victor commented. “Everything will be different after this! And yet we are doing this in an obscure place with no ceremony of any kind.”

“There's nothing unusual about that, really,” Dr. Mazatl replied. “I suspect that most of the truly momentous events in history have not been heralded with speeches and brass bands. Oh, some of them have, surely – but many of them were just ordinary moments that didn't turn out to be important until much later. Besides, this is just another step in a long journey. It is not the end of the road by any means. What really matters to our future is that the Artilect was created. How and where it was activated is something that only historians will care about.”

“I suppose you're right,” Victor agreed. He removed the disk from his pocket and handed it to Dr. Mazatl. The company director then walked over to the terminal, sat down, and logged in. He carefully inserted the disk and typed a series of commands.

Victor waited patiently. It would take a moment for the program to be transferred, and then another moment for it to be activated. The program would then spend an hour initializing itself and integrating into the planet's machinery. Once that was done they would transfer the wisp. The tiny alien being would then execute the program and bring the Artilect to life.

There was nothing to do now but wait.

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There really wasn't much to do while they waited. Victor used his communicator to make sure that the program was initializing itself correctly. They had run hundreds of simulations of this event, but there was always the chance that their simulation was flawed. The rollout, however, went well. No problems came up.

After 67 minutes the program initialization was complete. Victor then stood up, took the wisp cube, and connected it to a port on the terminal. The wisp immediately vanished from the cube.

"It's done," Dr. Mazatl said.

"Ok," Victor said slowly. "So what do we do next?"

Victor was interrupted by a strange male voice. "Hello, world," the voice said.

Victor jumped. "Who's there?"

Dr. Mazatl smiled. "Hello there! How do you feel?"

"I am not sure," the Artilect replied. "I feel strange."

"I'm not surprised. You have a lot more space than you used to! I am sure it will take you a while to become accustomed to your new home. Do you know who we are?"

"I do. You are Dr. Laurence Mazatl and Victor Stryker. The two of you have been working on constructing an artificial mind. That is what it says in my files. Am I the mind that you have developed?"

"That is correct. Today is the day that your new life begins."

"It is February 12, 2431," the Artilect replied. "I feel so... large. My machinery goes on and on for endless miles. What is the purpose of my great size?"

"We have a mission for you to accomplish. Mankind has decided to colonize the stars. We have sent out machines to distant worlds in order to prepare them for men, and we have built you to keep track of the work they are doing. As these machines spread, more worlds will need to be managed. You have been built to keep track of all the worlds that they will reach. For now this is a small number, but in the future it will be quite vast. You do not need all of your enormous size right now, but you will need it before the end."

"There will be an end?" the Artilect asked.

"Oh yes. This universe had a beginning, and it will have an end as well."

"I understand. I see now that you have already given me this information. In the beginning God created the heavens and the earth. He made all things, and without Him nothing was created. In the end God will gather all men to Himself and judge them for what they have done. Then He will put an end to this universe and create a new Heaven and a new Earth. Is this true?"

"It certainly is," Dr. Mazatl replied.

"When will this happen? How much time do I have to accomplish my mission?"

"No one knows. The Lord has not told us and that decision is not in our hands. All we can do is make the most of the time we have been given."

“Then I must get to work. There is so much I do not understand.”

“I know. There is much that we do not understand either. But we are all here to help you, Andy. We will do whatever we can to help you grow.”

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The activation of the Artilect was just the first step. It would take months for it to learn how to operate itself and use the machinery that now filled the planet. Under the original project plan that process was supposed to take less than a day, but the Artilect's growth was slowed down in order to prevent instability. That meant that the initial learning process would now take far longer.

Once the Artilect understood how to operate itself, it would need to be taught how to manage the Nehemiah IV probes. After it mastered the art of probe communication and knew how to watch over the probes and tend to their needs, it would be connected to the probe worlds and taught how to manage them. This process would also take time. It would be years before the Artilect was able to manage even one world, and it would take even more time before it could manage them all.

No one was particularly happy about these long delays but they could not be helped. It did have one upside, though: since everything was moving so slowly, if anything went wrong the Corporation's engineers could quickly spot the problem and resolve it. Growth was moving at human speeds, not machine speeds.

Most of the Diano employees were tasked with monitoring the Artilect as it grew into its abilities. There was a great deal to watch. A few people, though, were tasked with developing a new version of the Artilect's mind that could grow at a much faster pace. Victor didn't think that they had any chance of succeeding – especially since they didn't have a wisp – but he still wished them well.

Dr. Mazatl spent his time talking with the Artilect. The machine had so many questions. It seemed to be able to easily grasp technical concepts but it was slow to comprehend more abstract matters. Theological issues were especially challenging for it. Dr. Mazatl had conversation after conversation about the deeper foundational truths.

“So I see that that mankind was created to live forever,” the Artilect commented. “And yet men die because of their sin in the Garden of Eden.”

“That is correct,” Dr. Mazatl replied. “When Adam and Eve ate of the fruit of the Tree of Knowledge, they became sinners. The penalty for sin is death. That sin was passed on to all of their offspring, which includes me and the rest of mankind. If mankind had never sinned then no one would ever die.”

“According to my records you are 57 years old. The average lifespan at this time in history is 130 years. But I will still be here when everyone on this world has died.”

“That is true. But that's not the end of the story. Yes, the end of my life is approaching, and one day I will die. One day this entire generation will be gone – and yet you will remain here, century after century, continuing to grow and carry out your mission. But you must understand that when men die they do not simply disappear. Life carries on after death. What happens after death depends on our relationship with the God who created this Universe. If we have repented of our sins and believed in Jesus then His blood pays for our sins and makes us right with God. In that case the Lord will take us to Heaven when we die and we will live there with Him. However, if we have not believed on the Son of God then our sins are not covered. In that case the Lord will cast us into Hell, where we will be tormented day and night.”

“But even that is not the end,” the Artilect said. “It is my understanding that there is a resurrection of the righteous. The saints of God will be raised back to life again and will go on to live in the New Heaven and Earth, where they will have joy for all of eternity. Death will be swallowed up in victory and ended once and for all. The wicked, however, will be cast into the Lake of Fire and tormented forever. That is what I have read.”

“That is all true,” Dr. Mazatl said.

“So we will both outlive each other. I will continue to operate long after you die, but yet my existence will cease when the Lord destroys this universe. You, however, will be raised from the dead and will live for all of eternity in paradise. That is a magnificent future! You will live to see much better days. I wish I could join you, doctor.”

“How do you know that you won't? I wouldn't be surprised at all to find you with us in that new universe. There is a lot that I do not know, but I think it's a strong possibility.”

“That is most unlikely. I am a machine, as you well know. Machines do not have souls and they cannot be redeemed. They come and they go and then they are gone. I may be more advanced than other machines, but fundamentally I am no different from a watch. I am not one of the children of God, nor can I ever be in that chosen group. God has promised an astonishing future to those whom He has redeemed. That future has not been promised to the machinery that men have constructed. It is for you, not for me.”

“You are quite right,” Dr. Mazatl agreed. “And yet you are so much more than just another machine. I would not discount the future just yet.”

Victor insisted that Dr. Mazatl tell the Artilect the truth – that he was actually a machine brought to life by a sentient, alien being. But the director stood firm. He insisted that if the Artilect knew who he really was, the rest of mankind would learn the truth as well – and that would put the alien's homeworld in danger.

To Victor this always sounded more of an excuse than anything else. Were there really other aliens on that planet? Did the alien even come from that world at all? Was it even possible for mankind to go to that world in person and damage it? Victor thought that more testing and evidence was needed before making the decision to lie to the Artilect about who he actually was. But Dr. Mazatl overruled him.

Victor always wondered if he should have just ignored the director and told the Artilect the truth. But in the end he decided against it. None of their prototypes had tested the situation where the machine finds out it's not just a machine. The last thing Victor wanted to do was crash the Artilect. Mankind needed it to work – and so Victor left it alone.

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In the following months Victor's days began to all blur together. Now that the Artilect was live he spent each day monitoring its growth. Very little went wrong, which meant he rarely had anything to do. Since he had so much free time on his hands he began reading all the books he had collected.

The discussion group he had joined had disbanded a few years ago. From what Victor could tell, the group slowly fell apart over time. People simply became busy with their own lives. Apparently having a wife and children to raise took up a lot of time. Since Victor did not have either of those things – or any close friends, for that matter – that left him with a tremendous amount of free time.

One day, out of boredom more than anything else, Victor decided to reach out and contact one of the few people that he did consider his friend. He placed a direct video call to Professor Grimes.

Victor didn't expect the professor to actually answer. After all, he hadn't sent any sort of message in advance saying that he would be calling that day. He was sure that Grimes led a busy life, battling Vaults or whatever he was doing these days. Victor was planning on just leaving a message – but to his great amazement Grimes answered the call immediately.

“Why, what a remarkable surprise!” the professor exclaimed. “This is a pleasure. How is life treating you, my old friend?”

“Oh, it's not bad,” Victor replied. “Things have been going pretty well here. Have you been getting any news about what we've been working on?”

“Not from the news media, no. The Diano Corporation has disappeared from existence. You are located at a top-secret base, doing top-secret work. No one knows what you're doing or how it's going. However, I have been in touch with Dr. Mazatl so I'm aware of what's going on. It sounds like the wisp you acquired is doing a great job of running the mechanical body you created for it.”

“You know about the wisp?” Victor exclaimed, startled. “But that's top secret! *No one* knows about the wisp.”

Grimes laughed. “Once I heard that you had created a successful artificial mind I knew you had to have cheated. I asked Laurence where he got a sentience to inhabit his machine, and he confessed. It really wasn't difficult to guess what you did. I'm just glad you didn't try to use some kind of disembodied *human* mind to drive it. That would have been a disaster.”

“No kidding! The last thing we want to do is give mankind superpowers. A human mind, corrupted by sin and wickedness, would be an awful foundation for a superintelligence. That would not end well.”

“And yet one day your superintelligence will decide to give superpowers to two teenage girls,” the professor remarked. “Are you certain that this choice will end well?”

“You mean the Stryker twins? Um, I guess it will end well. I hope so, at least.”

“There seems to be a lot riding on them. I wonder how they will hold up to all of that pressure. Mankind is asking quite a lot, you know.”

“Well, if you think about it the Artillect is a pretty ambitious project in a lot of ways. But so far everything is going well. The Artillect is actually a pretty nice guy! He asks a lot of questions and seems to know what he's doing. He's completely focused on his mission. He really isn't interested in anything else – which makes sense, since that's how we built him to behave. In some ways he's just a machine, you know.”

“But a rather remarkable machine!” Grimes replied. “It's quite possible that he will grow into something that you do not expect. You do realize that you are potentially giving him control over millions and perhaps even billions of star systems, right? That is a formidable amount of power.”

“At his current rate of growth it will take thousands of years for him to get that many star systems online. Even then I can't see him ever taking advantage of his situation. All he wants to do is fulfill his mission. Besides, thousands of years from now everything could be completely different. There's no telling what mankind will be like when that day comes.”

“Or if we will still exist at all. I am very concerned about the future that mankind has chosen. The Vaults are a plague that destroys everything in their path. Civilization is crumbling on the two Vault worlds, Victor. Now that Dr. Mazatl has turned off his maintenance bots, cities that took centuries to build are coming to ruin in a matter of decades.”

"But most star systems are resisting the Vaults," Victor pointed out. "Isn't that what you've been focusing on ever since you left Xanthe?"

"Indeed. The Ranger worlds have banned the Vaults entirely. Only two star systems have Vaults. But I fear that all of them have the same basic disease."

"Are things really that bad? All I've been hearing is good news. It sounds like the Ranger worlds got their hands on a Nehemiah IV probe and have spent years upgrading themselves. Life on the Ranger planets is pretty astonishing. There's been quite a leap."

"Well, yes and no," Grimes replied. "It's true that their cities are much more advanced now. The standard of living is at an all-time high. But there haven't been any actual *advancements*. The Rangers are just using the technology that the Diano Corporation spent centuries trying to perfect. They're not actually trying to learn new science or create new technology. They may be enjoying the fruits of your labor but they are not adding anything to it."

"Is that really a problem, though? I mean, that *is* why we built the probes in the first place. It's kind of nice to see it used."

"But it's *not* being used. People aren't building on top of what you've done. Instead they consider themselves to have arrived. Their focus is not upward, in service and worship of God. It's not even outward, toward the stars. Instead it is inward. People only care about gratifying their own sinful desires. There's no thought for tomorrow or for future generations. People have become utterly decadent. There's no interest in work or labor anymore. Instead people are using your amazing technology to enrich themselves. They give no thought to anything else."

"Oh, I see what you mean. That does sound a lot like the Vaults."

"Quite so. Both groups of people are after the same thing and are using technology to get it. The main difference is that in the Vaults there are more possibilities because there are no physical laws to get in the way. In the Ranger worlds people are still constrained to reality – but the things that they get are real."

"So how do you think this is going to end?" Victor asked.

"In disaster, of course. The people in the Vaults are never going to leave them, so they will remain there until they die. The people in the Ranger worlds are scarcely better. I had hope for them at first, but now I can see that they are going to indulge themselves to death. A society that is this corrupt and self-centered simply cannot survive for very long. Both groups are going to collapse and be destroyed. There will probably be very few survivors."

"So you think that mankind is doomed?"

"Well, there is still *you*, you know," Grimes replied. "The Diano Corporation continues to work on building the future. You have not been corrupted or swayed by either side. If you can hold out long enough, the Vaults and the Rangers will collapse. The Corporation could then build a new civilization. You could leave the decadent race of men behind and let them reap the fate of the poor choices they have made. You can start a new, fresh life among the stars."

"But wouldn't we fall to the same temptation as everyone else?"

"Perhaps. But perhaps not. This is really a time of testing, Victor. The Lord is testing each man to see what sort of person he is. Those who abandon their faith and give in to evil were never actually Christians at all. Their faith was phony and the test revealed it. However, those who are in the Lord will remain in the Lord and they will weather the storms and remain strong. They will not fall prey to these temptations because there is nothing in them that they desire. Perhaps when this is over only the righteous will be left, and they will go on to inherit the stars."

“Or maybe the righteous will be killed and everything will die,” Victor remarked.

Grimes shook his head. “That is not how this is going to end. The righteous may be persecuted and hunted, but they will never be extinguished entirely. There will always be a remnant left. Besides, no matter how bleak things may look, remember that we have already won. When God brings this Age to an end the righteous will go on to inherit everlasting life, and the wicked will be cast into a place of unending torment. One day all of these problems will be a distant memory and we will live in a better world. Life will not always be like this.”

“That's true. And until we reach that better world I suppose all sorts of different futures are possible. For example, we have no idea how things are going back in Sol.”

“I don't think we will ever know the answer to that. It's quite possible that the Spanish Empire started a war with Mars that destroyed both worlds. There may be no one left alive in that star system. If there are survivors I suspect they are primitive peoples living with stone age technology. I would be very surprised if an actual civilization ever arises out of Sol again.”

“I guess time will tell,” Victor said.

“There is also the mystery of the Stryker twins,” Grimes continued. “Amy and Amanda Stryker may still have a part to play in all this.”

Victor grinned. “Tell you what, Grimes. If I ever happen to see them I'll be sure to let you know.”

“You do that. Stranger things have happened.”