

Emmy's Time

A short story by

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Was zur Hölle?!

The smoke curling around Emmy's eyes looked like phantom butterflies and smelled like cheap cigars. The sky above stared back at her, an infinite blue, harsh with its unrelenting openness. The sun looked different this morning. Fainter and dustier, swirling with uncertainty and ragged, pale grey fire. She rubbed her eyes and it went back to its normal state.

She tucked a few stray grays into her bun. She tugged at her dress, which was wrinkled and damp from lying on the grass. Hopefully, she had not destroyed her clothing, the way she had sabotaged so many dresses with haphazardly wiped chalk and random coffee spills. She knew her persona on campus had gone from "scatterbrained" to "brilliant but manic". One of the benefits of being fifty-three.

I remember now. I fell asleep in The Cloisters here at Bryn Mawr. The pain medication the doctor prescribed makes me sleepy. Albert would stick out his tongue at the sight of Emmy Noether, waking up like a drunkard on the grass in broad daylight. Sorry Herr Einstein, it's 1935, and I can fall asleep on the university grass if I damn well choose.

She sat upright and her head swam as if she were a sleepy octopus lurking in an underwater reef. When she put her glasses back on, she saw the grass: burned, all around her. Charred black like a dark halo around the imprint of her sleeping body. Her left hand too was black on the front—her palm clean but her thumb and index finger black with soot like residue from charcoal. She wiped the black on her dress, whose dark fabric camouflaged her handprints.

What on Earth is this burnt grass? Was I on fire?

Verdammt! I will be late once again to teach my ringentheorie course. The Provost will not have infinite patience for my chronic lateness.

Beside her was a weathered wooden bench, and beyond that, the stone buildings of The Cloisters covered with ivy. To the right of her, about ten meters away, was a statue.

The all-too-familiar dull pain in her side hit her, throbbing like waves moving outward from a stone dropped in a pond. She winced, grit her teeth, and then forced herself up. The pain subsided with short, deep breaths, and sweat trickled down her back. The doctor said she should lose weight, stop drinking so much coffee, and sleep eight hours a night. *Albert would approve, as he sleeps ten.* The food here was different than in Germany, and eating was one of her comforts, hiding away the ache of her forced exile here, to Bryn Mawr, to teach and research.

The Nazis expelled Jews from the universities of her homeland, purging whatever they deemed to be not Aryan. A few of the expelled professors retired or took jobs outside the university. Others fled to places like America if they were lucky enough to get positions.

I will never forgive them for what they did to me and to Germany. The University of Göttingen will never be the same without the others and me.

At least I am free of those idiots, who could not appreciate my mathematics because of what doesn't dangle between my legs. And free of the cowards who can't appreciate a Jew like me being better at mathematics than them.

Emmy's knees wobbled as she walked towards the statue, while a cool breeze encircled her. Each step was like walking through snow; there were pins and needles in her legs. A bird cried nearby, but otherwise the courtyard was curiously empty with no students or faculty. There was a sinking feeling in her stomach, as she grew closer to the statue, like the memory of a forgotten nightmare from childhood. The statue was of an older, full figured woman with glasses, hair pulled tight in a bun. The statue stood resolute, confident, staring out at the empty yard and her.

Her mouth fell open as she read the inscription. It was *her name!* She touched the statue's hand and it was cool and glossy. Instinctively, she recoiled, as it was too much like touching a ghost facsimile of herself.

There was a plaque there too. It read:

In honor of one of the greatest mathematicians of all time, Emmy Noether, born in Erlangen, Germany, in 1882. She pioneered early abstract algebra and methods in physics that led to breakthroughs in general relativity. She endured great hardship as a woman and a Jew, and was expelled from Germany in 1933, taking a faculty position at Bryn Mawr.

The last line made her want to eyes pop out: *She died from uterine cancer in 1935.*

Emmy's hand shook as she touched the plaque with her right index finger. She stepped backwards as a three-dimensional moving image popped out before her, like the talkies but in the air. There were photographs of her and her life and family in Germany, then later ones of her in America. There was text and words, outlining the various stages of her

life: her early life in Erlangen, her dissertation work with Paul Gordan at Göttingen, and then her collaboration with her friend and eminent mathematician David Hilbert and her doctoral students. There were pictures and text of her life at Bryn Mawr, and of the celebrated mathematician Olga Taussky, who came to the college on a one-year fellowship in 1934. There was the unveiling ceremony of the statue. The date of the ceremony was 2148.

Emmy's throat was dry, and her hands shook so forcibly she folded them under her arms. She glanced sideways, expecting someone to run out to take responsibility for this cruel joke.

But this was no dream, try as she did to wake herself. She wiped her hand once more on her dress and pulled her glasses back. She swallowed hard in her parched throat and breathed deeply, forcing herself back to calmness.

"Greatest mathematician" indeed.

"It worked! You are here and it actually worked!" The voice didn't emanate from the moving picture in thin air, but it was a distant sound like an echo on a shallow bay. *Was it Olga's voice?*

She turned to see a young, boyish-looking woman with dark skin, maybe eighteen, running toward her. She was dressed in a very odd fashion with a white jumpsuit that seemed to have no buttons or zippers. Emmy cleared her throat again, but her voice came out raspy like sandpaper.

"Excuse me fraulein, but would you kindly explain what this statue is all about? Did the students place it here as a joke?"

Emmy could feel her cheeks burning up. Who was this woman dressed like a nun? Her hair was short like a man's, and she wore no makeup. Freckles were on her cheeks, and her curly hair was reddish. Despite her anger, Emmy approved of her presentation. She didn't like women to fuss too much about makeup and clothes, especially at the university.

"Oh, I'm so sorry. My manners are terrible, or that is what Dakota always tells me. You are... you are Dr. Amalie Emmy Noether?" She spoke the words with great gravity as she huffed from running.

Emmy gave a slight nod. "Everyone calls me Emmy."

The young woman's mouth dropped. She stared at Emmy as if she was looking at a specter from another time.

"The Emmy Noether. This is just so, so unreal. I can't believe we successfully made the time transfer. The sensors pinged and I ran to The Cloisters to find you while Dakota stabilized the temporal field in the lab."

"Listen to me. I woke up covered in soot laying on the grass. Now someone put a phony statue of me here, with those lights popping up saying all kinds of things about my past and imagined future. Even my death! What kind of horrific prank is this?" Emmy's

heart pounded in her side so hard she thought she would burst.

The girl closed her eyes for a second, and then squeezed her hands together tight so her knuckles were white.

“My name is Ophelia. Welcome to the 22nd century. I know this is a shock, but we desperately need your help or everything is going to end.”

A searing pain shot up Emmy's side, and she winced and fell to one knee on the grass damp with evaporating dew.

* * *

Emmy could not stop shaking as she drank the cup of black liquid poured by Ophelia. It resembled coffee in taste and smell, but it had a curious aftertaste and an inherent sweetness that unnerved her. Everything around her was familiar but oddly alien, despite the fact she was most definitely at Bryn Mawr.

Ophelia's dormitory room was small but comfortable, crammed with books framing a small single bed with wrinkled white sheets. Her dusty window overlooked a tree-lined path, and there was a small kitchen area with sink. She recognized on one shelf G.H. Hardy's book *A Course on Pure Mathematics*, and the recent work by her protégé B. L. van der Waerden *Moderne Algebra* (Emmy found that text too soft at times, but he got most of the things she had wanted to say right). The other books were by unknown authors with unfamiliar titles.

A red box sitting on Ophelia's desk with a white light flashing caught her momentary attention. Emmy lived at home during her studies, and as a woman would never have been allowed to live in the dorms at Göttingen. But she dreamed it would be like this, this tiny place that Ophelia studied in, slept in and made home. And where she served terrible coffee.

“You study mathematics here?” Her side was still sore, and she was light headed, but her spell of pain had passed.

“Yes! I study algebra like you did. I mean do. Since they settled Hilbert's fifteenth and sixteenth problems a decade ago, I'm working on temporal algebra inspired by a few of your works. Oh, you are interested in the books, all these books on my walls. I am a collector.”

“Collector of what?”

“Um, of *books*.”

Ophelia made a rapid movement with her index finger, as if she was stirring an invisible cup. The red box beeped and shot out a cascading movie of thousands of pages of text, all mathematics. Emmy stood up in fright.

“*Heiliger Strobsack!* What is this?”

“The red box is a computer... err a calculating machine. It is showing us all of mathematics. Well, at least up until the last hour. The cloud stores seventy million works by hundreds of thousands of

mathematicians over the collected centuries. All digitized and holographically stored.”

Emmy peered at it with wonder and a kind of dread. *Am I in that thing? In that projected garble of lights? My life's work is there in that?*

“The paper books are fun to collect; my one vice as they are expensive now since cutting down trees became illegal during the environmental revolution. Like yours, my father was a mathematician, and gave me all of them when he died when I was fourteen. The others I save up for.” Ophelia pulled out one large yellow-jacketed book with the title *Algebra* off the shelf. Emmy had no clue who the author was, as she didn't recognize his name.

“This one is super rare. An antique from my dad's collection. It's Hungerford's *Algebra*. See, there is Noether's normalization lemma, and there is a section on Noetherian Rings and Modules. Hmm and then there is a book written in the twentieth century about your groundbreaking work on symmetry in physics. You know, Noether's theorem...”

Emmy felt like her head was going to explode.

“Stop! Stop this at once! I have had it with this insanity. I am not in the 22nd century any more than you are Napoleon. I am feeling better now and will go back to my own quarters if you please, unless those have magically vanished too.”

Ophelia's face was pale, and she moved her fingers in that similar odd fashion to turn off the lights. She sat next to Emmy and put her hand on hers. Emmy moved it away.

“I know this is a lot to take. This is hard for me too, talking to you—someone who should be dead for hundreds of years. But I assure you I'm not lying.”

“Then show me *proof*. If you claim to be a mathematician, then certainly you understand the concept.”

“OK.”

Ophelia led Emmy outside the dorm, which was clean and freshly painted, but as she remembered it just this morning before she fell asleep in The Cloisters. Her legs were weak, but the coffee (or whatever it was) gave her newfound energy. They walked down the weathered, cobblestoned exit, covered in ivy and towards the front gate of the university. It was quiet inside, with hardly anyone present.

“Where are the students and faculty?”

“Federal holiday. The campus is empty. Are you ready?”

“Ready for what?”

“This.”

Ophelia's hand gestured and the metallic gate whipped open with a whirring vibration as if it were alive. Outside, she saw the street, busy with people. There were levitating vehicles, mostly white, but others with flashing surfaces of myriad colors, like living chameleon skin, all flying by at ridiculous

speeds. People walked by, each with the same zip-perless suits as Ophelia, their hands gesturing to invisible servants as the same three-dimensional talkies passed around their heads like halos. Above in the distance, towards the center of town, she saw impossibly tall buildings with odd geometries, arched in impossible angles. There were trees along the main road, as she remembered, and she could hear birds chirping.

Emmy walked outside a few steps and gasped as a cyclist flew by; the cycles themselves had no wheels and hovered a foot off the ground. A man walked by and stared at her as if she was wearing a clown suit. A dog on a leash he held stopped to sniff her hand.

“He doesn’t bite, do you old Charlie?”

Emmy always loved dogs. They never judged, not like humans who could not see beyond things like the size of your nose. She gently petted it between its ears, and it smiled and wagged its tail. The dog’s owner pursed his lips at Emmy in a thin smile, and stared for an uncomfortably long moment at her attire.

Emmy walked backwards and leaned on the gate door. She hid her head in her hands.

“How? How is this possible? Einstein posited time travel as a theoretical possibility but one that was completely outside of our normal experience. And one that is beyond the limits of our technology. This is pure fantasy.”

“We thought so too, until Professor Dakota Tran came along with her discovery of temporal fields. That is how we got you here. We weren’t sure it would work and where you would arrive, although Dakota predicted it would be in Bryn Mawr, and if we were lucky, you would materialize right into her lab. The Cloisters was close enough, though. You have to meet *her*. She heads the research department in theoretical physics here. She can explain everything.”

A woman in charge of an academic department? I must truly be in the 22nd century.

Emmy nodded and walked with this strange young woman back into the otherwise familiar campus. She steadied herself.

“What did you mean by saying everything will end when we first met?”

“Dakota will explain. She’s in her lab.”

“Wait, Fraulein Ophelia, I must know. Can you tell me what happened to Germany? To Hitler and the fascists?”

Ophelia smiled flashing her white teeth and Emmy knew she had at least some good news.

* * *

The physics lab was huge but bare, unlike the ones she remembered in her days in Göttingen with their gadgetry. There were talkies (or holograms, as Ophelia called them) everywhere, sprouting from two red boxes like the one in Ophelia’s room.

This Dr. Tran person must be as important as Herr Einstein to have a space the size of this. How amused he would be to be in an equipment-less physics lab.

“Dr. Emmy Noether. The real Emmy. This is such an incredible, unbelievable honor. I am Dakota Tran. Please call me Dakota,” said the woman, middle-aged, tall with black hair falling around her shoulders. She grabbed Emmy’s hands and shook them as if she was chopping tomatoes. Her eyes were dark but fiery. She recognized eyes like that. David Hilbert had them too: deep, laser focused, but calming at the same time.

“Pleased to meet you. Now would you please explain what the hell you have done to bring me to this place... err time?”

“Of course, Emmy, you deserve a complete explanation for why we brought you centuries forward in time. And you should know how it works too. Let’s sit. You must have so many questions.”

Dakota made a gesture with her hand and a light shot over Emmy for a half second, illuminating her from the inside out. She then sat at her desk across from Ophelia and Emmy. She spoke for a half hour, her hands animated as she described how the temporal field generator worked. The chalkboard behind her teemed with calculations that Emmy could not follow.

The crux of it was the following: Tran’s research focused on the physics of time. Ten years ago, she had discovered a new sub-atomic particle, which, if energized appropriately, could generate a new kind of field, a *temporal field*. Inside the field, time acted differently. It could stop or go backwards or forwards depending on the energies present. Tran’s equations modelled the temporal field, and for that, she was the first person to win both the Fields medal—Dakota explained this was the top honor now for mathematicians—and the Nobel Prize.

In the last year, with Ophelia’s help with the mathematics, she generated a temporal field several meters wide, vastly bigger than the microscopic sized ones found occurring naturally. Experiments with mice moving them back and forth in time across the field were successful, and the organic tissue sent through the field showed no signs of injury. This morning was the first time they had successfully projected a large field backwards then forwards in time, towards a focused object. The field enveloped Emmy as she lay sleeping in The Cloisters, locking onto her peculiar DNA signature (that they had gleaned through one preserved piece of ash from her cremated body saved by a family member after her cremation and then preserved through the centuries in a vault in the Smithsonian). The calculations to pinpoint her in the time stream were the most advanced derivations Tran ever attempted.

“So you used my ashes to pull me forward in time. But then I wouldn’t have existed in my old time, ergo, my ashes would not exist.”

Ophelia’s mouth opened. Tran laughed, and said, “Yes, I suppose we have indeed created a temporal paradox.”

“But why me? Why did you go through all this trouble to bring me back?” Emmy shook her head in bewilderment.

“We needed the greatest mathematical mind available to us from the last two hundred years. That time period is how far back we could go with our limited understanding of temporal fields.”

“But surely you would have brought back Herr Einstein or Hilbert or Weyl.”

Dakota smiled. “I said the *greatest* mind.” Emmy blushed like a schoolgirl.

Emmy stood up, and paced the room.

“What if I cannot help you?”

Ophelia glanced at Dakota who nodded with a cold stare.

Dakota cleared her throat and leaned forward. “Without your assistance, the sun will be extinguished and the Earth and human race will vanish like a firefly dying out on a summer’s night.”

* * *

“The sun looked strange when I awoke,” Emmy said, the mention of the sun recalling it to her mind.

Emmy’s stomach sank as Dakota explained what she had seen and what it meant. All the while she gripped the arm rests of her chair. Micro-black holes were discovered in the late twenty first century. A few of these were so small they were quantum-sized, while others were large enough to be visible with the naked eye. With the discovery of temporal fields, a new class of micro black hole was found. They were the temporal black holes or *time holes*, as they became widely known. They emitted powerful temporal fields that sucked in not just matter, but time itself. Get close enough to the time holes and time would become strange. Go inside and the laws of physics involving time would go berserk.

Dakota gestured and a star map popped up, beaming before them. It looked like our solar system, with the Sun and Earth clearly visible.

“I detected a rogue time hole moving through the Oort cloud in the outer solar system, like an unwelcome crasher to our invitation-only cosmic party,” Dakota said focusing her eyes on Emmy’s like lasers.

“But if that thing hits Earth, or the Sun...,” Emmy said. She held her breath and pulled at her hair.

“It’s moving towards the Sun and we know it’s going to be bad when it gets there.” The star map showed a blue line that had the time hole moving like a snake between the planets, but heading to the middle towards the Sun.

“The resulting temporal distortion could cause the Sun to revert to its state from billions of years ago,

when it was far less stable and far less hot. The Earth would fly away from its stable orbit. Even with 22nd century technology, there would be little the human race could do to survive such a catastrophic event.”

“You people are insane to play around with these kinds of forces.” Emmy’s heart raced as she spoke and she watched their faces turn pale.

“The way you saw the sun in The Cloisters was real. You must have been in temporal flux, peeking briefly between the different layers in the temporal manifold,” Dakota said.

“I don’t understand any of that. How long do you... do we have?” Emmy asked.

“One year. And our transfer of you might have cost us a few weeks by accelerating the time hole.”

“You put everyone and everything in the world at even greater risk than it is now, only to bring *me* here. I can’t understand how I’m so important in the grand scheme of things.”

“I would do it all over again to get *you* here.”

“But what about bringing someone from the future? I am an antique. Surely, they would be better equipped to handle twenty-second century mathematics. Or have the government deal with this catastrophe?”

“What future? We have one year left, maximum. We chose you because of your special gifts. Your incredible mathematical intuition leading to breakthroughs in ring theory and in conservation laws in physics. And with a routine neural implant we can quickly get you up to speed on all the current methods in mathematics.”

“Yes, Emmy, it’s true. By a simple procedure, we can give you direct access to the mathematics cloud I showed you with those millions of works. It’s like having a giant library at your fingertips, all readily accessible in your memory,” Ophelia said.

“And we can act now. My equipment here is the best in the world. Ophelia and I are among the few who know about the rogue time hole, other than the planetary security council. They directed my experiments to bring you here, and are waiting to talk with you. The time hole is a secret to avoid widespread panic. But we are going to fix it with their help and yours.”

Dakota moved her hands and zeroed in on the time hole on the three-dimensional map. A blue field enveloped it and its trajectory changed.

“I found a way to project the fields at great distances, even into interplanetary space. The council can get me the equipment I need for this, but we need to understand the mathematics first. If we get the equations right, then we can surround the time hole with a temporal field that should nudge it off course: like two positively charged magnets repulsing each other. And those equations depend on temporal algebra. We’d need a staggering amount of power to do it, but the council says they can muster it from a

few dozen fusion reactors. We would move its trajectory enough so it won't pose a threat to us."

Dakota folded her hands as if she was praying and stared out the window. The sun hit her eyes and she blinked. Emmy stood silent, glancing between her and the temporal differential equations freshly written in old-fashioned chalk. Dakota had wiped her hands on her shirt after she wrote them, and Emmy smiled when she saw that.

A kindred spirit. I'm not the only woman then who could care less about chalk on her dresses.

Emmy coughed to get Tran's attention away from the view. "I understand one or two of these derivations."

"Please tell us what you see. We're desperate."

Emmy rose to the board and zeroed in on a particular line. Sweat began to form on her temples as she concentrated. She started to talk, decomposing each equation, flailing her arms like she was signaling to a passing airplane. Talking math energized her. Mostly, it made her feel like she was home again.

"Your intuition is near perfect, Frau Noether. With more study and work with the two of us, you could master all of these field equations, and create new ones. As you know, great mathematics, like great art, can transcend time. Your work on the principal genus theorem for number fields inspired Ophelia to develop the rudiments of temporal algebra. She's a genius, like you. With the mother of modern algebra on our side, I am sure we could find a solution."

Mother of modern algebra? Scheisse.

Emmy handed the chalk back to Dakota, touching her left index finger for a brief instant. There was a vibration and the walls melted as if they were liquid wax. Dakota and Ophelia were like transparent ghosts silhouetted against what looked like a laboratory from her era, complete with microscope, vials, and glass dishes. The hairs on the back of her neck stood up. She closed her eyes and the image vanished as quickly as it appeared.

Another temporal flux? Ghosts of the present appear now in the past. This gives me an idea.

Emmy's side was sore again. She missed her home. She wanted to have coffee again with Einstein, or write a long letter to Hilbert at Göttingen. And her doctoral students, Krull, Deuring, Fitting and all the others, were now dust in mausoleums or resting in cremation urns an ocean away.

"My life is back in the 1930s. Everyone I know is there. All of my friends, family, and colleagues. You are asking an impossibly high price of me to turn my back on them."

"Emmy, if you would please sit down. I have something to tell you and it isn't going to be easy."

She shrugged her shoulders and let out a long, annoyed sigh. Dakota pulled up what looked like a three-dimensional x-ray image. Emmy's name was glowing on the bottom of the hologram; that picture

was her, or at least her insides. She made hand gestures and the photo enlarged to an internal organ on Emmy's right side. There was a red-tinged object there with complex code swirling around surrounding the rotating image.

"My apologies for my intrusiveness but I made a complete internal scan of you just a few minutes ago. You have Stage IV uterine cancer. See the nasty-looking red object? This was incurable in your day, but now we can cure it routinely in forty-eight hours with gene therapy. The history books say you died of complications from surgery weeks after the date from which we took you."

Emmy nodded and Tran's face froze.

It said so on the statue in The Cloisters. The pain in her side. The doctors back home had said nothing about cancer. It all made a kind of terrible sense.

Ophelia was crying, her eyes red and head tilted forwards.

"Why are you upset? You can simply cure me and send me back," Emmy said.

Dakota shook her head. "No, it doesn't work that way. The cancer therapy reprograms your DNA to reject the cancerous cells, and that would irretrievably complicate the temporal field equations. If we changed your DNA now, it would alter your subatomic signature. If we sent you back after gene therapy, it is possible we could potentially send you back to a different time than your own, or even scatter the molecules of your body across hundreds of years."

Ophelia's voice was cracking. "It's a terrible choice we've given you. I know that now and feel so guilty. If you go back uncured, it is a death sentence. If you stay, then we can cure you but everyone you know will be gone forever. Long gone! And we have that time hole hurtling towards the sun like death itself, so there is no guaranteed refuge even here."

"But you can make an unimaginable difference if you stay," Dakota said. "Think of it. You could literally save the entire human race."

Emmy didn't like either option. She thought back to the brief vision she had of Dakota's lab as it was long ago and an idea flashed in her mind.

"What about sending the *two of you* back in time?" Emmy asked.

Tran folded her arms and said, "I hadn't thought of that. Please, go on."

"You brought me forwards here, so you could send yourselves backwards! Imagine how you could transform science and mathematics in 1935. That way you could long ago develop the tools to get rid of this time hole."

"I'd volunteer," said Ophelia.

"A brilliant idea, Emmy, but I don't think it would work. Besides the paradoxes it would create if we changed history, twentieth century technology is too primitive for what we need to fix the problem. We

need the fusion reactors, our computers, but most of all we need you here, now, in this timeline.”

“Besides all that, if you don’t get medical treatment in this time you would still be sick,” Ophelia said.

Emmy half nodded and put her hand to her mouth, resigned to the choices laid before her. She stared hard at the equations on the board. In their totality, they were a confusing tangle of half-familiar mathematical symbols. After all, she had missed two-hundred years of mathematical progress.

Not a problem for the mother of modern algebra. Emmy flashed a smile.

In a short time, she teased out tufts of meaning from the symbols, like pulling threads out of an old, weathered shawl. Maybe if she studied them properly enough she could unravel them, and then weave them together in a way she could understand and expand upon. And Dakota said they could use a neural-whatever that would allow her brain to see even deeper into this mysterious temporal algebra.

Pumping math artificially into my head. Preposterous!

She yearned for the soothing dry touch of the chalk again. The scratching sound it made as she wrote her proofs on it pleased her.

I miss Hilbert’s kindness. His bravery when he stood up for me to get tenure at Göttingen, despite the objections of his colleagues. I miss that infectious laugh of dear old Albert, the genius clown. It’s my little secret with Hilbert that we discovered general relativity before Albert. I miss all of my students here at Bryn Maur and back in Germany. I’ll miss Olga who showed such uncompromising focus and potential, much as I had once.

Women are now equal to men in mathematics and science and in the world. How lovely.

I outlived the fascists, and their damned Reich is only a forgotten memory! Hab! I win.

Here, now, I can make a difference. And preserve their memory by preserving the world itself. Not bad for someone who had to work so hard for tenure in Göttingen because she was a woman.

Emmy stared at Ophelia’s face still wet with tears, and she clenched her fists so tight her nails dug into

her palms. She remembered the light in Olga’s eyes the first time she saw her, and she understood utterly now. *Ophelia never faced the same barriers Olga or I did in the old world. But her world will soon be over, gone forever, unless I act.*

She closed her eyes. Emmy thought of the responsibility of her impact on others, and it filled her with a deep awe. Her stomach grumbled and her fists vibrated. She opened her eyes and stood tall like a statue, beaming with a rediscovered pride.

“I’m staying. Simple as that.”

Dakota’s eyes widened, and shone like beacons in the fog. Ophelia laughed through her tears. She ran to hug Emmy, who chuckled with happiness.

“One request, however. I want to write a letter to Frau Taussky, and have it appear in *The Cloisters* where I fell asleep. I’ll explain why I disappeared and for her to let my family know. To the world, I will have died of uterine cancer like it was before. No need messing up the history books. Let’s keep those paradoxes to a minimum.”

Tran nodded and grinned. “Something that small we can send back and it would only slightly accelerate the time hole. The risk is acceptable.”

No one will mind if I give a few personal words of encouragement to Olga. She needs to know she will make a major impact, despite the obstacles put before her by smaller minds. My parting gift.

Emmy walked to the board and grabbed a piece of chalk. She scanned over the equations written in Ophelia’s peculiar script, and moved her hand back and forth over them, as a conductor would to an invisible orchestra. She gripped the chalk with an old, rediscovered confidence as she studied the next line of the derivation.

The choice Dakota presented her only had one logical outcome. She had to help them, had to help the world, and help herself in the process.

This new world may be strange, and I may be an antique, but I have a chance here to start a new life. I belong to the future.

“Now, dear colleagues of the 22nd century. Where do we begin?”

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