

Doomie

LIEUTENANT-COLONEL VINCENT LOCHET, FRENCH AIR FORCE



SCENE I: The Report

White House, Washington, DC, 21 FEB 2112

Louis was anxious. All indicators seemed to point to the fact that the year 2112 would not be a good one for him. Polls were average. That was not the problem. As he reflected on the situation, he recognized that he would still have to do something to get rid of this troublemaking Republican candidate. *That's not my main problem now. I will deal with her later.* He knew how to win a presidential campaign. He had done it almost four years ago. The intelligence report on his desk, however, painted a dire picture.

"Mr. President?" a voice interrupted his thoughts. He looked toward the facial hologram that slowly appeared in mid-air in front of his desk.

“Go on, Debbie, it can’t be worse.” He had always addressed his secretary by her nickname, a breach of protocol that people seemed accustomed to now. Louis despised rigid protocols.

“Mr. President, they have arrived. May I let them in?” prompted Deborah Wieseldon, with her delicate soothing voice.

“Stand-by,” he snapped. He paused for a second, thinking. Then he said, “Let them wait in the conference room instead; I’ll join them in a few minutes.”

Let the Joint Chiefs take the time to coordinate a bit, he told himself. I’m fed up with all these nonsense, so-called solutions they keep bringing in and fighting over. We need to be more united and effective now. The stakes are higher than their pathetic concerns about their individual careers or the benefit of their services. I need to force them to actually speak with each other.

“Will do, sir. I’ll open the Eisenhower Room and prepare some coffee. You look exhausted,” she added with sympathy.

“Thanks, Debbie. I’m tired indeed. I don’t know what I’d do without you.”

“You’re welcome, sir. The room will be ready in less than five.” The hologram swiftly disappeared.

She is truly the linchpin of my presidency, he admitted to himself. If only they were all as smart as Debbie! He sighed, thinking of the people gathering in the Eisenhower Conference Room.

The report on his desk was 350-pages long, delicately bound so he could read it easily. *350 pages full of useless details, as usual,* he thought. Fortunately, the first page was clear enough to understand the problem. Written by Debbie, it was a summary that cut out all the complex math detailed in the report. He may have graduated from Harvard, but he was not a mathematician. It looked like some random Estonian female scientist-astronaut—*whatever she is!*—raised the scientific community’s concerns about a distant asteroid she just discovered some billion miles away from Earth. Louis could not comprehend that distance. The discovery had occurred more than two months ago, but nobody had paid serious attention to it at that time.

*No doubt NASA scorned her. It wasn’t backed up by any American sources! I guess the tables have turned now that the USSF is backing up her claims!*¹ *This is just more evidence of the lack of coordination between our services. They should have reported together,* he sighed.

From the start, the Estonian astronomer was arguing that the course of this massive asteroid—*What is that name again? Some stupid combination of digits and letters. . . I just can’t remember*—was inbound toward Earth. An almost perfect interception course. There was still some uncertainty for some reason he could not understand. In short, he should expect a collision before the end of the year.

Simple and effective. *A Big Boom somewhere and everybody dies in the region or even all over the place.* That, he easily understood. What Ester Klaviste's initial report forgot to mention, though it was clearly the most important piece of information, was the size of this "Doomie" asteroid. *The nickname that social networks eventually settled on to christen the asteroid is sure easier to remember!* Louis smirked.

Indeed, as people eventually figured out, Doomie was huge. Desperately huge. The "Planetary Defense" scientist community—*How strange a name and belief they have, to think that they can defend this blue dot with telescopes and computers!*—finally agreed to estimate its average size to something close to 97 percent the size of the Moon. *. . .97 percent! That's huge indeed!* The report was hardly able to list all the potential consequences of a collision. "Too complicated," they complained. With her elegant handwriting, Debbie simply scribbled three words to sum it up on the top of the report's front page: "Humanity's extinction." *That, for sure, is going to cause more trouble than Lily Turner taking my seat in the Oval Office,* Louis reflected.²

Let's face it, now, he thought. *I need the Joint Chiefs to develop a plan. We can't fail! This is not only about me, or US citizens. It's a matter of humanity's survival.* He remembered a famous quote from Arthur C. Clarke, "Dinosaurs died because they didn't have a space program." *Well, good news, we do have one! I know better than anyone else how much it costs the American taxpayer! What I don't know perfectly well, however, is what they actually do with those billions of dollars we give them! I should have dug more deeply into that subject. Just couldn't find the time. . . Anyway, now it's damn well time to do so!*

He stood up and put his jacket back on.

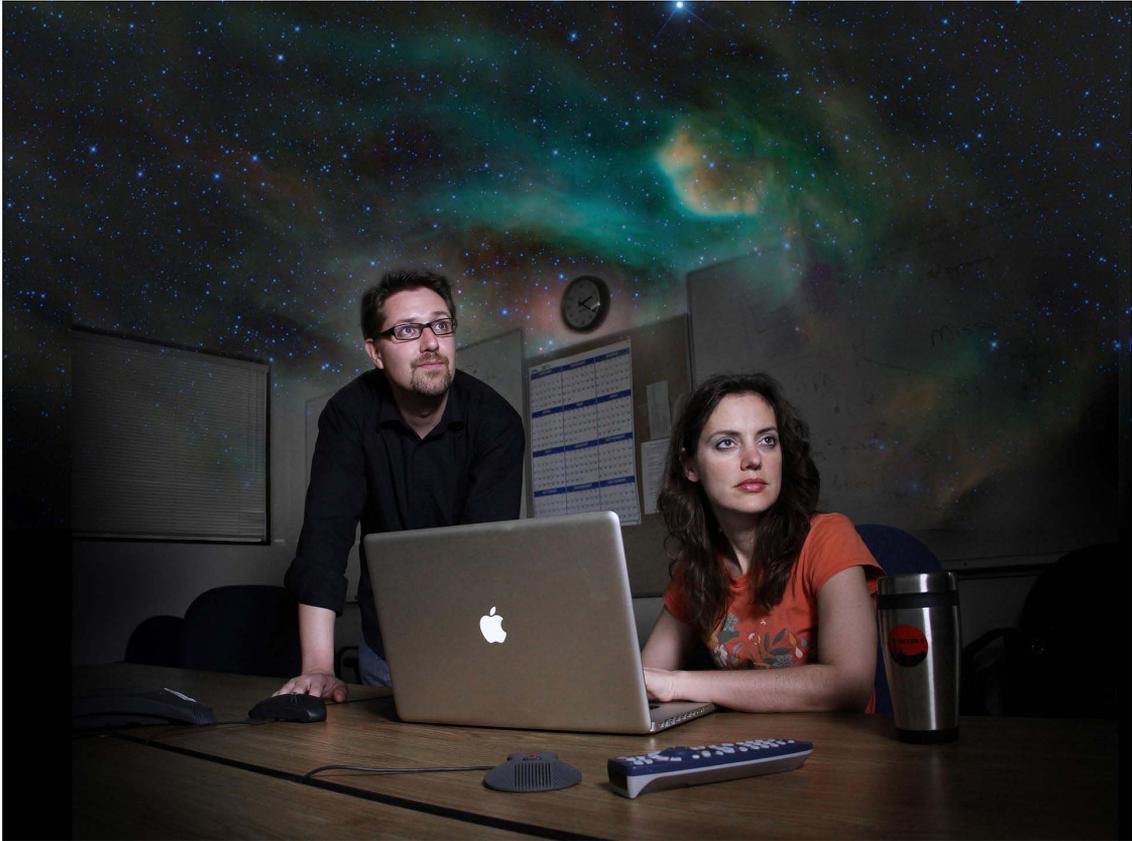
Let's face it. After all, isn't it an American that always saves the world at the end of every Hollywood movie? Let's make it happen again!

He headed to the door, taking a deep breath.

While wondering how he would deal with this vital threat, he attempted to lift his spirits. *Perhaps history will remember Pres. Louis Fitzgerald Kennedy for his space program? How could we find a powerful slogan for my presidential campaign with that? I need to talk with Merryl about that. She will know how to turn this situation to our advantage. Still, I don't want them to refer to JFK again. I think people are done with all that bullshit about my blue bloodline. How about something more subtle? "Vote Kennedy: his space program is our only hope to save America and the world."*

Yes, we need that space program. Let's hope it will be good enough now.

He opened the door.



SCENE II: 2111-KH₇₅₈₆

European Center of Planetology Research, Narva, Estonia, 29 FEB 2112

Dr. Ester Klaviste was a famous astronomer in Estonia. She held three PhDs in astronomy, planetology, and geology from prestigious universities in Europe. She had even held an internship at Caltech, when she was only 18 years old. *That is not too bad a memory*, she recalled. Like any space dreamer born in the 2070s, she was deeply influenced by the tremendous Indian success of 2076: the first occupied base on the Moon. She very well remembered how stunned she had been in front of the Live TV broadcast that streamed the landing of the first Indian astronauts. Ten wary Michelin Man-esque figures were greeted by human-size robots, who introduced them to the new Moonbase remotely built for them. To the great lament of Ester's parents, that moment had been her epiphany. Her mother was worried that she was growing up too fast. She has never stopped studying space since 2076. She deeply wanted to become an astronaut, and she succeeded. Today, her parents felt immense pride in her accomplishments.

She started studying for her first PhD when she was 18. Initially, she focused on how Moon geological resources could be used to sustain life on the Moon on an industrial scale. She was sponsored by the European Space Agency (ESA), which had just recently signed a partnership with the Indian Space Research Organization (ISRO) to work on Moon-related subjects. At that time, the Indians were facing tremendous difficulties in exploiting the Moon's underground resources. As their work progressed, they were slowly realizing that sustaining life was not simple at all, despite all their advanced technologies. Based on all the samples she received for her studies, Ester was inclined to conclude that it was impossible to grow anything in the lunar soil. Most likely, the Indian Moonbase would have to rely on supplies from Earth forever—an extraordinary logistic challenge that did not please the ISRO. However, in her PhD dissertation, she expressed her hope for a potential solution using revolutionary digging techniques and complicated chemical reactions to bury crops in the deep, frozen crust. Though it was a tiny hope, it triggered the Indians' interests enough that they finally decided to open the Moonbase to foreigners, and especially ESA astronauts, provided that the ESA would recruit Ester. In a flash, she became extraordinarily famous and an astronaut trainee.

Today, people wanted to hear from her all over the world. Oddly enough, it was no longer to hear about her experiments on the Moon in 2095—which ultimately proved her technique was unviable. Instead, people wanted to hear about her more recent discovery and publication. It was more attractive than her tall silhouette and shiny smile—which, she must honestly admit, was rather unusual. To be fair, today, she was not smiling.

“So, you say that this asteroid, hmm . . . what's its name again?” asked the journalist.

“2111-KH₇₅₈₆. The International Astronomical Union has nicknamed it *Elpis-97*,” responded Ester.

“*Elpis-97*,” the journalist nodded and scribbled in his Q-Pad. “So, *Elpis-97* is about the size of the Moon?”

“It is. Approximately 97 percent, based on my calculations. That's why we call it this way: *Elpis-97*,” Ester obligingly answered. *I'm not going to do any more interviews after this one. I just can't bear saying the same things over and over again. I have more important research to do. I need to assess the potential damage and point of impact to see if there is a possibility of survival somehow.*

“Ah, I see,” commented the journalist. *Yeah, you see, thought Ester. Always pretending that you understand everything, you journalists! But what interests you is only the potential drama, scandal, or natural disaster behind any news. I need to end this quick.*

“The most important things to know are in the report I gave you,” she said. “Elpis-97 is on a highly-probable interception course with Earth, and my latest predictions indicate a time-window comprised between December 15th and the end of the year 2112. I have about 95-percent certainty on these figures for now. It significantly grows over time though. If nothing deviates, the asteroid Elpis-97 will collide with Earth. Based on its size, there may simply be no chance of humanity’s survival if it hits Earth right in the middle. Again, you will find all the details for your article in my report. There are even pictures of Elpis-97 that we have made here at the observatory. They are clear enough for your front page, and you are authorized to use it. The pictures belong to the international community anyway. This report was officially published yesterday.” *It could have been published much earlier if it wasn’t for that stupid government! They were afraid of its conclusions and couldn’t believe it. They initially asked me to remove almost two-thirds of the report, including the size of the asteroid! What’s the point of hiding such information? That’s outrageous! People will panic eventually, regardless of when the information comes out. You can’t fight that! The sooner a mitigation plan is worked out, the better the government’s narrative would be. I thought we had learned the lesson in 2104, after the first KCC in LEO!*^β

“Now, if you please, I have work to do. You can ask the front desk office to show you the way out.” She stood and gently gestured toward the door. She knew her imposing 5-foot-9-inch stature would compel the journalist to obey.

He stared at her as if he was finally realizing her remarkable attractiveness. Meanwhile, he was seemingly troubled by her natural authority.

While standing up, he surprisingly dared to ask: “It is said that you initially predicted that,” he looked at his notes, “that Elpis-97 was going to hit Earth on December 21st, 2112. Can you confirm this? Do you believe it has anything to do with the Nibiru cataclysm?⁴ Could it be something launched at us by an alien civilization? From Zeta Reticuli for instance?”⁵

Ester gasped, literally stunned. *This is such nonsense! Now, I see why you wanted to interview me! That is not going to happen again,* she firmly told herself.

“Those are merely doomsday tales for naïve believers. It has nothing to do with science. There are no aliens on Zeta Reticuli, nor is there any credence to whatever other such fantasies people may have. You will have plenty of time to see Elpis-97 approaching with your own eyes, in due time. This is an actual natural disaster. Now, please, I have real work to do,” she disdainfully gestured him toward the door again, while she headed back to her desk, completely ignoring him.

The journalist watched her turn away, seemingly abashed. As he closed the door behind him, he realized that he should have asked her out to dinner instead of poking her with

that Nibiru thing. Especially considering that the end of the world was perhaps approaching.



SCENE III: Kennedy's Speech

Kennedy Space Center, Merritt Island, Florida, 14 MAR 2112

“Ladies and gentlemen, please welcome the 61st President of the United States of America.”

Louis climbed the few steps that separated him from the stage and slowly walked toward the podium. He was taking advantage of his presidential posture, his elegant style, and relatively athletic build that belied his 60-year age. He faced

a partisan crowd from which there was nothing to fear. He was not going to campaign today—at least not directly. Louis was hoping to write history and, if possible, save the world. What a cliché. To be honest with himself, he was not entirely confident with the final strategy his advisors had proposed. *At least they have all agreed on something*, he thought, *and, as far as I know now, it's the best option we have*. He could not recall all the stupid things he had heard during the past weeks, but he remembered one scientist saying that they should attempt to contact Zeta Reticuli, just in case. . . They had discussed that for two hours, seriously considering the option. *Perhaps the most desperate hours so far. . . This Zeta-Reticuli story is just absurd. At least our strategy is rational, and we have a significant chance to succeed. Hope matters! Let's focus on that. Something has to be done anyway. Failure is not an option!* Each new daily scientific report he received seemed to confirm collision with Doomie was a certainty.

“Dr. Daven, Mr. Vice President, Governor, Congressmen and Congresswomen, Senators, distinguished guests, ladies and gentlemen:

“What a blessed day in The Sunshine State! I believe you all appreciate our privilege to enjoy such perfect weather. Yet, my concern today is to make sure there will be other such blessed days—many others—for all of us.

“As you know, we are facing a dreadful threat. I say *we*, but I don't mean *Americans*, because this time, it's not only Americans who are threatened but instead the *entire* human race on Earth.

“I am told, and I am sure you have heard the news too,” he paused while the crowd gently chuckled. *Indeed, media and social networks have gone completely crazy about that asteroid. There is a constant flow of so-called new reports or stupid man-on-the-street interviews. It's hard to keep calm in such a climate. But polls show that people are growing tired of it. It is time to act and change the course of history.*

“I am told,” he repeated with a subtle smile, “I am told that an asteroid is bound to destroy our home planet, just like that,” he snapped his fingers.

“I must tell you, *this* is real. This is not a drill. This is real. NASA administrator Dr. Catherine Daven here can confirm. In coordination with all US departments and services, and with the support of all our spacefaring nation partners, we have confirmed the existence of this threat. As I speak to you now, analysts are constantly monitoring the asteroid's approach and building stronger confidence in our data. This is real,” he said firmly.

“India, with the help of their remote Moonbase sensors and their best quantum computers, has confirmed the exactitude of our prediction. Likewise, New-Town has also confirmed this analysis.⁶ SpaceX, who oversees New-Town's operations, has already offered its help in dealing with this new threat. I will come back to that in a minute.

“What I must tell you now, and what I want you to strongly believe, is this simple thing: we are not afraid. We are not afraid because we have planned for this for decades. We are not afraid because we, the United States of America, have never been afraid. We know what to do, and we have a plan for this.” Louis sounded much more confident than he truly was.

“What I am going to tell you today is one of our most guarded secrets. One that we have been developing in Area 51 since 2075. I am sure you will appreciate this deliberate sharing.”

He paused. The crowd had broken into loud whispers. He waited for the noise to die down. *If only it had been already fully developed and tested! This program has been running over budget from the very first year. It's not surprising that my predecessors were reluctant to keep it going. Fortunately, military generals can be relied on for their relentless perseverance when it comes to dumping money into pits. They somehow managed to keep the program alive, despite every president's attempt to shut it down. I must admit this particular one knows his job.* He cast a glance at General Robert C. Laville, Chief of Space Operations. Louis's eyes were saying: *Now, you must make it work.*

He slowly reviewed his other advisors. *They all must feel the pressure now.*

Louis addressed the crowd, “I share this with you today, because the United States is a country of sharing. Through sharing our values, our culture, and our technologies, we are committed to make the world a better place for humanity. For we, the people of the United States of America, believe that we have an important role to play in this world. This is not because we believe ourselves to be superheroes, nor superior or more capable than other nations. No, it's not about who we believe we are, it's about what we believe the world needs. Today, we will ensure the Earth remains a safe place for all of us. Together, with all our partners, we will prevent our planet from meeting a terrible fate.” He paused and looked at the audience. They were almost religiously listening.

He could feel the tension himself too. He took a deep breath before declaring, “We are deeply committed to justice and we believe that there's no justice in letting an asteroid collide with our home planet. Preventing that from happening is a just cause, and I solemnly declare that the United States will dedicate all its efforts to that task. I will personally ensure it. We will leverage all our resources from all our departments to succeed. My advisory team behind me knows very well how hard I will press them to succeed, and I already know the Congress and the Senate will support us.” After weeks of fighting over the budget, the needed reorganization of funding and resources, and particularly complex negotiations with the Republican Party (represented by his long-time foe, Lily Turner), LFK felt proud of having reached national consensus.

“As you know, I have fought hard for this these past weeks. I have done so, because we must not fail. We can’t let our space program fail as it did in the 2070s. American citizens know more than any others what it means to fail. We have never accepted it, and there are even fewer reasons to accept it today.⁷ That is why I can assure you, we will defeat Elpis-97, and we will keep on. HUMANITY WILL PREVAIL!” Louis shouted.

Tremendous clapping ensued. He looked at Debbie and nodded. A picture appeared on the screen behind him.

“So, this is it. The Boston Project.” The picture was showing a massive spaceship, standing on four streamlined legs. It was equipped with a very large nozzle, featuring the latest SpaceX hybrid-engine, capable of delivering 1,000 tons of payload to Mars, back and forth. The total height of the spaceship was only 250 feet, but its width was close to 30 yards. It was clear that it had multiple internal holds.

“I won’t get into the details, that will be the job of Catherine and Bob in the following press conference that some of you are authorized to attend. But I can assure you, this space weapon—let’s call it what it is—is very capable. It features multiple options to take down, repulse, or remove any threat,” he claimed. “This was merely a project until yesterday. Today, I am pleased to tell you that I have signed an agreement with the United Launch Alliance to build this spaceship with the help of our finest space companies.⁸ It shall be launched in less than ten months. I repeat, less than ten months!

“Once, we pledged to reach the Moon in less than a decade. Thanks to our extraordinary space industry, our brilliant American scientists, and our very capable partners, I now pledge, my fellow citizens, that we will save the world in less than 10 months!” he roared.

Crowd clapping. *It’s going well*, he thought, looking at Debbie to get her usual approval nod.

“I will pass a bill to Congress, no later than tomorrow morning, to redirect most of our project funding toward the Boston *Mission*. It is not a project anymore. It is the United States’ prime mission, our contribution to the survival of our species. That will be hard, but we don’t fear it. Next week, in the United Nations, I will also open discussions with all our partner nations to request additional funding and to guarantee our collective success. All willing help is welcome. We are all facing the same threat, and we need to be united. I have already approached the Indian government this past week to request their support, and I am pleased to say that they have agreed to send us scientists, resources, and additional funding no later than next week. For that, I wish to personally thank Prime Minister Ujjwal Kumar. India is a key partner in this endeavor. Please join me in a round of applause for the Republic of India.”

They clapped altogether, again.

“Now, as I leave the stage, I want you to remember one thing.” Louis paused for solemn effect.

“Human beings are survivors. We have survived every single threat so far, and we shall not be afraid of any future one, including that asteroid! We will survive through ingenuity and grit. Our tremendous force is our ability to believe in the future and make better things happen.” Louis waved at the screen behind him without looking at it. He was too concentrated in connecting his voice with every mind and soul of the audience.

“Here, I give you hope, and on this hope, we will build our future.”

“Thank you. God bless America, and God bless Planet Earth.”

A mix of cheers, clapping, and shouting filled the air as people stood in ovation. Nearly 10,000 spectators were realizing the historical depth of the LFK speech they had just heard.



SCENE IV: The Wrong Stuff

USS X-101, Lagrange Point No. 4, 20 DEC 2112

Bradley glanced at his watch. *Less than 24 hours before impact now.*

The past three days had been the most intense of his whole life. No doubt about it.

He adjusted his belt, feeling slightly uncomfortable in his sophisticated chair. *Comfort was certainly not one of the top priorities of the engineers that designed this deadly weapon*, he thought. He checked one digital screen on his left. *Two and a half hours before the next opportunity. I have time. But that will be the last attempt.* He felt angry for the past two days of previous failures.

“Captain Martin?” spoke a familiar voice.

“Yes, Houston, I know,” he snapped. “It is probably time to grab some food by your standards. But I’m not hungry. I’d rather review the procedure before,” he added, anticipating the remarks. “Don’t worry about me, I’m fine.”

“I’m sure you are, Brad,” another familiar voice echoed in the speaker system. “But you know we care about you, brother, and your vitals here, as we read it, show that you have very low blood sugar. You didn’t eat anything for the past 24 hours. Please grab and eat a snack bar for me, will you?” *Sure, you care about me, Nick! Very kind of you not to say that I’m your last hope too! The same hope that conveniently made LFK popular enough to be re-elected... I have enough pressure here. Thank you, brother!*

“All right, all right. I’ll eat something real quick. Thank you for caring, guys, but don’t worry. I’m good.” Indeed, eating could help. His stomach was aching, but it was not due to the thought of failing once more. He needed calories to get through the next three hours at his peak.

Bradley Martin unfastened his seatbelt and smoothly floated to the back of the ship. While he was unfolding a small pack of food and mechanically cooking it, he recalled the events of the past 48 hours. *It has been harsh from the start*, he told himself. As expected, the launch sequence had been some of the most dangerous he had ever experienced. Since 2108 and the second KCC in LEO,⁹ launching anything above 300 kilometers had become almost impossible. SpaceX was now the only company with enough knowledge and resources to dare launch anything to space above LEO. The company could afford repetitive failures. However, they would never dare to launch any human being above LEO—until today. SpaceX’s success rate was too low (roughly around 35 percent) because of all the collisions that would occur during the LEO belt crossing. Only the survival of New-Town, the SpaceX Mars colony, was enough of a justification to take the risk of sending payloads above LEO. New-Town had once required supplies from Earth to sustain life on Mars. It was initially said that the colony would be able to reach 100-percent autonomy by the end of the year 2110. Bradley recalled reading that in some SpaceX plan but did not know if they had succeeded without delay. He wondered if the 25 people living on Mars were safe now.¹⁰ *At least some humans may survive Doomie anyway, whatever happens*, he thought. He wondered if one

day he would have the opportunity to visit New-Town. *Kazuo Mishigori would surely welcome me!* he believed. *What a coincidence that Kazuo happened to be the mayor of the Mars colony. Or maybe not!* All Bradley was able to remember of Kazuo, back in Japan, were the stories about space the scientist kept telling him and Nicholas when he was visiting. Bradley and Nicholas immensely enjoyed those visits. To their delight, Kazuo was so passionate in his storytelling that he could never stop. Their mother was the only one who would complain, protesting that Kazuo was enticing her kids to pursue dangerous dreams of space exploration. She was afraid for them, *as would be every mother*, Brad reflected. *And how right she was! No doubt Kazuo had influence on Nick's career choice at NASA, and mine in the Space Force.*

X-101 was a tough and well-crafted spaceship, probably the best that had ever been built. It was nearly as perfect as expected. In that sense, it was a success in itself, for it was very much compliant to the requirements of the initial Boston Project's design. It was the result of almost a century of studies to make the perfect battlecruiser for space. At least, it was perfect before it eventually crossed the 1000-km iso-altitude above Earth. The field of countless pieces of junk that the ship had to traverse had seriously damaged it. The harpoon was no longer functional, nor was the net for debris removal. Neither of these, however, was a serious issue. The ship's single solar panel had been completely destroyed by an unfortunate collision with a rather big object that had not been tracked by the space surveillance network. Though the damage was significant, the effect was less so, since *X-101* was designed to run on nuclear power as a primary source of energy. The solar panel was merely a back-up in the event of a switch to survival mode, in case of a reactor shutdown, for instance.

In addition to those malfunctions, there were multiple impacts all over the outer hull. That, was more troubling. Most of the damage, according to the few, still functioning external cameras, was no deeper than the first layer of the ship's shielding. The structural integrity of the *X-101* was good; it had weathered the barrage of debris well through multiple collisions. However, in some visible places, it was looking truly battered. It was probably worse in the regions that were not visible by camera. Bradley knew he would have to conduct an EVA at some point, to assess the damages and see if he could fix it before being able to come back on Earth.¹¹ *That's Future Brad's problem*, he thought.

The LaserGun, unfortunately, one of the two primary weapons he was counting on, was malfunctioning, too, as he learned from the last two attempts to repulse Doomie. For some reason, the LaserGun had lost about 95 percent of its power. It was unable to maintain a constant beam, and it was not precise enough. It was just not working. Bradley had managed to hit Elpis-97 in the last attempt but it

did almost nothing to change the course of the asteroid, as his brother sadly reported. To be honest, he had guessed that by himself, by the look of it.

At least the EM drive, that wonderful technology that SpaceX had developed in the last decade and used to finally reach Mars, was still working well. It was cheap, efficient, and powerful. He would be able to reach the Moon or even Mars in a few days if he failed to deviate Elpis-97.

“No way!” he whispered to himself. He quickly swept away that thought. It was not even acceptable.

Now, he had to concentrate on the final attempt. The last resort option: nuclear weapons. *X-101* had been carefully loaded with 5,000 miniaturized nuclear warheads—the equivalent of 5 million megatons of energy. Brad remembered Nick telling him that it was huge, but maybe not quite enough to turn away *Doomie* from its collision path. While planning for the mission two months ago, Nicholas had several arguments with geologists, physicists, and other scientists about the viability of this nuclear option. He had not had the last word. “Anyway, you shouldn’t have to use them, so let’s not worry about that. We’ll do that in due time,” Bradley recalled Nick saying. The nuclear option wasn’t planned to be used unless all other options failed. Nick clearly would have liked it not to happen. “There would be terrible consequences, and it will certainly complicate our procedure,” Nicholas had warned him. “There would be terrible consequences if we do nothing too, you know,” Bradley had answered.



“It’s time to set-up now,” Nick’s voice echoed.

“Initiating procedure,” replied Brad. “I’m loading the ‘Fatboy’ in the torpedo tube,” he dialed a few digits on a screen and put his right palm on another for authentication. “You should see the red light blinking in 3, 2, 1, now.”

“Red light’s on. I’ll give you weapon access. You will be able to arm the weapon in 3, 2, 1. Green light’s blinking now.” Nick had followed the same authentication procedure in the mission control center on Earth.

“All green for me too. I still have five minutes before being in position. I’m holding on the weapons. Increasing the speed to 75 percent. I can see *Doomie* well now, from where I am. Are you getting the camera downlink?” Bradley asked.

“Unfortunately, no, Brad. We’ve been working on it the whole night, but we’ve reached the conclusion that there’s nothing we can do to fix it. It must be broken on your side. Take pictures of this stupid asteroid with *TramCam* for me, will you?”

“Ha, done!” Bradley pushed a red, round, and rather large button on the board. The video-tracking mode was now activated on the TramCam, it would follow the asteroid as long as it could, if it was not too damaged itself. He could see from the feedback monitor on his far right, that the quality of the image was not as good as expected. He hoped the targeting system for the nuclear payload would work better than that. *Time to check it out, now!*

Bradley started the radar set-up sequence. The radar was the latest, state-of-the-art model produced by the smartest Indian engineers. They called it the spherical radar or SpheRad. They had put in a lot of effort over the past six months to design and create this high-performance system. It was able to track any object in any direction from the size of one square micrometer at 200 kilometers to the size of one square kilometer at one astronomical unit (AU).¹² It was a feat that had never been accomplished before. *X-101* was equipped with the only on-orbit model of SpheRad. Based on its tremendous results so far, they were hoping to use it to exhaustively track all the LEO belt debris over the next decade. *Hopefully, they will be able to clean it one day*, Bradley thought. Nicholas had told him that they had already started to build another model. What mattered most in Bradley’s case, however, was the radar’s ability to track and characterize Doomie. Bradley was still concerned: SpheRad had never been thoroughly field-tested, which was why they did not want him to let it run permanently, fearing an early breakdown. This was only its third test. Bradley was slowly building confidence in it.

He could hear a gentle wheeze growing in the cockpit. *Good*, he thought, *it seems to start up nice and gently, as in our previous attempts*. As he was watching the data flowing toward the quantum computer in the back, he was slowly gaining confidence in the powerful SpheRad. *All right! Now, Shiva, let me see how good you are. Give me a course to Doomie*. He pushed the central main button of the computer board on his right.

Nick and about 25 other engineers had spent weeks determining the best way to get rid of Elpis-97 with the LaserGun or nuclear weapons. Despite the question of the energy, trajectory mattered a lot. The weapon had to perfectly hit Doomie at the exact right spot with the appropriate angle, to be able to influence the movement of its center of gravity as desired. Without samples, the desired position of impact could only be inferred, and it involved a lot of complicated statistical calculations. Nick and his team had finally agreed on a trajectory program that they had conveniently called Shiva, “the Destroyer.” It was running on the ship’s Indian-made computer.

Nuclearizing that asteroid was not as simple as people might believe. It was only possible if both SpheRad and Shiva were combined in one single effort.

“Five minutes left,” Nick said. “You can arm the weapons now.”

Brad put his left hand on the side of the bomb-hold lock and let it read his palm and fingerprints. He took off the key he had been keeping around his neck for three days now and inserted it in the command pad. He turned it clockwise. Finally, he lifted the trigger's security cover and pushed the *big red button* without hesitation. He could not hear any noise indicating it was working, but he could see the message on the pad saying it was armed. He had no doubt that it was working. It was not the first time nuclear weapons were used in space.

"System armed," he said.

"All right Brad, do you have a course?"

"Shiva is still running the data from SpheRad. It should be good in a second or two. . . That's it! I just got it. Shiva is ready to deliver destruction and save the world!"

"Is that your 'Neil Armstrong quote' for posterity?" quipped Nick after a pause.

"Hmm, yeah? I thought it was kind o' appropriate," he sheepishly answered, hearing the sarcasm in his brother's tone.

"That's pathetic. We will discuss your education later." Brad was pretty sure Nick was smiling broadly.

"Now, look, you have three minutes before launching the weapon. I want you to remember, we most likely won't be able to communicate after the blast. The electromagnetic perturbation will certainly cut us out. You will be isolated for some days. Don't attempt a reentry before we get back online. If it lasts so long that you run out of food supply, which I doubt, you can still get to the Moonbase or even New-Town. It would be safer than attempting to cross the LEO belt without our support. They have tons of unused supplies on the Moon, and you could be there in no time; so, there's no reason to rush. If you do have to go there, you've been inoculated against the virus, so it shouldn't affect you. That would be the opportunity to perform another useful experiment! The Indians will thank you!" he joked cynically.

"I bet they will," replied Brad on the same tone.

"Seriously, in that case, you must do your best to check and repair the external hull of the ship. But again, I'd rather have you wait for us to help you with that. The *X-101* seems to have been quite seriously damaged; we need to make a thorough external safety check together. In any case, I want you to wait long enough for the nuclear electromagnetic radiation to dissipate, before you do any EVA. Shiva will be able to tell you when it's safe to get out. So, just be patient. And I repeat, don't attempt to come back to Earth before we reestablish communication. You will need our help. Do you copy?"

"Yes, sir!"

“No kidding Brad, it’s gonna be seriously dangerous out there.” Nick’s concern was perceptible.

“I know! Don’t worry, Nick. I will do as planned . . .”

Silence filled the air for about a minute as the countdown was relentlessly running toward the final decisive moment. There was nothing else to say.

“Ok, 15 seconds left. It’s up to you now. Good luck, brother,” Nick broke the oppressive silence. Bradley could swear he heard a faint quavering in his brother’s voice.

“No worries Nick, It will work . . . 10, . . . 5, 4, 3, 2, 1, bomb gone.” He felt a significant shake as the bomb pumped out of the ship and ignited. The 5,000 warheads, packed in a single torpedo, were now heading toward Elpis-97. Brad checked Shiva’s monitor. It was apparently running normally. He could see a display of the trajectory and the position of *Fatboy* on it. *On glide, on track*, he thought, recalling his father’s favorite quote. He slowly breathed. One window on the screen was indicating the speed and the time before impact. *Already 100 km/s, less than a minute now.*

As he had done in simulations so many times, he gently pushed back the throttle, to begin maneuvering *X-101* out of the blast radius. The screen was already indicating that he would be out of range in less than 10 seconds. *That is looking good*, he reflected confidently.

Unexpectedly, something blinked to the right of his field of vision and caught his attention. He turned toward the board on his right. Shiva’s monitor was now displaying an error message: *insufficient data*.

“Damn’ it! What’s happening now?” Bradley spit. He immediately looked on the other side of the cockpit to check SpheRad’s monitors. One of the five screens was blank, and two others were blinking abnormally. The conclusion was obvious: SpheRad had stopped working properly, and Shiva did not like it. It was lacking sufficient data to calculate the perfect trajectory and communicate it to *Fatboy*. *Oh shit! Something’s wrong with that damn radar! Could it have been the shake when the torpedo tube opened?*

“Dammit, dammit, dammit!” he let go out loud. He gestured in anger toward the monitor, about to strike it with his fist. He held his hand in mid-air. *No! Hold yourself! It’s too risky; it may completely break.* Suddenly all five screens went dark. SpheRad was down. An alarm immediately rang, Shiva was not communicating anymore with *Fatboy*, unable to update the trajectory in real-time. Everything was given to luck now.

15 seconds before impact. The countdown was still running, unaware of the ongoing tragedy.

“What’s wrong Brad? I heard an alarm, and we lost your. . .”

Slowly the window shields automatically turned black, to avoid any eye trauma that the dreaded blast may cause. All systems were shutting down to prevent *X-101* from taking damage. It was switching to survival mode. Bradley was now deaf, dumb, and blind. Fortunately, the computer system knew the solar panel was broken, and it was keeping the reactor running. He would still have power. He would survive, but he may be the only one.

7, 6, 5, 4, 3, 2, 1, . . .

It was done. But impossible to know if it has succeeded. And he had not even had time to say a word to Houston. Nick would also probably not know what happened until it was too late.

“Houston, do you read me?” he desperately called, knowing his zero chances of success.

“Nick? . . . Do you read me?”

He was truly cut off from the world. His despair was growing, as his fear of having probably failed again was growing too. He was feeling tears coming at the corner of his eyes. He violently brushed them aside and hit the monitoring board of SpheRad. The screen blinked twice or so, and then turned back on. All five screens were up and running. He swiftly realized that the characteristic wheezing noise had not stopped during the entire sequence. *It was just a connection issue that had cut Shiva out!* Deprived of the precious data from SpheRad, the computer program had not been able to compute the best trajectory and communicate it to the weapon.

Bradley quickly browsed the data to search for Doomie’s actual trajectory. SpheRad had been built to resist the blast of *Fatboy*, and it was supposed to be running even in survival mode. It still should be able to track Doomie. And indeed, it was. The associated precision factor was lower than usual though. *The system must be getting a lot of false tracks and EM interference.*

He compared the data. He could see a significant change of orbit! *The weapons hit! Fatboy* had finally reached its target. He could see as well, that Doomie had been significantly reduced in mass. *Maybe down to 85 percent of the size of the Moon now*, he guessed. *The data is unstable, probably some bouncing or secondary effects. Hard to assess the result of such a huge collision!* He quickly turned toward Shiva, to run a collision risk assessment between Doomie’s new orbit and Earth; the data was now perfectly flowing between the radar and the ship’s computer.

He had to look twice at the results.

He looked back at SpheRad, which was still running normally. Doomie’s trajectory was still changing, but the accuracy factor was still bad. The effects of *Fatboy* were still playing out.

He ran a second assessment with Shiva. *No, I can't believe it. With all the energy of that nuclear hit? That's all? I can't believe it!*

He checked SpheRad data again. Doomie's trajectory was slowly getting stable now, and the accuracy factor was rising.

Back to Shiva, he ran another assessment but finally faced the truth. He had failed again. Doomie was still on an interception course with Earth, though the trajectory was less direct. It will take one more day. Shiva's assessment was projecting an 85-percent chance of collision but with a more asymptotic interception path. That would most likely yield less damage. Still, Shiva's estimation was that 20 percent of Doomie's mass could physically hit Earth. That was enough to destroy everything. It will probably change the Earth's rotation, its orbit, and whatever other unimaginable consequences . . .

21-12-2112 would finally be the end of the world. Bradley could not help but sob.

Lieutenant-Colonel Vincent Lochet, French Air Force

LCL Lochet is a recent graduate of the US Air Command and Staff College, earning a master's degree in military operational arts and serving as a Schriever Scholar. He is currently attending the School of Advanced Air and Space Studies, the US Air Force and Space Force graduate school for strategists. Before coming to Air University, LCL Lochet served as director of space surveillance operations for the French Air Force.

Notes

1. United States Space Force
2. Senator Lily Mary Turner (R-AL) is the Republican candidate for US president in the election of 2112.
3. In 2104, several satellites collided with each other in low Earth orbit (LEO), causing what is called now the 1st Kessler Collision Chain. It practically transformed LEO into a junkyard, which was barely passable for rockets. Scientists lodged complaints, internationally, against the insufficient debris mitigation procedures adopted by spacefaring nations. Subsequently, nations agreed on a declaration signed at the UN to commit themselves to develop remediation efforts. This had very little consequences until the 2nd KCC in 2108, after which people finally took the threat seriously, and leaders agreed to develop an international program for debris removal, which was slowly cleaning the orbits.
4. The Nibiru cataclysm is a supposed future disastrous encounter between the Earth and a large planetary object. Believers in this doomsday event usually refer to this object as Nibiru or Planet X.
5. Zeta Reticuli is a wide binary star system in the southern constellation of Reticulum. From Earth's southern hemisphere the pair can be seen with the naked eye as a double star. Based upon parallax measurements, this system is located at a distance of about 39.3 light-years (12.0 parsecs) from Earth. Many in the UFO community associate the system with the so-called Grey aliens, who emerged as an archetypal image of an intelligent nonhuman extraterrestrial species associated with the Roswell incident and abductions.
6. New-Town is a privately-owned base on Mars, settled in 2099 and self-sustainable since 2111.
7. LFK refers here to the notorious failure of the NASA space program in the 2070s, when the agency was unsuccessful in establishing a base on the Moon, losing the competition to India. The United States lost trillions of dollars trying, which ultimately led to the worst economic crisis it had ever faced and the Wall Street crash of 2079.
8. United Launch Alliance is a Boeing and Lockheed Martin joint venture whose engines have been exclusively procured by SpaceX since the 2070s.
9. The 2108 Kessler Collision Chain is also known as KCC II.
10. Between 2099 and 2104, SpaceX limited the number of people simultaneously present on Mars for security reasons and because of the lack of hosting facilities. After KCC I, SpaceX decided to completely stop sending and recovering crew capsules back and forth. In 2112, the 25 people present on Mars have been there for eight years.
11. Extravehicular activity, i.e., a space walk
12. A unit of measurement equal to 149.6 million kilometers (93 million miles), the mean distance from the center of the Earth to the center of the Sun.