

BROKEN SYMMETRY

by

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Prologue: Spin Down

No one saw the first four explosions. Only two people witnessed the fifth explosion, and it killed one of them.

Jack Levinson and Daniel Strock, fellow math teachers at the local high school

in Waxahachie, Texas, always spent their Sunday afternoons bicycling along the

path of the old, abandoned Superconducting Supercollider main ring. Its sixty mile circumference surrounded the town, a greater distance than either of the two friends ever bicycled on any given day. Instead, they liked to drive to the

spot on the ring where they had last left off their biking, pedal for a few miles, and then return to their car. In bits and pieces, they had made a habit

of completely finishing the path of the accelerator every few months. Not that

they could see the old collider ring, of course, since, like most particle accelerators, it had been built underground. Nor did a track actually run above

the buried ring. They bicycled upon dry grass that looked the same everywhere around, so that unless you knew the collider was beneath your feet, nothing in

the way the ground appeared would tell you otherwise.

On this particular October afternoon, shortly after starting their ride, they stopped for a moment to relieve their thirst. They remained straddled on their

bicycles. Jack reached down for his canteen, and poured the cool water down his

parched throat. He offered it to Daniel, who shook his head. "I'm busy," he said, checking his compass against a map.

"Come on," Jack said, "you'd better take a sip if you don't want to end up dehydrated."

Daniel smiled. "Nah, I can take it."

"You say that each and every time, and last week I almost had to carry you back

to the car. Here." Jack thrust the canteen at his friend, who took a sip and tossed it back.

Jack looked around. "Which way now?"

"Well," Daniel said, turning the map around and squinting into the sun, "I think

we go -- this way!"

As he spoke the last two words, he jumped his feet back onto the pedals and sped

away from Jack. Jack shook his fist, and almost lost his balance getting back onto the bicycle. Daniel was already thirty feet ahead. Laughing, Jack shouted,

"Damn you! You always try to turn this into a race --"

A large explosion interrupted him, a loud boom accompanied by a blinding flash

of light. He hit the dirt instantly, his body remembering the air raid drills from elementary school. Duck and cover, that's what they always said to do. In a

moment, the boom turned into the echo of a distant rumble, and Jack looked

up.

The explosion had left a gaping hole in the ground, right where Daniel had been pedaling. Smoke drifted lazily out of the hole. Daniel and his bike lay off to the side, thrown by the force of the explosion. Jack jumped off his bike and ran over to his friend.

"Daniel!" he screamed, and what he saw shocked him. Daniel's body was bruised and bleeding all over, and covered with metal fragments. He didn't react to Jack's scream.

Jack regained control and gently shook Daniel on the shoulder. It was scorching hot, and Jack pulled his hand away in searing pain. As he did, pieces of Daniel's shirt and flesh came with it.

Jack spit on his hand in disgust, and took another look at Daniel. His friend's head lolled off to one side, and he looked as limp as a rag doll. He was dead.

Jack assimilated this information as best as he could, and passed out.

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"Sheriff, Mr. Levinson has been in a major accident, and I don't want you getting him all worked up."

"Don't worry, Doc," said Sheriff Bob Kingsley in his natural drawl. He fixed his

eyes in a squint and looked at the two Ellis County deputies, who nodded in agreement. The three made a strange picture, standing in the antiseptic white hospital hallway in uniform. Kingsley wore a ten gallon hat over his dark, curly

hair, the one affectation he allowed himself. "We just want to ask him a few questions."

Dr. Korn shook his head. "Only one of you. I don't want him to get too excited."

Kingsley shrugged and followed the doctor into the hospital room. He emerged a

few minutes later and headed over to the nurses' station, his deputies in tow.

Waiting at the station was Sam Stratton, of the F.B.I. "Well?" he asked Kingsley, in a clipped voice.

"Well," echoed the sheriff. "Mr. Levinson saw another hole form."

"That makes five, now. And the first direct evidence that the ring is dangerous.

It was an explosion, right?"

"Yep, and a pretty nasty one from what Levinson said. He's still shaken up over

the death of his friend."

Stratton dismissed Kingsley's concern with a wave of his hand. "OK, Sheriff, thanks for your time. I'll take over the investigation from here and call in my

people." He reached for the phone, but Kingsley interceded by grabbing his arm.

"Begging your pardon, Mr. Stratton, but this is still Ellis County, and the area

of the collider is still under my jurisdiction."

Stratton glared at him. "We have jurisdiction over federal land."

Kingsley smiled. "Ah, but it ain't federal land anymore, is it? Hasn't been for

quite some time now."

Stratton pulled his hand out of Kingsley's grip, and brushed it off on his

pants. "Very well, Sheriff. So what do you plan to do?"
"First thing I'm going to do is set up police barricades and declare the ground above the ring off limits. It won't keep out everyone, but it should give us a few days of leeway before the press catches wind of it."
"That's exactly what I was planning to do. I don't see why I shouldn't be the one to supervise."
"They won't respect your barriers as much as they'll respect mine, Mr. Stratton.
Most of these people have an idea of who I am, and trust the Sheriff's Office.
You're just the guy they sent in from Austin."
Stratton squinted at Kingsley. "I can bring in the army, if necessary."
Kingsley shot up his eyebrows and frowned. "The army? You don't really want to antagonize the townfolk unnecessarily, do you? People don't usually go out to the collider anyway. What's the point of attracting all that attention?"
Stratton glared at him. "I still need to call in some people. Scientists."
Kingsley shook his head and smiled. "Call in your scientists if you want, Mr. Stratton, but I'm going to call in mine. Probably just as good."
"Yours?" Stratton asked, with the slightest hint of a sneer.
"Yep, mine. I'm going to call in the guy who knows all there is to know about this accelerator. Got to know him a little over ten years ago, when he first came to direct the project. He's back at Harvard now. If anyone knows what caused this thing to start burping over the past month, he would." Kingsley turned to his deputies, and in an even voice, said, "Get me Roy Schwitters."
#

1. Spin Up

The Superconducting Supercollider had been up and running for over a year now, and Ray Shwartz still couldn't figure out why they weren't able to get any data.
He squatted in an underground access corridor, next to the main ring, and inspected the wall separating the two. The fluorescent light and white walls made it easy to see, and what Ray found annoyed him. There was nothing wrong with the wall. It was completely whole.
Footsteps echoed from behind and interrupted him. He stood up, pulled down the knot of his tie and mopped his bald head with a handkerchief; despite the air conditioning system and its infernal hum, Ray still felt hot from the Texas climate. He was more used to the climate of Boston, or Seattle. "Yes?" he asked, turning around.
Dr. Julia Kristin Anderson came around the corner. "Hello, Professor Shwartz --
I mean, Ray," she said, and smiled.
Ray smiled back at her. Kristin had her Ph.D. for a year now; they were more colleagues than teacher and student. And yet she still couldn't break her old habits of calling him "Professor."
"It's OK, Kristin. At least you didn't call me 'Director.' What's up?"
She squatted down next to the wall that Ray had just examined, and checked it herself. "Completely intact."
"I thought we might have had a resurgence of the fire ants," Ray said, "but I doubt even they could chew through that." They laughed for a moment as Kristin stood up, and then Ray continued. "So what news do you have for me? It's obviously not a problem with the ring."

Kristin's face settled into a more somber expression. "I wanted to tell you this personally." She paused.

"Yes?"

"Apparently, there's nothing wrong with either the scintillators or the computers. The particle detectors should be working perfectly."

Ray closed his eyes and sighed. "Damn. That's what I was afraid of. How many beams have we run since the collider became operational? Almost a hundred, right?"

"Ninety-three, if we include the beams at the beginning that did yield data."

"It wasn't enough." Ray pulled a sheet of paper out of his pocket. "Damn it, Kristin, I wish I could figure this out. The SSC was my major goal in life. I know this may sound silly, but it was to be the grand culmination of the years I

had spent doing physics. By now, we were supposed to have found the Higgs boson

and verified the theory of Grand Unification. Instead, we're getting nothing."

He passed the sheet over to her. "I mean, look at that. Everything points to the

collider running smoothly." He ticked points off on his fingers. "We're having

no problem generating proton beams and antiproton beams in the containment rings; you and I have just ascertained that the ring walls are unharmed; and now

you're telling me that the detectors are fully functional as well."

She studied the sheet and nodded. "True."

"Well, then, Dr. Anderson, tell me, what piece of equipment is malfunctioning?

Because I certainly can't figure it out!"

She glanced around the room. "I don't think anything is malfunctioning at all."

"Nothing at all."

"That's right."

"Then why aren't we getting any data?"

"Professor -- Ray, are you willing to entertain a -- well, listen to a hunch?"

"I'll accept anything at this point."

She smiled. "I hope you're telling the truth, because what I'm about to suggest

sounds totally ludicrous. You ever read any Sherlock Holmes?"

Ray nodded. "A long time ago."

"My husband just turned me onto the stories, and they're fascinating. Anyway, in

one of the Sherlock Holmes stories, he says, 'When you have eliminated the impossible, whatever remains, however improbable, must be the truth.'"

"Yes, I remember that quote. Someone had it hanging in his office back at Harvard."

Kristin shifted uncomfortably. "Well, I was reading that story and had our problem in the back of my mind when something clicked. Assuming all our equipment is functioning properly, what do our results tell us?"

"They tell us that Congress will cut our funding next year."

"Seriously."

"Sorry." He sighed. "Although I am serious. If we don't show positive results,

Congress will take its ten billion dollar loss and leave Waxahachie with a big

hole in the ground."

"I know. I remember the budget fights of the nineties; I almost had to leave graduate school because of it. But that's not my point."

"OK. You want to know what it means if all our equipment is functioning properly."
"Yes."
"Fine." Ray stood up and walked over to the wall opposite the one the corridor shared with the ring. An old map of the SSC hung there, at eye level, with a red X next to the words, "YOU ARE HERE." The overall picture looked like two small circles on top of a larger circle, reminiscent of Mickey Mouse's head. "Here," Ray said, pointing to the two small circles, "we're generating protons and antiprotons."
"Right."
"Then we inject them into the main collider." Ray pointed to the larger circle.
"Right."
Finally, Ray pointed to a rectangle that bordered the circle on the bottom. "And here, the detector should see a shower of subatomic particles when the two beams collide. But we don't get that, except for those first few runs."
"No, we don't."
"And you claim that the equipment isn't at fault. So what do you think is happening?"
Kristin glanced around the room again, like she wanted to avoid eye contact. "Ray, I think the beams are just disappearing somehow."
"Disappearing," he echoed.
"That's right. It would explain why the equipment checks out, and why we're not seeing any collisions. Before the beams have a chance to collide in the detector, they -- they go away."
"You're joking, right?" he asked, staring straight at her and frowning. She glanced away, and quietly said, "No. I'm not."
Ray sat down again. "Kristin, the only reason I'm not laughing in your face is because I respect your work too much to dismiss your ideas immediately. But you have to admit that this is a ridiculous thing to suggest."
"I know. I already said that."
"True, you did." He smiled. "And, in point of fact, your idea does seem to fit the data. Perhaps we ought to investigate it, just so we can eliminate it as absurd. It's not as if we've got anything else to work on here."
Kristin stood up to leave. "Thanks, Ray. With your permission, I'll go have people start moving detectors around the ring. Maybe we'll be able to localize exactly where those beams are when they vanish."
"Fine, I'll authorize it. Just one thing before you go."
She stopped. "Yes?"
"If those beams are disappearing, where are they going?"
She shook her head. "Your guess is as good as mine."
#

2. Spin Down

Roy Schwitters looked out over the site of the latest explosion. With his handkerchief, he mopped his bald head and rubbed the perspiration out of his beard. The hot sun beat down on him and Sheriff Kingsley, making Roy wish he could return to his air-conditioned office at Harvard. The flat grassland,

which stretched all around for many miles, had been torn up in this one spot. Dirt and metal fragments mixed together, scattered about in a nearly perfect circle, twenty meters in diameter. Roy studied the area for a few minutes. He walked around the circumference of the debris, occasionally squatting down to pick up a piece of metal or a handful of sand. When he finished, he brushed off his pants, positioned himself so the sun shone behind him, and turned towards Kingsley. "You're right," he said. He spoke, as always, in a soft unaccented tenor monotone. "It does look like there was an explosion inside the old SSC tunnel." "That's what we figured when we found the first four holes, but we weren't quite sure," said Sheriff Kingsley. "Jack Levinson's story confirmed it." "I see only one problem," Roy said. "There's nothing we did that would cause explosions to emanate from the tunnel. We never even had a chance to run one beam." He gazed wistfully around him. "We know," said Kingsley, "but this was the fifth explosion, and they've all only happened only around the ring where you scientists were going to do your experiments. That's why I called you, Dr. Schwitters; frankly, I was a little surprised that you were willing to come back, after all that happened. But I am grateful." Roy winced at the memories triggered by the sheriff's comments, but he let them pass. "Yes, I'm willing to come back, anytime. I've already told you that it can't be the Supercollider doing this; we never even had a chance to turn the accelerator on." He walked around the debris again, and said, "Perhaps someone is setting off bombs, but I can't think of any rationale for blowing up the tunnel. The project's been long dead for these past ten years; it's not like anyone should want to sabotage it now. You've probably just got some nut whose hobbies include blowing up outmoded scientific equipment. Maybe another Unabomber. I can't help you there." "Begging your pardon," Kingsley said, "but aren't you forgetting something? Forensics tells us that they can't find any remnants of a bomb. No chemicals, no timer, nothing. And the explosions are definitely originating from inside the tunnel." "So?" "Well, I don't pretend to be a physicist or anything like that, but I grew up here in Waxahachie and I remember all the hoopla when we got the SSC. I wasn't always happy about it, but I stayed interested, and kept reading up about it, even after they decided not to use the facility for anything else, like they were saying they would. One thing I remember very well was that they sealed off the tunnel after Congress killed it. So how does this mad bomber set up his bombs?" Roy thought a moment. "He probably found a hole somewhere and crawled in." "You mean he goes inside? We did a thorough drive around the main ring after the first explosion. Besides the holes that were actually caused by explosions -- all of which we resealed immediately -- there aren't any other openings. So

even

if he's as hardy as I am, Dr. Schwitters, I ask you again -- how does he get inside?"

Roy had absolutely no idea what to say. He regarded the sheriff for a moment, then, without saying a word, he walked back to the car.

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3. Spin Up

Kristin ran through the calculations for a fifth time. It couldn't be right, she

kept telling herself. There was no way that this could be right. And yet... She rubbed her bleary eyes and picked up the phone to call Ray. He answered curtly. "Hello?"

"Ray, it's Kristin. I think --"

He interrupted her. "Kristin, I don't have time at the moment. Why don't you --"

Ray cut himself off, and Kristin heard voices in the background. A moment later

he got back on the line. "On second thought, why don't you come to my office?"

Click.

That was abrupt of him, Kristin thought. Something big must be going down. She cradled the receiver, and nervously ambled over to Ray's office. Her footsteps echoed as she walked down the empty corridor and around the corner. She opened the door.

Inside, Ray was talking with a dark haired man in a two piece suit. Kristin's entrance had interrupted them in what looked like heated conversation; Ray's cheeks were flushed and the man looked distinctly uncomfortable.

"Kristin," Ray said, "I'd like you to meet Louis Reichen, of the Department of Energy."

Kristin closed the door behind her and approached Reichen. He was a small man,

about the same height as Kristin, with a tiny mustache that looked like a chocolate stain, even up close. Kristin sensed trouble. Most people from the DOE

showed up in plaid shirts and jeans, scientists interested in getting down to work on some project. This fellow looked like a businessman. He shook her hand

firmly, then turned back to Ray, who sat behind his desk.

"As I was saying, Dr. Shwartz, the people back in Washington are getting restless, and they've sent me to look into things here."

Ray looked at Kristin. "Dr. Anderson, would you please tell Mr. Reichen the current status of the SSC?"

Caught off guard, Kristin mumbled, "Uh, yeah," and then filled Reichen in on their problems in getting data. "But I think I've --"

"Thank you, Doctor," Ray interrupted. "Now, Mr. Reichen. I know this seems bad,

but we've only been running it for about a year now. There's bound to be problems until the accelerator has gone through a shakedown phase."

"'Shakedown phase,'" Reichen echoed. "You've had ten years to build this thing,

Dr. Shwartz. Any problems you might have had during a 'shakedown phase' must surely have been foreseen."

"Not necessarily," Ray said. "When you're dealing with an experiment as large as

this, there are bound to be certain unknown factors -- until you actually run the experiment, that is -- that can't be predicted beforehand."

In fact," Kristin said, "that's exactly how some of the greatest discoveries in

science got made. X-rays. Vulcanized rubber. The --"

"Yes," interrupted Reichen, "but none of those things cost as much as this contraption. Dr. Shwartz, do you know what they're calling this -- this fiasco

in Congress? 'The Ten Billion Dollar Hole in the Ground' is the least of it.

I

wouldn't want to tell you what I've heard them call it in back room discussions."

Reichen picked up his briefcase. "Don't get me wrong. I'm DOE; I support the collider, and want to see it working. But my hands are tied. If you can't show

me positive results, and demonstrate to Congress that this thing is more than just a big failure -- well, I'll have to tell them so, and they'll kill it."

Ray looked at the top of his desk. "What if I could show you those 'positive results' you want?"

"Well..."

"Look." Ray consulted a small calendar at the top of his desk, then glared at Kristin. He said, "It just so happens that we have a run scheduled for tomorrow.

Why don't you come watch, and you can judge for yourself. I promise you that we'll get 'positive results,' as you put it."

Reichen nodded slowly. "That would be acceptable. I'll leave the number of my hotel with the project secretary. I just hope you do have something to show me."

They watched Reichen leave the room, and as soon as the door closed behind him

Kristin glared back at Ray. "There is no run scheduled for tomorrow."

"There is now."

Kristin sat down. "How are you going to ensure positive results?"

"I'll go out to the collider and tell it that Congress has ordered it to work smoothly tomorrow." They laughed. Ray continued, "Hey, it worked for the space

program once. One model of rocket kept failing on the launchpad until someone from Washington told the chief engineer that it simply had to work the next time

they launched it. The engineer went out to the rocket and ordered it to work. And it did." Ray leaned back in his chair and closed his eyes for a moment.

"You

had something you wanted to talk to me about?" he finally asked.

"Oh! As a matter of fact, I do." She smiled. "And come to think of it, I do need

another run of the accelerator to test my idea."

"Which is?" Ray prompted.

"Ah, yes. My idea. Ray, I know what I'm about to propose will sound even more far-fetched than the idea of the beams just disappearing, but I think I know where they're going. And, more than that, I think I can predict when they'll vanish." She looked around for a moment, flustered. "I left my calculations in

my office."

"We'll get them later. What's the idea?"

Kristin took a deep breath and let it out slowly. "Do you recall Hugh Everett's

many-worlds interpretation of quantum mechanics?"

Ray looked surprised. "Yes, I do. Whenever a decision has to be made, the universe splits into two separate universes. Avoids the thorny problem of the observer's role, even if it's not as elegant. Although I tend to feel that Everett's interpretation was rendered moot by John Cramer and Shu-Yuan Chu,

in
their transactional interpretation."
"Moot doesn't mean invalid. Everett's interpretation could still be considered
a
valid one."
"Oh, sure," Ray said, smiling, "assuming you could prove it over all others.
People have been trying to assert one view of quantum mechanics over all
others
since the Copenhagen interpretation. But that's the one people seem to accept
the most."
"Yeah. Well. The thing is, I've always been uncomfortable with that one. I
mean,
it's one thing to say that, for a subatomic particle we can't see with the
naked
eye anyway, its spin is undetermined until an observer looks at it and it
chooses to be either spin up or spin down."
Ray nodded. "Wavefunction collapse."
"Yes. But it's quite another thing on a macroscopic scale. Look at
Schrödinger's
cat. Does it really make sense to say that cat isn't alive or dead until you
open the box? I think Everett's interpretation works a lot better.
Schrödinger's
cat ends up alive in one universe and dead in another."
"So what does Hugh Everett's thesis have to do with the SSC?"
Kristin laughed. "Sounds like a riddle. Well, it's like this. I've always
been
into studying the different interpretations of quantum mechanics, ever since
that first course I took with Doug Strauss. And I must admit that I've always
been fond of Everett's idea -- can't you imagine what it would be like if
every
possible universe that ever could have been was really out there, somewhere?"
She waved her hands in the air as if to demonstrate.
Ray shook his head. "I've tried to stay firmly planted in this universe."
"Your loss. Anyway, it always bothered me that Everett's interpretation
allowed
for parallel universes, but ones that were inaccessible from ours. I mean,
what's the point of saying an alternate universe exists if you can't get to
it?
It might as well not exist."
"My point exactly."
"Then something occurred to me. I read Everett's original Princeton thesis,
and
noticed that he failed to take into account high energy interactions. I mean,
extremely high energy interactions, on the order of a TeV." She paused.
"Kristin, I'm not sure I see where this is leading. That is, I think I do,
but
-- what exactly are you getting at?"
"I'm getting at the fact that at high energies, Everett's theory predicts that
a
quantum mechanical 'gate' opens up, similar to an Einstein-Rosen bridge. For
a
split second, the barrier between different universes might be traversed. But
we've never been able to create interactions of that magnitude until --"
"Until we built the SSC," Ray finished for her.
"Yes."
"Kristin, that's utterly impossible."
She felt her face flush. "So was splitting the atom," she retorted.
Ray laughed. "So it was."
"And look where it led us to today. Listen, Ray. You said that we have to do
a

run of the accelerator tomorrow anyway, to satisfy Reichen. Let me calibrate the detectors to verify my theory. In the meantime, you can go over my math and see if I missed anything."
#

4. Spin Down

"I've gone over your math, and can't find anything wrong with it," Roy Schwitters said. "As much as it galls me to admit it, you're right." Harold Volin grinned sheepishly, the grin of a small boy caught with his hands in the cookie jar. Six weeks ago, Roy had called him in to help figure out the problem of the SSC explosions. Now, they sat in a first floor office of the old SSC Administration building, studying the equations Volin had written out on a chalkboard. The building, along with many others, had been taken over by the county when the Department of Energy had pulled out, as there was no sense in letting good office buildings and state of the art computer equipment go to waste. Sheriff Kingsley had somehow managed to arrange this office for Roy, nowhere near as luxurious as the office he had occupied when he had been Director, but "good enough for government work," as the sheriff had told him. Roy considered Harold for a moment before continuing. Harold was a theoretician, a good physicist, but with a quirky personality that made him look for solutions to problems from the strangest angles. His red hair, thick beard, and incongruously high voice fit his personality perfectly. But it was exactly because of Harold's odd way of looking at the world that Roy had called him in. And now, here was Harold's solution, too off-the-wall to be considered seriously, but the only one that fit the data. So far. Roy spoke slowly, unsure of his words. "Your calculations do seem to indicate that someone's running the collider." Harold nodded eagerly, still smiling. He tended to speak quickly, with one word running into another. "The first clue you gave me was the symmetric nature of the explosions. It was exactly what you'd get if an antimatter beam went off course -- zing! -- and hit the walls of the ring. And given that the magnets only work at a few degrees Kelvin, any beam sent through at the moment would naturally run off course. After all, the magnets aren't operational at the moment." Roy gave his friend an incredulous look. "You're missing the point, Harold. None of it is operational. Not the magnets, not the detectors -- and most of all, not the injectors! The SSC was never turned on. The project was killed long before we even got to the stage where we could generate one proton-antiproton beam, let alone five! I admit that your calculations indicate that the SSC has been turned on, but how? If there are in fact antiprotons in the ring, where are they coming from?" Harold eyes twinkled. "That is the big question, isn't it? Not, 'Who's running

the collider?' but 'Where are the beams coming from?'"

"I don't understand."

Harold's voice took an a sober tone. "Look, Roy, I know as well as you do that

the SSC isn't operational. There is no way that those beams are being generated

by our SSC. But maybe -- just maybe -- they're being generated by some other SSC."

"Some other SSC?"

"In another universe."

#

It took all night, but Harold finally convinced Roy of the logic of his theory.

It had been difficult, at first, as Roy was a strong supporter of the standard

Copenhagen interpretation of quantum mechanics.

But the equations were incontrovertible.

"At least it gets rid of all those bizarre paradoxes," Roy said.

Harold blinked. "Understated, as usual."

"What do you mean?"

"You don't seem to appreciate the magnitude of what I've proven here, Roy.

Ever

since the theory of quantum mechanics was developed, no one has been able to settle on one interpretation."

"That's because all were equally valid. Everything we observed fit any interpretation, from wavefunction collapse to Bohm's hidden variables."

"But not any more! Don't you see? This discovery is so important, it'll shake the foundations of philosophy as well as physics."

Roy harrumphed and shook his head. "And it's all due to a killed experiment.

Don't get me wrong, Harold, I am happy for you --"

"For us, you mean. It would be indecent not to list you as co-author."

"All right, for us, then. But it still doesn't change one annoying, undeniable

fact. I was hoping that what we found would indicate a working collider."

"Well, it does, in a sense," Harold said. "It indicates a working SSC in some other universe. If it hadn't been killed, it's now about the time when we would

have started running the machine. Think of it."

Think of it. A universe where the SSC was never canceled. A universe where science never lost its way, where the government and the lay people understood

the importance of this project, appreciated the need for basic research.

Perhaps in that universe, the other projects, like SETI and the human genome project, were also going strong. Perhaps in that universe, the space program hadn't stopped at the moon, but was even now moving humanity towards the stars.

Perhaps...

"Harold," Roy said softly, "can we use your theory to travel to that other universe?"

Harold looked wistful, and shook his head. "I'm afraid that's unlikely. The energies are just too much. You'd have to be in the path of the beam, and that

would probably kill you. Of course, we could get a resonance effect going, but

I'm not sure how."

Roy bit his lower lip and nodded. "It was worth asking. Too bad we can't use your theory to our advantage."

The two men sat in silence for a moment, and then Harold's eyes glinted.

"Actually, we can!"

"How?"

"Look," Harold said, "What's the most expensive part of the SSC?"
"The ring, of course," Roy replied.
Harold nodded, excitement in his eyes. "Yes, the ring. The detectors and even the computers are cheap compared to that. But don't you see? We don't have to worry about funding the ring anymore!"
"You mean to say --" Roy began.
"I mean to say that someone else in another universe is paying to run the beams.
We can just set up detectors and piggyback on their experiments, like when we do experiments on synchrotron radiation. We just have to wait for a crossover, and
I believe I can calculate when those will occur. And when a beam comes through
-- zing! -- and collides with the protons in the surrounding dirt, we take data."
Roy pressed his fingers together and leaned back in his chair. "We could restart
the SSC at a fraction of the original cost," he said, "because the scientists in
the other universe have already built it."
"My point exactly."
Roy picked up the phone to call the Department of Energy.
#

5. Spin Up

The Reichen run, as Kristin called it, was six weeks in the past. It was also the only run of the collider that had actually gone perfectly, ever since Reichen threatened to shut them down. Perhaps, Kristin had told Ray jokingly, there had been something to the idea of ordering the collider to behave itself.
Since then, they had run the accelerator many more times, and as always, the beams kept disappearing.
Kristin and Ray stood on the hot grassy plain, studying the detector that should
have picked up the beam they had run earlier today. After half an hour of examining the huge boxes filled with plastic scintillator, she turned to Ray and
said, "Now do you believe my theory?"
Slowly, Ray said, "It does seem to be the only possible answer."
"Only answer, you mean. Ray, you've checked my calculations. You know that I've
predicted every single beam disappearance since the Reichen run. Either I'm the
victim of the most improbable set of coincidences, or --" She shrugged. "Or I'm
right. And I must be. The data proves it."
Ray nodded. "I guess you're right. Too bad."
"Too bad?" Kristin felt stunned. "What do you mean, too bad? We've just demonstrated something that will shake the theoretical foundations of physics as
much as relativity did!"
Ray smiled, bitterly. "Come on, let's walk back to the car."
In the car driving back to Waxahachie, he continued. "Kristin, I didn't mean to
belittle your accomplishment. Your theory will make a major impact, and you should be proud of that. But your theory also means that we're going to have stop running the collider immediately."
"What? Why?"

"Because if the beams are being diverted into another universe, who knows what damage they're doing there? We're sending antimatter beams into the unknown. If they're interacting with the matter of an alternate Earth..." He trailed off. Kristin swallowed hard. "I see what you're saying, but I don't think we have to worry too much about that."

"Why not? You don't care if we're causing matter- antimatter explosions in another universe?"

"No! It's not that at all. We don't have to worry about the explosions hurting anyone, because for this phenomenon to be happening, our SSC would probably have to resonate with another SSC in the other universe. It's inherent in my calculations."

Ray nodded. "I see. If that's the case, then our beams would be traversing the barrier between universes simply to go from our tunnel into theirs."

"Exactly. The beams may be going into another universe, but only if there's an SSC ring there." She paused. "An abandoned one, actually."

"Abandoned? How do you know that?"

"Because otherwise the energies of their beam would cause positive feedback with ours, and -- and I don't want to think about what that would do to our universes. It might bring them together, or blow them apart."

Ray sighed. "An abandoned ring. How ironic."

"Ironic?"

He was silent as they took a curve. "Louis Reichen called today, from Washington."

"Oh. It's not good news, is it." It was a statement, not a question.

"No, it's not."

"That's why you brought up the idea of shutting down the SSC back there. To soften the blow."

"Yes. After all, if we're going to have to shut it down anyway, I would rather there be a good reason behind it. And if it was harming people in another universe, that would be a good reason. But this -- this is just stalled budget talks and political infighting. And we're the ones getting the axe for it."

Kristin didn't want to ask the next question, but needed to know. "How soon?"

"They're giving us half a year to wrap up any experiments that we might still be running. I got them to grant us that much."

"And then?"

"Unless we can think of some way to get those beams back, that will be the end of the SSC."

They rode the rest of the way back in silence.

#

6. Spin Down

Roy couldn't believe his luck. In only four weeks, they had convinced the DOE to reopen the SSC facility. He and Harold stood on the ground above the underground ring, watching the last of the scintillator detectors from Fermilab being installed.

"Are you sure about this, Harold?"

His eyes twinkled. "Very sure, as always. According to my calculations, this is

the third most probable spot for the crossovers to occur. And anyway, the evidence is already all around us." He swept his arm around to indicate the various holes in the ground, formed by fresh explosions during the last month.

The current detector was being set up on a piece of the ground that was, as yet, unscarred.

"True," Roy said, "although --"

A far away boom interrupted Roy. Everyone jumped, including the people setting

up the new detector. They continued when the echoes died down.

"Harold?"

"Sounds like it came from detector one. A little early, but let's go check it out."

The two men drove along the circumference of the ring until they found the fresh

hole, smoke lazily drifting out of it. They parked a safe distance away and approached on foot.

"Look," Harold said, and whistled.

The hole was right in the center of the surrounding detector, which was unharmed. A blue light indicated that the detector had successfully taken data,

which at this very moment the computers back in Waxahachie would be analyzing.

"I can't believe our luck," Roy said.

#

Over the next few months, Roy, Harold, and other physicists gathered in Waxahachie, and pored over the accumulated data from the SSC. Once again, Harold

and Roy found themselves in Roy's office, discussing the experiments.

"It looks good," Harold told Roy. "We seem to be close to confirming the existence of the Higgs boson." The two scientists tossed the physics back and forth for a while. The Higgs boson, a particle formed only at extremely high energies, was the key particle in the Grand Unification Theory. Discovery of the

particle would indicate that three of the four fundamental forces -- the strong,

weak, and electromagnetic forces -- were actually aspects of one overall superforce.

"That still omits gravity," Roy pointed out.

"Who cares? If we can get just one more run out of the other universe's accelerator, we'll have gotten closer than anyone has before. Even Einstein." Roy nodded. Einstein had spent the last years of his life trying to unite gravity with electromagnetism. If only he had known that gravity would be the hardest force to unite of them all.

"The next step would be an accelerator of even higher energies. Probably have to

build it around the moon." Roy sighed, and smiled. "Too bad we won't be around

to see it."

Harold chuckled. "Roy, God Himself could appear in front of you with the one ultimate equation that explains all of physics, and you would shrug and think about how it would put all of us out of work. Forget about it! We've accomplished what we set out to do. Many-worlds and Grand Unification in one year, when just a few years ago we thought the SSC was dead."

Roy laughed. "It's been a long, hard project, Harold. I'm just as happy as you

are, but I'm exhausted from all the political stuff as well as the physics."
"Well, relax. Just one more run of the accelerator, and you, my friend, will
be
on stage in Stockholm getting your Nobel Prize."
#

7. Spin Up

"That's even more preposterous than your original theory," Ray said. He and
Kristin were eating lunch in the cafeteria. The mood around them was somber,
and

yet people were still joking here and there.

Kristin nodded. "I don't care. We've got less than a month before they close
us

down forever. I think I have a right to request these runs."

"What possible good could it do?"

"What possible harm?"

"Look, Kristin, I'm busy with a lot of other things. There's paperwork to do,
there are reporters to talk to --"

"Why won't you let me try this experiment?"

Ray put down his sandwich and looked straight at his former student. "Because
the truth is, I don't believe you, Kristin. I've been humoring you about this
alternate universe stuff. And we've got more important things to do in the
final

few days of the SSC than test your theory!"

A few people's heads turned at the sound of Ray's voice, but then they
quickly

went back to their own conversations. Ray's shouting stung Kristin, but not
nearly as much as his words did. It took her a moment to find her voice, and
when she did, she spoke softly. "You -- you don't believe me?"

Ray sighed. "I'm sorry for shouting. Look, Kristin, it's not that I don't
think

you're doing excellent science. And I wasn't about to kick you off the
program

because of your strange ideas. I had a friend once who had some very weird
ideas

on Grand Unified Field Theory, but he did top-notch science otherwise, so --
It's just that we don't have time."

Finding her courage, Kristin said, "Let me run it by you one more time, Ray."

Ray turned around to look at the clock on the wall behind him, then looked
back

at Kristin. "OK, one more time."

She took a deep breath. "Fine. Let's assume, for the moment, that I'm wrong,
that I'm talking through my hat. Then you have two choices, either do the runs

I

suggest or do what's scheduled. If you do my experiment, then yes, I admit,
we

lose out on whatever data we would have had otherwise. You'd be playing it
safe,

assuming that the data we'd be getting in these last few weeks would have any
value at all.

"But now let's assume that I'm right. Let's assume that there is another
universe, and that our current data does indicate feedback from there along
an

Einstein-Rosen bridge. In that case, whoever is in that other universe has
been

affecting the beams by taking data. Which can only mean one thing.

"They're doing the experiments that we're supposed to be doing."

"So why do you want to signal them?"

"Well, for one thing, it would be nice to let them know that their days of

doing
science on the cheap are over, wouldn't it?"
Ray shook his head. "I still don't see the point."
"It's obvious, Ray! If we can get a message through to them, they can get one through to us. If they've gotten good results, they can share them with us!
We
can present those results to Reichen and maybe, just maybe, Congress won't shut us down!"
"But if you're wrong, then it would be a complete waste of time."
"It's Pascal's wager," Kristin said suddenly.
"What?"
"Blaise Pascal, French mathematician --"
"I know who Pascal is."
"Right. Anyway, he once asked himself if it was worth his time to follow the church, and he set it up as a bet. If God doesn't exist, and you follow the church, you end up wasting a little bit of your time here on Earth. But if God does exist, and you ignore the church, the payoff is eternal damnation."
"Those are...interesting odds."
"So what's it going to be, Ray? Are we going to take the safe and easy path, and get some last trickle of data which may be worthless? Or will we take the risk that we might be wasting our time, but with a possible payoff that would keep the SSC running?"
Ray looked around him for a moment. All these people, the scientists, technicians, and support staff, about to be put out of work because of a short sighted Congress. Unless...
"What do you want to do?"
Kristin smiled.
#

8. Spin Down

Harold handed the sheet of paper to Roy, who leaned back in his office chair. "The beams haven't been regular anymore," he said, as Roy studied the data. "We're not getting 'Zing! Zing!' now, but rather, 'Pop! Pop!'" Harold demonstrated with his hands his interpretation of zinging and popping, and Roy found himself unable to keep from laughing. But this was a serious matter. "Without proper beams, we can't finish the experiment," he lamented. "You're telling me?" asked Harold. "We're so close, so very close, and all we can do is hope that they send us what we need. I have to tell you, it's got me real worried, Roy." The last time Roy had seen his friend so visibly distraught was when the proton decay experiments of the 1980's had failed to confirm Volin's personal Grand Unification Theory, called SU(5). Its name had turned out to be as unimportant as the theory, since it had ended up disproved. Oddly enough, it was that same disproving of the theory that had led to the necessity of the SSC. "Could the shorter beams be due to anything specific?" Roy asked. "If so, it's got me stumped. The beams aren't cutting off the way my equations predict. It's almost like they're doing it deliberately. But why?"

Roy studied the data again, a listing of the different beam lengths. The shorter beam times did seem fairly self-consistent, as did the longer ones that were interspersed. But what could it all mean? He thought for a moment. "Harold, let's think this through. If the beams have been coming here, then what's been happening in that other universe?" Harold's brow furrowed. "Trick question, right? If the beams are coming here, then they're leaving there." "Which means that they haven't been able to take any data. No beams." A shocked look appeared on Harold's face. "That means that their experiment, as far as they know, is a failure. And - -" "And their government is probably just as unlikely to fund a failing experiment as our is," Roy concluded for both of them. They were silent for a moment, then Harold said, "They can't. They can't shut down their collider. We're so close." "Well, that just may be what they're doing. Unless --" "Unless what?" "For the past few months, I've been trying to imagine what it would be like for me to live in that universe. What if I had gotten my collider, and then, just as it seems to be working, the beams keep vanishing? What would I do?" "What you did in this universe. Keep fighting until the bitter end." "Right. But what if we were the ones losing beams? I would have called you in to examine the data, and what would you have found?" It took Harold a few seconds. "The physics of the bridge is the same in either universe. I could probably have developed this theory in the other universe as well."

Roy smiled. "Which means?" Harold's eyes lit up. "Which means that they know about us! So if their collider is in danger of being shut down, they would try to let us know about it!" He snatched the paper out of Roy's hands, studied it for a moment, and whistled. "It's Morse code. See here, where the data begins to get loopy? It's an S.O.S.!"

"So what does the rest of the message say?" "Give me a minute. It'll be easier if we use the computer to graph the pulse length versus time..." It was more like ten minutes until Harold had completely translated the message. Most of the message confirmed their ideas about the other universe. But it ended on a very ominous note. Harold read, "'Shutdown scheduled in few weeks. Must present data. Do you have any?'" He looked up at Roy, who rubbed his eyes. "Well, yeah, we do," Roy said, "but how do we share it with them?" Harold got that twinkle in his eye again. "You mean, how do we signal them back when we don't have a beam?" "Yes." Harold laughed. "Easy. Same way they signaled us, but in reverse. We set up the detectors to turn on and off very rapidly in Morse code, so when they send a beam over to us, they get a staggered disappearance instead of the usual

'zing!'
kind. Our communication does depend on their sending us a beam, but we can still communicate. It's a simple application of Heisenberg's Uncertainty Principle and Bell's Theorem. We'll just need a SQUID." A Superconducting Quantum Interference Device. A tiny integrated circuit cell made with superconductors, about the size of a transistor. Roy nodded. That made sense. They needed to interfere with the quantum mechanical nature of the beams, and both ideas Harold had cited involved quantum interactions. Bell's Theorem, in particular, involved the quantum nature of information transfer. "If you can figure it out --" "I can." "Then let's do it."
#

9. Spin Up

"I don't believe it, sorry," Louis Reichen said. Kristin jumped up and hit Ray's desk with her fist. "Damn it, Reichen, look at it! We've contacted them! They're sharing their data! All we've got to do is keep the SSC running!" "Kristin," Ray said quietly. This was not the way to convince Reichen, Kristin realized. She mumbled an apology and resumed her seat. "Thank you," Reichen said icily. "Now, as I was saying, I do not believe this." "So what do you think?" Ray asked. "Frankly? I think that you and Dr. Anderson are grasping at straws, trying to come up with anything to save your pet project." "You're accusing me of making this up, aren't you?" Kristin asked. Reichen turned to look at her. "Not in so many words, no." "But you think I'm lying." Reichen sighed. "Dr. Anderson, let's say that I do think you're lying. Most likely, I would say that, in desperation, you have come up with some scheme for convincing me to keep the collider running. But I'd much rather not have to put such a thing in my report, if you catch my drift. It wouldn't exactly be to your benefit, and I do have some sympathy for your situation." He turned back to Ray. "I'm here to supervise the shutdown of the SSC. I have an order here from the DOE that you are to stop running your experiments immediately." He took a paper out of his jacket pocket and handed it to Ray. Ray took it without comment. Reichen stood up. "We'll be seeing a lot of each other over the next few weeks. I'll try to make the shutdown go as smoothly as possible." With that, Reichen stormed out the door. "He threatened me. He actually threatened me." "I noticed." "You believe me, don't you, Ray?" "I believe you now."

"So what do we do?"

"What do we do?" Ray opened one of his desk drawers and pulled out a piece of paper, which he passed over to Kristin. She read it and whistled.

"Are you serious?" she asked.

"I am."

She waved the paper in Ray's face. "Why didn't you show me this before?"

"I just worked out the physics a few days ago. Besides, I didn't think it would

come to this. I thought that once Reichen saw what we had, he'd naturally let us

continue."

"But he doesn't believe in the people of the other universe."

"No, so he doesn't believe that they're sharing data with us." Ray took the paper from Kristin and ran his eyes over it. "I think this may be our only option. We just have to convince our counterparts in the other universe to cooperate."

"Ray, maybe we shouldn't attempt this. It sounds too dangerous. Maybe you were

right -- maybe it's time to end things, here and now."

Ray's eyebrows shot up. He stood up, turned around, and walked to the window behind him. He stared outside, with his back to Kristin. When he next spoke, it

seemed to Kristin that he spoke as much to himself as to her.

"You know, back when they were about to test the first atomic bomb, Enrico Fermi

started taking bets on what the bomb would do. There was a small possibility, they said, that the bomb might ignite the atmosphere, and destroy the world completely. If I remember the story correctly, Fermi took the other side of the

bet, figuring that if he lost he wouldn't have to worry about paying up."

"I thought he took the side that the atmosphere would ignite, and that he was relieved that he had to pay up."

Ray turned to look at Kristin. "Either way, there comes a time when you have to

do the experiment, because -- because you just have to." He walked back to his

desk, bent over to write a message, and handed it to Kristin. "Here. Send this

to them. We'll schedule it for tomorrow afternoon. Make sure Reichen finds out

in time to show up. But not in time to stop it."

Kristin took the message and hurried out.

#

10. Spin Down

Roy Schwitters looked at the group of people he had assembled here on this empty

plain, for what he hoped would be a historic first. Harold Volin, of course, who

had figured everything out, down to the last millisecond; they stood at T minus

ten minutes. There were some of the other scientists recruited to work on the SSC as well, gathered around the makeshift cryonic chamber, half the height of a

man, which they had managed to construct to contain the SQUID. They had barely

an inkling of what was about to transpire.

And finally, mostly recovered but still seeming a bit weak, was Jack Levinson,

one of the two teachers who had been witness to the explosion that had first dragged Roy back to the SSC. Levinson kept darting his head around, as if he expected to see another explosion any moment.

Or, perhaps, he expected to see his deceased friend Daniel Strock bicycling over, revealing his death to be a practical joke. Roy shook his head at the depressing thought, and looked away. He didn't mean for today to make up for what Levinson had gone through, but he felt that the man had just as much right

to be present as Roy himself did.

Just then, Harold tapped Roy on the shoulder. "Look," he said, pointing in the direction of the afternoon sun, and away from the scientists gathered around the

SQUID. Two figures could be seen emerging from a car, a good distance away. They

began to approach the small group of scientists.

"I was afraid this might happen," Roy said. "Let's see what they want."

In less than a minute, the two men stopped in front of Roy and Harold. Roy recognized Sheriff Kingsley, who nodded his head by way of greeting. He looked

distinctly uncomfortable, odd for a man who always made himself fit in anywhere.

"Hello, Sheriff," Roy said. "I don't think I remember your friend's name." It was the F.B.I. agent who had tried to coordinate everything at the beginning; Roy had ignored him in favor of Kingsley, which he was now just beginning to think might have been a politically bad move.

"Sam Stratton," the agent said by way of reintroduction. "The sheriff told me you would be here." Stratton pointed at Kingsley, who looked at Roy as if pleading for forgiveness.

"What can I do for you, Mr. Stratton?"

Stratton pulled a paper out of the pocket of his blazer and handed it to Roy.

"You can pick up and leave. I'm ordering all of you out of this area immediately."

Roy took the paper, smiled, and thrust it back at Stratton without reading it.

"Sorry, no can do."

Kingsley cleared his throat and spoke up. "Doc Schwitters, be reasonable. I told

this fellow that you would."

Roy shook his head. "Sheriff, we're about to witness something very important here. We can't go just yet."

"Listen to me," Stratton said. "Is it true what Sheriff Kingsley told me? Have

you predicted another explosion for this piece of the ring, in just a few minutes?"

"Not an explosion. A beam."

"Same difference, if I understand what's been going on. You're endangering yourself and everyone else here! I'm ordering all of you to move to a safe distance." He waved the paper in Roy's face.

Roy frowned. "Mr. Stratton, I --"

"Roy!" Harold interrupted.

"What is it?"

"I think my calculations were a little off." He pointed behind Stratton and Kingsley. "Look at the SQUID."

Roy turned towards the metal cryonic cannister, which held the SQUID inside.

"My

God."

"It's a trick," Stratton said.

Kingsley turned around, and whistled. "No, it's not."

Slowly, Stratton turned his head around. The air ten feet away from them radiated with thousands of tiny sparks, as if a thousand tiny thunderstorms filled the area with lightning. The scenery behind the area wobbled, as if it was no longer the real three dimensional world, but a painting done upon a canvas of rubber, stretching in all directions, back and forth. A soft warbling noise slowly increased in volume. But what made it most frightening was that the other scientists were part of the scenery. Their bodies appeared to stretch, as if they were made of water, with waves passing through them, causing distortions in their shape. Waves that were heading towards Roy and the others. Stratton's jaw dropped, and he let the paper fall to his feet. "What in God's name is that?" Stratton exclaimed. Harold looked at Stratton and smiled impishly. "Wavefunction collapse."
#

11. Spin Up

"They told me you would be here," Reichen said, the sweat moistening his mustache. "I demand to know what's going on."
"Whatever do you mean?" asked Ray.
"I mean, here I have been told that you're running one more beam, against orders, and you're waiting here for it to pass underneath your feet."
"That's right, Mr. Reichen," Kristin interjected.
Reichen swivelled around to face her. "You realize what kind of trouble you're in, doctor? You'll never get another penny from the DOE. Your career in high energy physics is over."
Kristin shrugged. "How melodramatic of you. It was going to be over, anyway, once you killed the SSC."
"But it's not over, Mr. Reichen. And you're right where we wanted you."
Reichen looked around nervously. There were a few other scientists, but they were gathered at a spot a few yards away, chatting among themselves.
"Now what's that supposed to mean?"
"It means," Kristin said, "since you showed us that Mohammed wouldn't come to the mountain --"
A loud rumble began to shake the earth under their feet, and a sudden wind gusted up. Reichen looked frightened. Kristin smiled.
"We figured we'd bring the mountain to Mohammed," she finished.
The din got louder. "What the hell's going on?" Reichen roared.
"You didn't believe that the other universe existed," Ray said, as the air around them filled up with sparks of light and the scenery began to wobble.
"I thought you might want to tell them that yourself."
#

12. Spin Sideways

The two universes only coexisted in a small volume, with a radius of about ten meters from where the SQUID sat. The rippling, hazy effect continued, making everyone in the area appear to be submerged in lazily moving water. Roy Schwitters, Harold Volin, Sam Stratton, and Bob Kingsley found themselves almost overlapping with Ray Shwartz, Kristin Anderson, and Louis Reichen. Everyone in the two groups backed off slowly from each other, and regarded each other for a

moment. To the people in one group, the people in the other group looked like phantoms, fading in and out of insubstantiality. When the first person spoke, from Spin Up, her voice sounded distorted to the people from Spin Down. But they

barely noticed, as someone from Spin Down spoke at exactly the same time, and said exactly the same words.

"It's you!" Kristin said to Ray, pointing at Roy.

"It's you!" Harold said to Roy, pointing at Ray.

The two directors approached each other, cautiously. Through hand gestures, the

one from Spin Up deferred to the one from Spin Down.

"I'm Roy Schwitters, director of the SSC."

"That's funny. I'm Ray Shwartz, director of the SSC. In my universe, I mean."

They smiled, and attempted to shake hands. Their hands passed right through each

other.

Ray looked over his shoulder, back at Reichen, who stood goggle-eyed in shock.

"I think we may have proven our point."

Harold and Kristin approached each other with similar caution, and introduced themselves. Harold laughed, and Roy turned to him. "What's so funny?" he asked.

"Talk about your Grand Unification Theories," Harold said, and then the universes separated.

#

Epilogue: Spin Down

Jack Levinson dismounted from his bicycle and removed his helmet. He wiped the

sweat from his brow, reached for his thermos, and took a long drink of cool water. It was still the dry grassland, and it was still the SSC ring buried underneath, but it was no longer the same.

According to the Morse code communications, Ray Shwartz and the scientists in the other universe had gotten the go-ahead to continue running the SSC. As Roy

Schwitters and the scientists in this universe gathered data, they would continue to share it with the other universe.

Meanwhile, both Harold Volin and Kristin Anderson were working on the possibility of creating a stable bridge between the universes.

But none of it mattered much to Jack. His friend Daniel had died. It ended up not having been in vain, but still, it was all over for him. Like it had been all over for the SSC, just a few years ago.

But, Jack noted, with the discovery of the other universe, possibilities had opened up. There was another SSC, another Schwitters, another --

Perhaps there was another Jack in that universe.

Or perhaps...perhaps there was another Daniel in that universe, or in another one...

His heart feeling a little lighter, Jack got back onto his bicycle and headed home.

END

(If you enjoyed this story, [click here](#) to let me know.)