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"Moonlight"

For the first time that he could remember, he saw moonlight in the city.

He hadn't noticed it on other nights because the bright electric glow of millions of lamps had overwhelmed it. But today was the Mid-Autumn Festival, and a web petition had proposed that the city turn off most landscape lighting and some of the streetlights so that residents could enjoy the full moon.

Looking out from the balcony of his single-occupancy unit, he discovered that the petitioners had been wrong about the effect. The moonlit city was nothing like the charming, idyllic scene they had imagined; rather, it resembled an abandoned ruin. Still, he appreciated the view. The apocalyptic spirit gave off a beauty of its own, suggesting the passing of all and the discharge of all burdens. He had only to lie down in the embrace of Fate to enjoy the tranquility at the end. That was what he needed.

His phone buzzed. The caller was a man. After ascertaining who had picked up, the voice said, "I'm sorry to disturb you on the worst day of your life. I still remember it after all these years."

The voice sounded odd. Clear, but distant and hollow. An image came to his mind: chill winds rushing between the strings of a harp abandoned in the wilderness.

The caller continued. "Today was Wen's wedding, wasn't it? She invited you, but you didn't go."

"Who is this?"

"I've thought about it so many times over the years. You should have gone, and you would be feeling better now. But you . . . well, you did go, except you hid in the lobby and watched Wen in her wedding dress heading into the reception holding his hand. You were torturing yourself."

"Who *are* you?" Despite his astonishment, he still noticed the caller's odd phrasing. The caller said "after all these years," but the wedding had only taken place this morning. And since Wen's wedding date had been decided on only a week ago, it was impossible for anyone to know about it long before then.

The distant voice went on. "You have a habit. Whenever you're upset, you curl your left big toe and dig the nail into the bottom of your shoe. When you got home earlier, you found that your toenail had snapped but you didn't even notice the pain. Your toenails are getting long though. They've worn holes into your socks. You haven't been taking care of yourself."

"*Who in the world is this?*" He was now frightened.

"I'm you. I'm calling from the year 2123. It's not easy connecting to your mobile network from this time. The signal degradation through the time-space interface is severe. If you can't hear me, let me know and I'll try again."

He knew it wasn't a joke. He had known from the first moment that the voice didn't belong to this world. He clutched the phone tightly and stared at the buildings washed by the cold, pure moonlight, as though the whole city had frozen to listen to their conversation. Yet he could think of nothing to say as the caller waited patiently. Faint background noises filled his ear.

"How . . . could I live to be so old?" he asked, just to break the silence.

"Twenty years from your time, genetic therapies will be invented to extend human lifespan to around two centuries. I'm still technically middle-aged, though I feel ancient."

"Can you explain the process in more detail?"

"No. I can't even give you a simple overview. I have to ensure

that you receive as little information about the future as possible, to prevent you from inappropriate behaviors that would change the course of history.”

“Then why did you get in touch with me in the first place?”

“For the mission that we have to accomplish together. Having lived for so long, I can tell you a secret about life: once you realize how insignificant the individual is in the vastness of space-time, you can face anything. I didn’t call you to talk about your personal life, so I need you to let go of the pain and face the mission. Listen! What do you hear?”

He strained to catch the background noises through the receiver. The faint sounds resolved into splashes and plops, and he tried to reconstruct an image from them. Strange flowers bloomed in the darkness; a giant glacier cracked in a desolate sea, and zigzagging seams extended into the depths of the crystalline mass like lightning bolts . . .

“You’re hearing waves crashing against buildings. I’m on the eighth floor of Jin Mao Tower. The surface of the sea is right under the window.”

“Shanghai has been flooded?”

“That’s right. She was the last of the coastal cities to fall. The dikes were high and durable, but the sea ultimately inundated the interior and flooded back in. . . . Can you imagine what I’m seeing? No, it’s nothing like Venice. The undulating water between the buildings is covered with garbage and flotsam, as if all the refuse accumulated in this city over two centuries had become afloat. The moon is full tonight, just like where and when you are. There are no lights in the city, but my moon is not nearly as bright as yours—the atmosphere is far too polluted. The sea mirrors the moonlight onto the skeletons of the skyscrapers. The great sphere at the top of the Oriental Pearl Tower flickers with silvery streaks reflected from the waves, as if everything is about to collapse.”

“How much has the sea risen?”

“The polar ice caps are gone. In the span of half a century, the sea rose by about twenty meters. Three hundred million coastal

inhabitants had to move inland. Only desolation is left here, while the inland regions are gripped by political and social chaos. The economy is nearing total collapse. . . . Our mission is to prevent all of this."

"Do you think we can play God?"

"Mere mortals doing what needed to be done a hundred years earlier would have the same effect as divine intervention now. If, in your time, the whole world had stopped using all fossil fuels—including coal, petroleum, and natural gas—global warming would have stopped, and this disaster could have been prevented."

"That seems impossible." After he said this, his self from more than a hundred years in the future remained silent for a long time. So he added, "To stop the use of fossil fuels, you need to contact people from even earlier."

He sensed a smile through the phone. "Do you imagine I can stop the Industrial Revolution in its tracks?"

"But what you're asking of us now is even more impossible. The world will fall apart if you eliminate all coal, gas, and oil for a single week."

"Actually, our models show that it wouldn't even take that long. But there are other ways. Remember that I'm speaking to you from the future. Think. We're smart people."

He thought of one possibility. "Give us an advanced energy technology. Something environmentally friendly that won't contribute to climate change. The technology has to be able to satisfy existing energy needs while also being much cheaper than fossil fuels. If you give us that, it won't be ten years before the market will force all fossil fuels out of contention."

"That's exactly what we're going to do."

Encouraged, he went on. "Then teach us how to achieve controlled nuclear fusion."

"You vastly underestimate the difficulties. We still haven't achieved any breakthroughs in that field. There are fusion reactor power plants, but they aren't even as competitive in the market as

fission plants in your time. Also, fusion reactors require the extraction of fuel from seawater, a process that may lead to more environmental damage. We can't give you controlled fusion, but we can give you solar power."

"Solar power? What do you mean exactly?"

"Collecting the sun's power from the surface of the Earth."

"With what?"

"Monocrystalline silicon, the same material you use in your time."

"Oh, come on! You literally just made me facepalm. I thought you had something real for a minute there. . . . Actually, do you still say 'facepalm'?"

"Sure we do. Old-timers like me have kept lots of expressions like that alive. Anyway, our monocrystalline silicon solar cells have far higher conversion efficiency."

"Even if you achieved one hundred percent efficiency it would be irrelevant. How much solar power reaches each square meter on the Earth's surface? There's no way that a few solar panels can satisfy the energy needs of contemporary society. Have you been hallucinating that your youth was spent in some preindustrial farmers' paradise?"

He heard his future self laugh. "Now that you mention it, the technology really does evoke shades of agrarian nostalgia."

"Evoke shades of agrarian nostalgia'? When did I start to talk like a coffee shop writer?"

"Heh, the technology really is called the silicon plow."

"What?"

"The silicon plow. Silicon is the most abundant element on Earth, and you can find it everywhere in sand or soil. A silicon plow cuts furrows in the earth just like a regular plow, but it extracts the silicon out of the soil and refines it into monocrystalline silicon. The land it processes turns into solar cells."

"What . . . what does a silicon plow look like?"

"Like a combine harvester. To start it, you need an external

energy source, but then it relies on the power provided by the solar cells it leaves behind. With this technology, you can turn the whole Taklamakan Desert into a solar power plant.”

“Are you telling me that all the plowed land will become black, shiny cells?”

“No. The plowed land will just look darker, but the conversion efficiency will be phenomenal. After the land has been plowed, you just attach wires to the two ends of the furrow to get a photovoltaic current.”

As the holder of a doctorate degree in Energy Planning, he was entranced by the promise of this technology. His breathing sped up.

“I just sent you an email with all the technical details. At your technology level, you shouldn’t have any trouble mass-producing it—that’s also one of the reasons I chose to contact your era instead of an earlier time. Starting tomorrow, you must dedicate yourself to spreading this technology. I know you have the necessary resources and the skills. How to popularize the technology is up to you. Maybe you can take advantage of the report you’re drafting right now. But you have to remember one thing: under no circumstances can you reveal that the technology comes from the future.”

“Why did you choose me? You should have picked someone more senior.”

“I have to take care to reduce the potential negative side effects from my interference. You and I are the same person. Can you think of a better choice?”

“Tell me, just how high have you climbed on the career ladder?”

“I can’t reveal that. It took a lot of convincing for the Embodied International to decide to interfere in history at all.”

“Embodied International?”

“The world is divided between the Embodied International and the Virtual International—never mind, I’ve said too much. Don’t ask me about anything like that again.”

“But . . . if I do as you’ve asked, how will you see the world change? Are you going to wake up the next day and find everything different?”

"It'll be even faster than that. The minute you open my email and decide on your course of action, my world will likely change instantly. But we two are the only people—the only person—who will know this. For everyone else in my era, history is history, and in the new timeline, which is also their only timeline, the period of fossil fuel use between your time and my time never happened."

"Will you call me again?"

"I don't know. Every contact with the past is a major undertaking. International conferences have to be held. Goodbye."

He returned to his bedroom and turned on the computer. The inbox showed the email from the future. The body was blank, but there were more than a dozen attachments, totaling more than a gigabyte. He browsed through them quickly and found detailed technical drawings and documents. Although he couldn't make sense of everything yet, he saw that the technical language was accessible to someone of his era.

One particular photograph caught his attention. It was a wide-angle shot of an open space. A silicon plow, which really did resemble a combine harvester, sat in the middle of the field, and the soil behind it was slightly darker. The perspective of the shot made the plow look like a small brush painting the earth dark stroke by long stroke. About a third of the land in the frame had already been plowed, but the part of the photo that most attracted his attention was the sky of the future. It was a dusty gray, but not overcast. Maybe it was taken at dawn or dusk, since the plow cast a long shadow. This was an age without blue skies.

He began to think through his next steps. As a staff member of the Planning Office of the Ministry of Energy, he was responsible for, among other things, gathering information on the progress of new energy development projects across the country. The report he was drafting would be passed on to the minister, who would then deliver it to the State Council at their upcoming meeting. Part of China's four-trillion-yuan stimulus package in response to the economic crisis was set aside for developing new energy technologies, and the State Council meeting would decide where to invest the

funds. His future self apparently wanted him to take advantage of this opportunity. But before he could put this technology into his report, he had to first find a research lab or company to pick it up as a development project. He would have to be very strategic in this choice, but he was certain that if the technical documents were real, he would find a good company to undertake the work. Even in the worst case, whoever decided to move forward with this research wouldn't lose much . . .

He shuddered, as if waking from a dream. *Have I already decided to go down this path? Yes, I have.* There could only be two outcomes from his decision: success or failure. If his effort would eventually succeed, the future should have already been altered.

Mere mortals doing what needed to be done a hundred years earlier would have the same effect as divine intervention.

He stared at the email on the screen, and suddenly had the urge to respond to it. He wrote only two words in the reply: *Got it.* Immediately, a response came back informing him that the address was undeliverable. He picked up his phone and looked at the caller ID, an ordinary number from China Mobile. He pressed the "call" button, and a recorded voice informed him that the number was not in service.

Returning to the balcony, he luxuriated in the watery moonlight. The neighborhood was completely quiet this late at night, and the moon bathed the buildings and the ground in a milky, unreal, tender glow. He had the sensation of waking from a dream, or perhaps he was still dreaming.

The phone rang again. The screen showed another unfamiliar number, but as soon as he picked up, he recognized the voice of his future self. It was still distant and hollow, but the background noises were different.

"You succeeded," his future self said.

"When are you calling from?" he asked.

"The year 2119."

"So four years earlier than the last time you called."

"For me, this is the first time I've ever called you . . . or calling

me, I guess. But I do remember receiving that phone call you mentioned more than a hundred years ago.”

“That was just twenty minutes ago, for me. How is everything? Has the seawater receded?”

“There’s no seawater. The climate never warmed drastically, and sea levels didn’t rise. The history you heard about twenty minutes earlier never happened. In our history books, solar energy made a breakthrough in the early twenty-first century and culminated in the silicon plow, which made large-scale solar energy collection possible. In the 2020s, solar energy came to dominate world energy markets, and fossil fuels quickly vanished. The first half of your—our—life has been a brilliant rising arc tied to the silicon plow, and in three years from your time, the technology will begin to spread across the globe. However, just like the history of the coal and oil industries, the history of solar energy hasn’t generated any lasting celebrities, not even you.”

“I don’t care about being famous. It’s wonderful to have had a role in saving the world.”

“Of course we don’t care about fame. In fact, it’s good that we are not well known, otherwise we’d be treated as history’s greatest criminal. The world has changed, but not for the better. The good thing is that only one person, you and me, knows this. Even those who had devised and implemented the plan to interfere with history the last time have no memories of fossil fuel use in the rest of the twenty-first century since that timeline never came to be. I don’t remember calling you, but I do remember getting the call from the future. That phone call is, in fact, the only clue I have to that non-existent history. Listen! What do you hear?”

Through the receiver, he detected faint cries that reminded him of clouds of swarming birds above the woods at dusk. Gusts of wind swept through the trees from time to time, overwhelming the cries with susurrations.

“I can’t tell what I’m hearing. It doesn’t sound like the ocean.”

“Of course it doesn’t sound like the ocean. Even the Huangpu River is almost dried out. This is the drought season—there are only

two seasons now, drought and flood. It's possible to cross the river just by rolling up your pant legs. In fact, several hundred thousand starving refugees have just crossed the river into Pudong, covering the riverbed like a mass of ants. The city is in disarray; I can see fires starting everywhere."

"What happened? Solar energy should have the lowest environmental impact."

"You're sadly mistaken. Do you know how many square kilometers of monocrystalline silicon fields are necessary to supply the energy needs of a city like Shanghai? At least twenty times the area of Shanghai itself! During the century after your time, urbanization accelerated, and even a mid-sized city now is comparable to the Shanghai of your era. Starting in the 2020s, silicon plows transformed the face of every continent. After all the deserts had been turned into solar fields, they began to devour arable land and vegetation cover. Now, every continent is suffering from excessive siliconization. The process had advanced far faster than desertification. The land surface of the Earth is now almost entirely covered by silicon solar fields."

"But this should be impossible under theories of economics! As land grows more scarce, the value of any unplowed land ought to rise, and silicon plows should become too expensive to be viable in the market—"

"This was no different from the history of the fossil fuel industries. By the time the conditions you describe came into play, it was too late. Shifting to alternative energy sources was no easy task, and even rebuilding the infrastructure for coal and oil required too much time. Meanwhile, the need for energy kept on growing, and silicon plows had to devour more land. Land siliconization was even more damaging to the environment than desertification. As conditions deteriorated, drought swept the globe, and the occasional rainfall only resulted in massive floods . . ."

Listening to this voice from a century in the future, he felt like a drowning man. Just before he was about to give up all hope, he found himself somehow at the surface. Taking a deep breath, he said

to his future self, "But there is a way out! A way out! It's simple. I haven't done anything yet except decide on a plan for how to introduce the technology. I'll immediately delete the email and all attachments, and go on with my life as before."

"Then Shanghai will once more be swallowed by the sea."

He moaned with frustration.

"We have to interfere with history again," said his future self.

"Don't tell me: you're going to give me some other new energy technology?"

"That's right. The key to the new technology is ultra-deep drilling."

"Drilling? But the technology for oil extraction is already very advanced."

"No, I'm not talking about drilling for oil. The wells I have in mind will reach a depth of over a hundred kilometers, penetrating the Mohorovičić discontinuity and boring into the liquid mantle. The Earth's powerful magnetic field is generated by strong electric currents deep within the planet, and we want to tap into them. Once the ultra-deep wells are drilled, massive terminals dropped into the wells will extract the geoelectric energy. We'll also give you the technology for electrical terminals that can function under such high temperatures."

"That sounds . . . grandiose. I'm rather frightened."

"Listen, geoelectricity extraction is the greenest technology. It doesn't take up any land and doesn't generate any carbon dioxide or other pollutants. All right, it's time to say goodbye. If we ever talk again, let's hope it's not to save the world. . . . Go check your email."

"Wait! Let's chat some more. Tell me about . . . our life."

"We have to keep contact with the past to a minimum to reduce information leakage. I'm sure you understand that what we're doing is incredibly dangerous. Also, there's nothing to talk about really, since whatever I've gone through you'll get to experience sooner or later." The connection ended as soon as his future self stopped talking.

He returned to his computer and saw a second email. Like the last one, it was also packed with technical information. As he browsed through the attachments, he found that ultra-deep drilling used lasers instead of mechanical bits, and the molten rock was channeled up through the drill to the surface. The last attachment was another photograph of an open field studded with high-voltage transmission towers. The lattice towers looked slender and light, perhaps constructed from some strong composite material. One end of the wires plunged into the earth, evidently to tap into the buried geoelectric terminals. The ground itself attracted his gaze, as it was the lifeless dark color of plowed silicon fields. A network of fencing divided the ground into a grid, which he decided must be transmission lines that extracted the energy from the monocrystalline silicon. Unlike the photograph from the last time, the sky was a clear azure, with not a wisp of cloud to be seen. This was an age where rain was rare, and even through the photograph he could feel the crisp, dry air.

Once again, he returned to the balcony. The moon was now in the western sky and shadows had lengthened, as though the city had finished dreaming and fallen deeper into slumber.

He thought about ways to spread this new future technology. The necessary strategies were different from the last time. First, the laser drilling technology would itself generate attractive military and civilian applications. He should be able to popularize it first and wait for the industry to mature before revealing the far more astounding idea of geoelectricity. At the same time, he could advocate for development of other ancillary technologies like extreme heat-tolerant electric terminals. The initial investment still had to come from the four-trillion-yuan stimulus package, and he still needed to find an influential entity to take up the research project. He was confident of success because he knew he had the technical secrets.

I've decided on a new path. Has history changed again?

As if answering his thoughts, the phone rang for the third time. The westering moon was now half-peeking from behind a tall build-

ing across the way, as if giving this world one last terrified glance before her departure.

"I'm you, calling from the year 2125."

The caller paused, as if waiting for him to ask questions, but he dared not. The hand squeezing the phone grew clammy, and he was already exhausted. Finally, he asked, "You want me to listen to the noises of your world, don't you?"

"I don't think you'll hear much this time."

Still, he strained to listen. There was only a slight buzzing that sounded like interference. Surely a signal passing through space-time had to deal with interference, which could have come from any time between now and 2125, or the emptiness that existed outside of time and the cosmos.

"Are you still in Shanghai?" he asked his future self.

"Yes."

"I can't hear anything. Maybe all your cars are electric and practically silent."

"The cars are all in the tunnels, which is why you can't hear them."

"Tunnels? What do you mean?"

"Shanghai is now underground."

The moon disappeared behind the building, and everything darkened. He felt himself sinking into the earth. "What happened?"

"The surface is full of radiation. You'll die if you stay up there for a few hours without protection. And it'll be an ugly death, with blood seeping all over your skin—"

"Radiation! What are you talking about?"

"The sun. Yes, you've succeeded. Geoelectric power grew even faster than the silicon plow, and by 2020, the geoelectricity extraction industry had outgrown the coal and oil industries combined. As it matured, the efficiency and cost of this technology couldn't be matched even by the silicon plow, let alone fossil fuels. The world's energy needs soon grew to be entirely dependent on geoelectricity. It was clean, cheap, and so perfect that many wondered how it had taken humanity thousands of years after the invention

of the compass to finally think of drawing upon the giant dynamo beneath our feet. As the economy soared on the wings of this sustainable energy source, the environment also improved. Humanity believed that our civilization had finally achieved the dream of effortless growth, and the future would only get better.”

“And then?”

“At the beginning of this century, geoelectricity suddenly ran out. Compasses no longer pointed north. I’m sure you know that the Earth’s electric field is our planet’s shield. It deflects the solar wind and protects our atmosphere. But now, the Van Allen belts are gone, and the solar wind buffets the Earth like a petri dish placed under an ultraviolet light.”

He tried to speak, but only a croak emerged from his throat. He felt chills all over.

“This is only the start. Over the next three to five centuries, the solar wind will destroy the Earth’s atmosphere, boil away the ocean and all other surface water.”

Another inarticulate croak.

“We’ve finally achieved a breakthrough in controlled nuclear fusion, and together with the reconstructed oil and coal industries, humanity now possesses inexhaustible sources of energy. Most of the power we generate, however, is pumped into the Earth to restart the magnetic field. So far the results are not encouraging.”

“We have to fix it!”

“Yes, that’s right. You must delete both emails from the future.”

He turned to head back inside. “I’ll do it right now.”

“Just a minute. Once you delete them, history will change again, and our connection will break off.”

“Right. The world will return to its original timeline of fossil fuel dominance.”

“And you’ll go on with your life as before.”

“Please, tell me about our life after this moment.”

“I can’t. Telling you will change the future.”

“I understand that knowing the future will change it. But I still want to know a few things.”

"Sorry. I can't."

"How about just tell me if we'll be living the life we wanted? Are we happy?"

"I can't."

"Will I get married? Kids? How many boys and girls?"

"I can't."

"After Wen, will I fall in love again?"

He thought his future self was going to refuse to answer again, but the voice remained silent. All he could hear was the hissing of the winds of time through the empty valley of more than a century dividing them. Finally, he heard the answer.

"Never again."

"What? I won't love again for more than a hundred years?"

"No. A life is not unlike the history of all of humanity. The choice presented to you the first time may also be the best, but there's no way to know without traveling down other timelines."

"So I'll be alone all my life?"

"I'm sorry, I can't tell you. . . . Though loneliness is the human condition, still we must conduct our lives with grace and strive for joy. It's time."

Without another word, the call ended. His phone dinged, signaling a text. Attached to the message was a short video, which he copied to his computer to be able to see better.

A sea of flames dominated the screen. It took a while for him to understand that he was looking at the sky. The fiery lights weren't from burning fire, but auroras that filled the firmament from horizon to horizon, generated by solar wind particles striking the atmosphere. Billowy red curtains convulsed across the vault of heaven like a mountain of snakes. The sky seemed to be made of some liquid, a terrifying sight.

There was a single building resembling a stack of spheres on the ground: the Oriental Pearl Tower. The mirrored surfaces reflected the fiery sea above, and the spheres themselves seemed to be made of flames. Closer to the camera stood a man dressed in a heavy protective suit whose surface was brightly reflective and smooth, like

a man-shaped mirror. The heavenly fire was reflected in this man-mirror as well, and the flame snakes, distorted by the curved surfaces, appeared even more eerie. The entire scene flowed and shimmered as though the world had turned to molten lava. The man raised a hand toward the camera, saying hello and goodbye to the past at once.

The video ended.

Was that me?

Then he remembered that he had more important tasks. He deleted the emails and all attachments. Then, after a moment, he began to reformat the disk and zero out the sectors with multiple passes.

By the time the reformatting had completed, it was just another ordinary night. The man who had changed the course of human history three times in a single night but who in the end had changed nothing fell asleep in front of his computer.

Dawn brightened the eastern sky. The world began another ordinary day. Nothing had happened, at all.