

Anthrophobia

A Teacher's Tale



Matt Truxaw

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Other books by Matt Truxaw:
Plastivore aka Plastiphobia

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*Trigger Warning: While not graphic, Anthrophobia does contain
references to rape, child molestation and bullying, and the use of
profanities as part of normal language.*

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For Robert Anson Heinlein,
Who was one of the first authors who made me want to read
everything they ever wrote, and then helped me want to read
everything everyone wrote, and eventually helped inspire me to
write my own stories.

Anthrophobia

A Teacher's Tale

By Matt Truxaw

Part 1

1.1 April 1988

Martie

“Martha Sarah Scully, you are NOT going out looking like that! You go back into your room and change right now. My daughter is not going out dressed like that Madonna sl...” Martie’s father, Robert, cut himself off before finishing the word.

“Madonna? What are you talking about? If anything, this dress makes me look more like Amy Grant. And you know I don’t like ‘Martha.’ Cooper says it makes me sound like an old lady. Call me Martie, please.” she complained.

“OK, ‘Martie,’” her father added. “Martha was good enough for your grandmother. At least put on a jacket. It’s chilly out tonight, and I don’t like you showing off so much of your shoulders.”

“Fine, Daddy.” Martie complied, grabbing a light jacket and slinging it over her arm.

“So, who is this boy you’re going out with. Is he in your class?”

“No, Daddy. I told you. I’m going out with Cooper, Cooper Spieler. He was in the same class as Bobby at St. Catherine’s.”

“Wasn’t he the boy that was held back? How old does that make him now?”

“He wasn’t held back. He just started kindergarten later than most kids. He was only two years ahead of me in school.”

“If he was in class with Bobby, was he special needs too?”

“Daddy. Don’t be silly. He was in the same year. That doesn’t mean they were in the same classes. You remember Coop. He was so nice to Bobby when he was on the football team and Bobby was the waterboy?”

“Oh, yeah. He was a nice kid, but he did seem older than the other students.” Robert paused to think. “If he started late and he was two years ahead of you, what is he, 20, 21 years old! What’s he doing dating a 16 year-old?”

“I’m a senior in high school! I’m not a baby. Don’t blame Cooper because I started early, and you made me skip 8th grade.”

“We didn’t make you do anything. We never could MAKE you do anything. You were already reading my engineering books. There was no way we were going to let you get bored in middle school when you were already so far ahead of the rest of the kids. When you get bored, that’s when you get in trouble.”

“Don’t worry about me.” she said, shifting to a Cyndi Lauper sing-song voice. “Daddy-dear, you know you’re still number one.” Robert rolled his eyes.

“He’s been out of St. Catherine’s for two years? What school does this Cooper go to now, and what’s he studying?”

“He’s not in school right now. He’s in the Marines.”

Martie’s dad coughed and almost choked on his own words.

“The Marines!? I thought you told me you were a pacifist. What are you doing dating a Marine?”

“Daddy, Daddy, Daddy. He’s just in to earn money for college. He’ll only be in for a couple of years.”

The doorbell rang, interrupting the rest of their conversation.

“That’ll be Coop. I gotta go.”

Martie’s father helped her on with her jacket, and buttoned it for her... all the way to her throat as the doorbell rang again.

“Remember, it’s your life and your choices. Don’t let some boy make them for you. And don’t do anything stupid!”

“Sure, Dad. Bye.”

“Be home by eleven.”

“Love you, Daddy.” Martie unbuttoned the top two buttons as she opened the door.

1.2 May 1990

Martie

Martie was face down on the small bed on her side of the dorm room. She sobbed into her pillow.

“What’s wrong, Martie? Did Coop do something to you? He didn’t dump you, did he?”

This only made Martie bawl even louder.

“Come on, Martie. Talk to me.” Carol rubbed her shoulders.

“My life is OVER.”

Carol looked at Martie’s desktop and noticed the vials and the tubes. That wasn’t out of the ordinary. Martie was in her second year of pre-med and was taking about every science course the university offered. But then Carol saw the box and the instructions in the wastebasket.

“Is that what I think it is?” She asked. “I thought you were on the pill.”

“Coop’s been out of town for months, and I wasn’t seeing anyone else. He surprised me when he got leave back in March, and I thought – I thought it was the right time of my cycle anyway.” And she started crying again. “What am I going to do? I can’t do pre-med with a baby! Let alone med school!”

“You’re at the top of the class. There are things we can do. I helped Jackie get to the clinic last semester. I can help you now. It’s not hard. Have you told Coop yet?”

“No, but I have to.”

“No, you don’t. That will only complicate things. We can fix this before it wrecks your plans. You’re going to finish your degree. You are going to go to med school. You’re going to cure cancer or something. Then you are going to give me free medical care for life, and maybe slip me a prescription or two under the table.” Carol laughed hoping to lighten the mood.

Martie wiped her eyes and nose and tried to chuckle. At least she’d stopped bawling but was still sniffing loudly.

“I appreciate your help, but I can’t do it. Twelve years of Catholic school. Mass every Sunday. Eighteen years of indoctrination and guilt trips. I can’t get an abortion.”

“Your parents divorced. Catholics aren’t supposed to do that either. You haven’t been to church since I’ve known you. Don’t throw your life away.”

“In my brain, I know what you’re saying is true, but all those years, all those prayers. In my heart, I just can’t do it.”

“Oh, shit.” Carol barely whispered. “If it was March, then you still have a little time to change your mind. Either way, I’m here for you. Think it over. Whatever you do, you HAVE to finish school.”

“Now you sound like my dad.” Martie laughed and then began to cry even harder.

1.3 August 1990

Martie

It was a small wedding. Just immediate family and a few close friends in Martie's Dad's backyard. They were lucky the early August weather in Southern California was only in the low 90's, and a dry heat. Father Tim, the young priest from the parish, performed the civil service. Martie was barely showing, but she didn't feel right with a full Catholic wedding given her condition. Carol was Martie's maid of honor. One of Cooper's Marine buddies stood as best man. There were no other bridesmaids or groomsmen. A flowered archway. A few rows of folding chairs. In addition to the immediate family, there were maybe two dozen guests. Carol and Ann from Stanford. A few high school friends. A half dozen of Coop's Marine Corps mates had driven from Pendleton the day before to attend, and for an impromptu bachelor party that night. That explained the groom's pounding head and red eyes.

Martie's mother, Angeline, supplied most of the food. Finger sandwiches, various canapes, a fruit salad, a macaroni salad, two bowls of punch, one spiked with champagne and one virgin. She brought Martie's brother, Bobby, to the ceremony, but left her new husband at home. He and Robert had never gotten along. She felt it would make the day easier without the accompaniment. She and Robert both sat in the front row as parents of the bride are supposed to do, but they did put Bobby in the chair between them, and only said a half a dozen words to each other the whole day.

After the reception, Martie drove to the beachside hotel where they had an abbreviated honeymoon. The groom's Marine friends had snuck in several flasks filled with liquids much stronger than

‘punch’ and Cooper fell asleep in the car on the way to the shore. He stumbled to the room, and even managed to carry Martie across the threshold, and not quite drop her, before slumping down on the bed himself and sleeping through the rest of his wedding night. They did make love the following morning, the following afternoon and later that second night.

The third night was their last together for three months as he had to return to Pendleton the following day. He’d enlisted for another stint before he knew Martie was pregnant, and they were just able to schedule the ceremony before his deployment. He shipped out for Germany two days later. At least she’d have her prenatal care paid for as the wife of a serviceman.

1.4 1991-1996

Martie

Martie moved into her old room at her father's house, with a crib snuggled in beside her old twin bed. She gave up her scholarship at Stanford and missed a year before transferring to the state college near home. The pre-med track got harder to maintain, and her grades began slipping a little, especially since her son, Peregrine, was an extremely active baby. She still made the Dean's List for outstanding grade point average (GPA) more often than not, but several B's and a couple of C's found their way onto her transcript.

Cooper received his honorable discharge from the Marines about the same time Martie graduated with a BS in Biology and a dual minor in Mathematics and Chemistry. They stayed with Robert for a few months until Coop got his job with the city in the maintenance yard. With Robert cosigning, they rented a little three-bedroom condo near the riverbed in Yorba Linda.

Martie did well on the MCAT, but with the Bs and Cs on her transcript and half that transcript being from a state college, none of her med school applications were accepted. She missed another semester when they welcomed their second son, Kestrel, into the family. Angeline, and especially Robert, took turns (in their separate homes) helping with the babysitting when Martie went to the state college to get her Master's in Education and her teaching credential. Going part time, mostly at night, it took nearly three years to complete the credential, but she did maintain a perfect 4.0 GPA.

Martie did not walk for her master's graduation as their daughter decided to make it the day of her own graduation ceremony. The boys had been relatively easy births, but there were complications with Caracara. Due to significant hemorrhaging and uterine scarring, Martie had carried her last child.

Part 2:

2.1 September 1997

Robert

“Thanks for picking Perry up from school today, Dad.”

“No problem. I live for any excuse to spend time with my grandson. It’s hard to believe little Peregrine is already in the second grade. It seems like only yesterday I was driving you to the hospital to have the little critter.”

“Yeah, I can’t believe how fast he’s growing. He takes after his dad. I think Perry’s going to be taller than me before he’s eight.”

“Oh, you’re not so short. You’re nearly 5’ 4”.”

“5’3”’, but who’s counting?”

Martie set a large canvas bag full of books and papers on the kitchen table. A stack of Xeroxed pages and Scantron forms spilled out and a few of them dropped to the floor near where Robert was sitting. He bent over and gathered them together and glanced at them before handing them to her.

“Your first day in a new school and you give a biology quiz... on the first day of school? You’re not going to win any awards from the students with that.”

“It’s not graded. It’s just to see how much these kids know. I told them I didn’t expect them to get most of the answers. Just setting a baseline.”

“Sounds like a bit much to me, but you’re the teacher.”

“That’s right, I am the teacher.” Martie said it almost as if she was realizing it for herself. “I AM the teacher.” She repeated.

“Okay, teacher lady, tell me about this new school.”

“It’s a lot different from the middle school I taught in as a student teacher. It’s the science magnet for the whole Orange County area. The smartest kids from all over come to Linus Pauling High. Some parents from out of state have actually rented or bought properties in the district just to get their kids into this school. They also have a whole new section for special needs kids. They are doing some cool stuff there. I wish Bobby had something like that when he was in high school.”

“Sounds impressive. How did you manage to get in there in your first year?”

“I’m not sure. One of their tenured teachers retired and I suspect the fact I had a lot of science and math in my undergrad days probably helped. That, and they can get away with dumping some of the club coordination and other extra-curricular activities onto a newbie easier than a veteran. Apparently, I ‘volunteered’ to coach the chess club and the biology club, and they’re going to let me help with some of the special needs kids too.”

“Let you? I don’t know what you are going to do with all your free time. Sounds like I might get to spend some extra time with all of my grandkids.”

“Speaking of grandkids, we better get Perry away from the T.V.” Martie said, as “Cowabunga!” came floating in from the living room.

“Perry! That’s enough of the Turtles. It’s almost dinner time.”

“It’s Pizza Time!” the six-year-old replied.

He ran into the kitchen performing ‘ninja’ moves on the counter, the refrigerator, and his grandpa. He readied for a ‘ninja chop’ on his mom when she lifted a single finger and froze him in his tracks.

“No Ninja Chops! Give me a hug.” Martie demanded.

Perry paused, then relented, dropping his fighting pose. He flew both his arms around Martie’s waist. She only had to bend down a little to encase him in her arms. She still had him cocooned when Cooper pushed open the door behind them with his foot. He had Kestrel in one arm and Cara in the other. The boy was squirming, and the girl was fast asleep.

“I’ve got the pizza in the car, but my hands were full. Hi Robert, are you staying for dinner? We’ve got plenty of pizza.”

Perry released himself from his mother’s grasp and ran back and forth around the kitchen yelling.

“It’s Pizza Time! Pizza Time! Pizza Time!”

Kes squirmed out of his father’s arms and chased his older brother around the table joining in the chant.”

“Pizza Time! Pizza Time! Pizza Time!”

Robert grabbed the four-year-old as he came careening by and swung him up onto his lap.

“That’s enough, boys.” the older man said, then turned to Cooper. “I’ll take a raincheck on the pizza, but you folks enjoy it. Maybe I’ll have it for lunch tomorrow if there’s leftovers. Tomorrow’s an early release day for Perry.”

“We really appreciate all your help, Robert.” Cooper replied. “Now that Martie’s working full time, we can afford to send him to the after-school care program, but they’re still trying to hire another person to meet their child-to-counselor ratios. You’ll be off the hook soon.”

“It’s no problem. I was telling Martha, I love any excuse to spend time with my grandkids, and I’ve got hundreds of extra vacation hours. My boss doesn’t mind me taking it an afternoon at a time. He wants me to bring down my balance anyway. Do you want me to swing by Carol’s and get Kes and Cara on the way back from Perry’s school tomorrow?”

“You do too much, Dad. I’m not going to say ‘no’, but you do have to stay for dinner. It’s Taco Tuesday at Diego’s tomorrow. You love their fish tacos.”

“Great! I get to spend time with all three of my grandkids and I get tacos too! It doesn’t get any better.”

“I’ll help you move the car seats over to your car before you go.”

Cooper walked Robert to his car. After a few minutes, he returned with two large pizzas. He placed them on the table then cracked open a beer from the refrigerator. He handed another to Martie.

“You guys get started. I’m gonna wash my hands and have a few quick bong hits to spark my appetite. I’ll be right back.”

2.2 October 1999

Cooper

“So, how was work today, Coop?” Martie asked.

Cooper set down the bong, grabbed the remote and muted the T.V.

“Oh, you know, same old crap. Garcia called in so I had to sub on the pothole crew. I thought promotion to supe’ would get me out of the grunt work, but instead, I have to jump in on ALL the different grunt work. It seems like there’s always someone out sick or late or their kid has a dentist appointment or somethin’.”

“It’s still nice they thought enough of you to make you supervisor.”

“Yeah, I guess so. The extra money’s nice, even if I have to work twice as hard for it.”

Cooper retrieved the bong and the remote. He was about to unmute the TV when Martie spoke up.

“And how was your day, Martie? Did anything happen at school today? Are you even here in the same house, Martie?” She said, irritated.

He set down the remote, but finished the drag from his water pipe. He gave a half cough and replied through pursed lips, still holding most of the smoke in his lungs.

“Oh yeah. How was your day? School okay?”

“Thanks for asking.” She replied sarcastically, but then steadied her voice. “It was a good day. The principal told me she’s impressed how one of our teams was considered for the national science fair last year. Now that I’m in my third year, I’m no longer provisional. She said I basically have tenure, as long as I don’t screw something up.”

“That’s great, honey, and sorry for not asking sooner. It was just a tough day for me, but great news for you! With the money we’ve put away so far, and my promotion and your job, maybe we can afford that new F-250 I’ve been looking at.”

“With three kids, do you really think a pickup truck is the best vehicle for us? Besides, if we cut back a little and save a little more, maybe we could put together a down payment for a place of our own in a couple of years. You could get a VA loan so we wouldn’t need too big a down payment.”

“Yeah, yeah. That’s probably a good idea too.”

Cooper sounded a little disappointed and returned to the TV. Martie leaned against the kitchen counter to stretch her calves.

“You goin’ for another run?” Coop asked.

“Yes. You want to join me?”

“You know I injured my knee on the last tour. I can’t run.”

“That was years ago now. You don’t even limp.” Martie reminded him. “How about we just go for a walk along the riverbed. Your knee can handle that, can’t it?”

“I’ll wait here in case the kids come back early.”

“They’re going to be at the movie with Carol and her crew for two or three hours, and Carol said she was taking them for frozen yogurt afterwards. You don’t have to wait around for them.”

“That’s OK. The game’s gonna be on in a few minutes anyway. You go ahead. You’re the one training for the marathon.”

“It’s not a marathon. It’s a trail run, and it’s 15K, not even 10 miles. Are you sure you don’t want to come along, just for a little bit? We’ll turn around whenever you want to.”

“Nah, you go on though. Have fun and be careful out there.”

Cooper flipped the channel to the pregame show.

Martie

Martie grabbed a water bottle and clipped on her Walkman. She dragged her finger across the top of the cassettes in their cases and picked the mix tape of her “extreme running” songs. There were different tapes with different sets of songs to fit her different moods. There was a click as the tape popped into the small player. She slipped her door key into her fanny pack and headed out. The Cowboy Junkies “200 More Miles” flowed from the tiny headphones. It was a good slow song to warm up and get her blood flowing and to think about the road ahead.

She jogged easily for a mile or two until she crossed over the riverbed near the small campground. The bike trail narrowed here and followed the gap between the river and the freeway. Edie Brickell’s “Beat the Time” encouraged her to increase her pace as she maneuvered upstream. There were alternating views of

flowing water and flowing traffic as the trail moved from one ‘S’ turn to the next. Coop used to be such an athlete, but now he just seemed to want to drink beer, smoke pot and watch sports on TV. She quickened her pace even more. Working her body helped clear away the irritation in her mind.

The trail split at the 4-mile mark. Normally, she would turn around here and return to the condo, but she hadn’t burned through all of her frustration yet. She decided to push on further. Straight ahead the bike trail continued on towards Corona, or to the right, a dirt path led under the freeway and rose into the hills.

She’d never taken the hill trail. As a woman alone, it was probably smarter to stay on the public route where bikes would go by every few minutes. Then there was the thought about Coop and his remote and his beer and his bong. She turned right and headed up the hill. Aimee Mann’s “Momentum” played away at her ears and carried her towards the ascent.

It was another two and a half miles to the ridgeline, and it was all steep switchbacks. About halfway to the top, a rattlesnake slithered across the trail. She stopped short, eased away and let it continue across and down into the ravine on the other side. That was a good excuse to take a little break and drink from the water bottle. It was almost empty, but it would be all downhill soon, and there was a drinking fountain on the way back, a mile or so down the bike path. She pulled off her headphones and clicked off the Walkman. She could no longer see, or even hear, the freeway. It was just a mile away, but it was as if she was alone in the universe. She double-checked where the snake had disappeared into the underbrush and then continued on, now with only the sound of the birds and the slap of her shoes against the rocky path to accompany her.

After several more twists and turns of the trail, her calves and thighs were burning from the unending uphill slog. Finally, cresting the ridge, she was rewarded with a view all the way to the Pacific Ocean. It was an unusually clear day in Southern California. Sunshine glittered off the water silhouetting Catalina Island on the horizon 40 or 50 miles away. She spun slowly taking in the 360-degree view, Mount San Jacinto and Gorgonio another 50 miles or more off to the east. A crown of clouds gave the hint of future snowpack across both peaks. The view was even more breathtaking than the climb had been. She knew Cooper was not in shape for this type of exercise these days, but she wished she could share this view with him. It was magnificent and the telling of it would not do it justice.

She missed having someone to share this with, but it was calming and satisfying to have made it to the top on her own power, to look miles in every direction with no one else in sight. Climbing to the top of a large boulder, she sat and drank the last of her water and pulled off her shoes and socks. Dust, sand and pebbles cascaded out of the Nikes and ricocheted off the rock. Her irritation was burned away, leaving a feeling of peace and quiet in the afternoon.

Looking out at the ocean, she didn't notice the man coming over from the far side of the ridge until he'd reached the edge of the small clearing. She knew the trails went on for several more miles and trail runners were not uncommon around here, but he didn't look like a typical runner. He was dressed in long loose-fitting pants. He had a large floppy hat covering much of his face and sunglasses obscured it even more. There was a red bandana across his mouth and nose. The serenity of being alone was quickly replaced with trepidation and fear. The man looked at her and began jogging towards her. Near panic screamed through her brain.

“Oh SHIT! Why did I leave the bike trail?!”

Martie struggled to pull on her shoes. She didn't bother with her socks, shoving those into the waistband of her running shorts. He was on the ridge top and was headed right for her, less than 20 yards away. There was no time to tie her shoes. She leapt off the boulder and sprinted for the downward path. The stranger sped up, but she was faster. He yelled something unintelligible, and she accelerated even more. Her lead increased through the first few switchbacks until she came around a blind corner. The rattlesnake had returned to sun itself in the middle of the track.

Martie didn't have time to stop. She didn't have time to breathe. The reptile rattled its tail and began to coil, but before it could strike, she launched herself well over and beyond the creature. Adrenaline fueled a leap higher than she'd ever jumped before. In mid-flight, her left shoe flew off and over the edge, into the undergrowth. Panicked now, Martie continued to run on one bare foot. Rocks cut into her foot as she ran, then limped, down the path. She made three more turns before the pain in her foot became unbearable. She staggered and looked over her shoulder. Her pursuer was nowhere to be seen. She stopped long enough to pull both socks onto the one bare foot and then continued limping down the trail trying to maintain some sort of speed. Whenever she stepped, spots of blood leaked through and stained the dust-caked sock.

She rounded the last curve and saw the tunnel under the freeway less than 200 yards ahead, and a bike passing on the path beyond. She had made it. That was when the spastic coughing sounded behind her. The stranger rounded the last corner coming at her at a quickened pace. She was ready to turn and try to sprint for the bikeway when she heard the call.

“MARTHA!” Then heavy breathing and again. “Martha! Wait! I’ve got your shoe.”

He held her pink Nike in his left hand and wagged it from side to side. *How did this crazed maniac know her name and how had he gotten her shoe?* She snatched a large branch lying near the side of the trail and brandished it like a baseball bat.

“YOU STAY WHERE YOU ARE!” She yelled.

Jack

“Okay, Okay. I’m not coming any closer.” He held out his right hand palm up, fingers spread wide. “I didn’t mean to scare you. I saw your shoe go over the side of the trail and thought you might need it.”

She looked closer, and saw he was covered in dust and dirt from head to toe, and there were various bits of weeds and leaves and small branches stuck into his clothes and hair and beard. His bandana had fallen to his throat, and a nasty scrape ran across his left cheek above a short well-groomed beard that ran around his chin. He tossed the pink shoe which landed at Martie’s feet and removed his sunglasses. Looking at the dirt encrusted face, recognition itched at her consciousness.

“Jack? Is that you, Jack?”

“Yeah, woo... You are fast, even with one shoe. I had a hell of a time catching you. I never knew you could run like that. You should’ve run cross country back in high school.” Jack bent over with his hands on his knees and continued to try to catch his breath. “Sorry again for scaring you. You haven’t changed a bit... but I guess I look a little different with the beard and all. I just wanted to say

‘Hi’ and then you went off down the hill like some kind of frantic mountain goat.”

“Did you go offroad to get my shoe?”

“Well, that did slow me down some. I rolled 10 or 15 yards through the bushes, but I found the shoe.” He said with a wry smile. “It did let me skip one of those switchbacks.”

“Well, thank you for returning it. You should have taken off your bandana and sunglasses earlier. It might have saved us both some pain.”

“Yeah. That occurred to me about the same time I face planted into the sage brush.”

They both laughed. Martie pulled off one of the socks and then gingerly slipped on the sneaker.

“So, what have you been doing since high school? You a rich famous doctor now?”

Martie raised her left hand and pointed to the ring.

“That didn’t quite go as planned. Married, three kids. I’m a teacher over at Linus Pauling High.”

“Three kids? You’re shittin’ me, right? There is no way you’ve had three kids. You look incredible. I wasn’t kidding when I said you looked the same as you did in high school. I take that back. You look better.”

“Well, I may not be a doctor, but I can tell your vision is going.”

They both laughed again as she limped over to where Jack was standing.

“Let me help you to your car. Where you parked?”

“I didn’t drive. I live at the Riverside Condos just off La Palma. I ran from there.”

“No shit? I’m not more than a mile or so past you. I have a place in the Riverbend Villages complex, but I drove over and parked near the campground. I’m not as ambitious as you, I guess. I’ll help you to my car and give you a ride the rest of the way.”

Martie hesitated, but eventually said “OK”. Her foot was better with the shoe on, but it was still painful. She made it most of the way to the campground, leaning on Jack and limping. She finally agreed to a piggyback ride for the last quarter mile or so.

As he stopped near the front door of her condo, she grabbed her fanny pack and Walkman off the rear seat. He pulled a business card from his wallet and handed it to her.

“Give me a call sometime and we can get together for coffee or something – if you want. I’d love a chance to catch up.”

“Yeah, maybe. We’ll see if I have time.”

“No pressure. It sounds like you got a lot on your hands. It was great seeing you either way. Sorry again about your foot, and the scare.”

“Thanks again for returning my shoe.” She glanced at the card. “Seldon Financial and Investments? I thought they were an insurance company.”

“These days there’s not much difference between an insurance company and a bank or a brokerage. Since deregulation, they all do a little of everything.”

“OK. As long as it pays the bills, I guess.” She looked at the card again. “And what’s a Quantitative Analyst?”

“Just a fancy name for a math geek. Take care.”

Martie stepped from the car. She smiled as he reversed out of the parking space. He waved out the window and headed towards the highway. He waited at the stop sign and adjusted the rear-view mirror to see her putting her keys in the condo door.

Martie

She paused as she closed the door behind her. She looked at the compact car at the corner. It held for a few seconds, then the brake lights blinked off and it turned onto the main road.

Cooper was engrossed in the game as Martie came in through the front door. She noticed the three empty beers on the counter where they kept their recycling. He was tipping back a fourth when her keys banged down on the counter.

“Oh, you home already? How was your run?” He said as he emptied the aluminum can.

“It was good. I whacked my foot a bit.”

“You’re OK though?”

“Yeah, I’m gonna go clean up.”

“Glad you’re OK. Can you grab me a beer on your way through?”

Martie limped over to the fridge and found a cold can. She dropped it in his lap as she passed on her way to the bathroom.

“Thanks, Honey. But be careful. You almost hit the family jewels.” Cooper said with a chuckle. He turned to the TV. “YOU ARE BLIND! That was clearly a foul.” He screamed at the referee and popped the top on the brew.

As Martie stripped down to shower, she pulled the business card from the small pocket of her running shorts. She was going to drop it in the trash, then stopped. As she pulled a change of clothes from the drawer, she dropped the card in next to her socks and underwear.

2.3 November 1999

Lucas

Gina, the special ed teacher, was pulling down some cardboard letter cut-outs from a cabinet at the side of the classroom.

“Thanks for helping out today. I’ve got a new kid in the class. I don’t know why they even bothered bringing him in on a Friday, especially this late in the semester. He could’ve waited until Monday. I might have had some time to prepare for him. Anyway, I already have my hands full. I’m working on basic reading and speech skills with the rest of the class. Maybe you can focus on the new kid while I work with the others.

“His name is Lucas, and he’s just about completely non-verbal, mostly just grunts with an occasional monosyllable. He likes books. His foster parents say he even pretends to read them sometimes.”

“Is he the one over there in the corner, with the brown hair?” Martie asked.

“Yeah. That’s him.”

“Is that an algebra textbook he’s got?”

“It looks like it. Isn’t that cute? Someone probably left it on a table at lunch. Make sure he doesn’t damage it, but you can let him play with it for the period if you want. Later, we’ll find out who it belongs to.”

Martie saw the boy across the room. He looked about 15 years old though he might have been a year or two older or younger. He had

long brown hair, strewn with knots and tangles. His shirt was too large, and his pants were too small. His arms were just a little too short for his body and it was clear he did not have fine motor function in his hands and fingers. He would drag his hand across the book to turn each page. After coaxing a single page, he stared directly at it for a few seconds before dragging his hand again to the next page. He seemed to have some nervous tics. On some pages he would rap his hands on the desk or tap his feet. On others, he would stare at the book before battling his way to the next.

Martie noticed his eyes sweeping across each page. He struggled to move his body and his limbs with any sort of coordination, but his eyes seemed to be tracking down the book. As she moved closer, he aimed those eyes at Martie. Deep brown irises and pupils so black they looked like holes drilled through to the back of the boy's skull. As he eyed Martie, those pupils dilated until only a thin rim of brown surrounded the deep well behind those eyes.

“Hello, Lucas. I’m Martie. I’m going to be helping you today.”

“Mah” the boy grunted.

“Do you like that book?”

“Mah”

“Yes, that’s a math book.” Martie smiled. She didn’t think his grunts were meaningful, but she thought she’d assume the best for now.

“Fuh... eh”

Lucas slapped down at the page. “Fuh... eh” “Fuh... eh” He repeated. Then he whacked his left arm on the book multiple times

and crossed his arms. Martie laughed. She couldn't help but think he was saying "Fuck it!" Once again, he grunted "Fuh... eh", knocked on the table four times and crossed his arms, then focused with those deep dark eyes at the page.

"OK. You want me to look at the book too?" Martie asked.

"Luh"

His head spasmed in an erratic fashion, but it mostly moved up and down. She lifted the book and looked down on the page. There was a sample quiz question just above where his left hand had lain on the page.

Simplify the following equation and solve for Y in terms of X.

$$((8x - 2y) + 4) / 2 = 2$$

Martie took a quick look at the problem. She couldn't help herself. Once she had seen it, she had to answer the question and ran through the steps in her mind's eye.

First multiply both sides of the equation by 2 to get rid of the fraction.

$$(8x - 2y) + 4 = 4$$

Then subtract the 4 from either side of the equation to get down to the variables.

$$8x - 2y = 0$$

Add the 2y to each side to balance out the variables across the equation.

$$8x = 2y$$

Divide each side by 2 to simplify and to show the value of Y in terms of X.

$$4x = y$$

4x = y. Fuh... eh, "4x". Martie's eyes and smile both widened. She looked the boy straight in those deep dark wells and he focused back at her. He smacked his hand down four times and crossed his arms again.

"Yes," she said. "4 x".

He giggled excitedly as he realized she understood him. His arms spasmed and flew over his head then he brought them down and rapped his hand four more times and crossed his arms. A grin spread across that face and his dark eyes sparkled with inner light.

"Fuh... eh" he said quietly.

"Fucking right, Fuh Eh!" Martie repeated, then looked quickly around to make sure Gina did not catch the expletive.

Martie

Martie was bubbling over with excitement when she got home. She was later than normal as she had spent a couple extra hours trying to figure out how she could best help Lucas. She couldn't wait to tell Cooper about the boy and the breakthrough they'd made.

The condo was dark and there was no answer when she pushed through the front door and called out. She flipped on the light over the dining table and saw the note pinned to the refrigerator by a pizza parlor magnet. She had to pull it off the fridge and carry it

over to the table, directly under the light. Cooper's handwriting was atrocious. Eventually, she was able to decipher the message.

"Jim had extra ticks to the Ducks/Red Wings game 2night. Will grab Micky D's and drop kids at yur Dads. I'll get kids 2morrow. Don't wait up. Luv Ya, Coop."

"Well, Shit." Martie said to herself.

Her foot was mostly healed from her trail adventure, and it was a couple months until her race. An easy run was just what she needed. It would give her some time to come up with next steps for Lucas. She changed into her running gear and pulled out the old Walkman again. There were some extra scratches on the case that must have happened on the sprint down the hill trail. The walk over to the riverbed bike path was a comfortable trek – no dirt wanderings tonight, just a relaxed jog out to the campground and home. She stretched her calves and thighs then pushed the play button and headed upstream next to the drought dwindled river.

The injury on her foot panged with each step, but more as an emphasis of the motion and not as pain. Martie was enjoying the music and increased the pace to match the pulse in her foot to the beat of the song. She'd gone less than a quarter mile when she realized she didn't recognize this song. It was a bit haunting, a bit hopeful, a bit lonely, a bit sad, a bit joyful. It was a great song, but it was definitely NOT on her 'running' mixtape. She let it play through to the end then pulled over to the edge of the bike path under a streetlight and popped open the small player.

It was a store-bought tape, not one of her homemade mix tapes. The name on the cassette was 'Miss America' by Mary Margaret O'Hara. The song she'd heard was probably 'Anew Day'. She knew she did not own this. It didn't sound like something Coop would buy either; besides he never touched her Walkman. He said

he didn't like the way it felt on his ears to wear the undersized headphones.

She looked closer at the player and flipped it over. In the lower left corner, over the battery compartment, were the initials "J.H." in black marker. Jack Harshaw. She must have accidentally taken his Walkman when he gave her the ride home. A smile crept across her lips remembering him covered in dirt and dust and leaves and waving a pink running shoe. She rewound the tape to the beginning of side one and started it playing. It was not her usual style of music, but she ran and listened to the whole 44 minutes and 44 seconds on that run, from "To Cry About" to "You Will Be Loved Again" and every song in between. She ended up running over five miles.

When she got home, she showered and changed, then lay in bed and listened to it from beginning to end again. She dug in her drawer and found the business card where she'd left it. She'd have to give Jack a call soon and see about trading back cassette players.

Cooper

"It's almost 10. Are you going to go get the kids?" Martie pushed on the sleeping man's shoulder, rocking him awake.

"Ugh. I feel like crap this morning. I shouldn't have had those extra beers after the game. I thought we had 'em when we scored in the first period, but then them damn Red Wings came back, 7-4. You understand. Jim and I had to drown our sorrows. You don't mind goin' to get the

kids, do you? I really need another hour of sleep. We can go out to breakfast when you get home.”

“I already had breakfast... three hours ago.” Martie stopped herself before she said anything more. “I’ll go get the kids.”

“You’re the best, honey! Can you bring me some water and some Tylenol before you go?”

Martie stepped out of the bedroom. The sound of rattling and banging came from the bathroom. She reappeared at the door and flung her half-full water bottle and a quarter-full bottle of painkillers onto the bed. She turned and disappeared without saying a word.

“Thanks, sweetheart!” Cooper called as the front door closed with a loud thump.

Robert

“I don’t know how to help this kid.” Martie was telling her dad. “He’s obviously wicked smart. He taught himself algebra for God’s sake. He hasn’t had any real help from anyone, probably for his whole life, and he taught himself algebra.”

“You sure that ‘4x’ thing wasn’t a fluke? You know, a coincidence? Maybe you thought he gave you the answer you wanted to hear?”

“I’ve been drilled in the scientific method since I was eight, by you as a matter of fact. I don’t take a single data point as proof. I ran through half a dozen other questions. He only got one of those wrong, and that was doing them

all in his head. The last one, I had to do on paper twice. He missed carrying the one on one step otherwise he would have been six for six.”

“I believe you. So what are you going to do about it?”

“I know he knows math. He can read too. From what I can tell, he learned those on his own. He just doesn’t have the verbal capacity to tell us what he knows, and he doesn’t have the hand-eye coordination to write it out for us. Do you have any ideas?”

“You don’t have computers in the school, do you?”

“I thought of that. In the science magnet area, we have personal computers, but not in the special ed section. Even if we did, that’s not gonna work. I took him over to the computer lab and explained how to use them. He just got frustrated. He couldn’t hit the keys he wanted to. He’d kind of mash his hand in the general area on the keyboard and get a string of confusing characters.”

“What if he had a keyboard with bigger keys?”

“Do they make those? It would have to have keys two or three inches across. It would be huge.”

“Not that huge, and we could rig some sort of stand or support system for it. How’s his foot control?”

“I’m not sure. He was sitting most of the time, but he walks OK. It’s probably as good or better than his arms.”

Robert was an electrical engineer at a local aerospace company. One of his specialties was prototyping proof-of-concept components. He closed his eyes and pressed his fingertips against

his eyelids. Martie knew not to interrupt his train of thought when it was running down the rails of his brain. His hands were still over his eyes as he began speaking.

“Well, you’re taking the kids home now. Right?”

“Yeah?”

“Well, that means I have nothing much to do this afternoon.”

“Yeah?”

“Maybe I’ll run into the lab at work for a few hours. Are those PC’s you have at school IBM compatible?”

“Yeah.”

Lucas

“My dad made this for you. We’ll probably need to adjust it, but let’s give it a try.”

Martie slid the wheeled cart next to Lucas’ chair. He looked at the device in front of him. There was a monitor on a shelf at the top of the cart. It was mounted on a Lazy Susan that would let him rotate the monitor 90 degrees in either direction. Below was a rectangle roughly three feet by one foot. It was laid out almost the same as a standard electric typewriter keyboard. Each of the ‘keys’ on this keyboard was three inches on a side. The letters were hand-printed on the ‘keys’ with some sort of permanent marker. It had all of the letters and numbers and most of the punctuation. A few of the special function keys from a normal keyboard had been

included, but some of them were left off in interest of saving space.

“The foot pedal on the left is your ‘shift’ key. The one on the right is a ‘function’ key. It turns the numbers into the computer function keys. You don’t need to worry about those for now. We can practice with those later.”

Lucas looked down at the oversized keys. The left corner of his mouth warped up into a half smile, followed a few seconds later by the right side. He lifted his left hand and hesitated. His fingers twitched and shook. He pulled the tips of his fingers together and tapped them down on the keyboard. It took almost a minute, but...

"l" "u" "c" "aa" "sd" Appeared on the monitor.

He grunted twice then began tapping again.

"l" "u" "c" "a" "s"

He smiled again. This time both sides of his face worked together simultaneously. He brought his left foot down and up as he tapped away with his clawed fist.

"Lucas likes thisd. I like this. Thank you Maartie." Another grunt, then *"Martie"*

Martie’s eyes filled with tears, and she hugged the boy.

“You are very welcome, Lucas.”

He banged on the keys some more.

"Thank dad too" More grunts and then. *"Thank your dad too."*

“Don’t worry. I will.”

2.4 December 1999

Martie

“Hello”

“Um, hi. Is this Jack?”

“Yeah, this is Jack Harshaw. Can I help you?”

“This is Martie. Martha. You gave me your card when you drove me home the other night.”

“Martha!? I didn’t think you were going to call. How are you doing? How’s your foot?”

“I’m good. The foot is OK. I went over to Kaiser and the cuts looked worse than they were. No stitches, but I did have to get a tetanus shot. I was on short runs a few days later. That’s why I’m calling, actually. When I went for my run last week, I noticed I must have grabbed your Walkman by mistake instead of mine. They look almost identical.”

“I hadn’t even noticed. I don’t use it very often. I think I left mine in the car.”

“Mine is probably still somewhere in your Toyota. If you can find it, maybe we could get together and swap back. Either way, I want to give you yours.”

“Yeah, yeah, that would be great. Do you want me to swing by your place? I think I remember how to get there.” Jack paused for a few seconds and then continued. “Or we

could meet for a drink or coffee and maybe chat a bit on what's been happening since high school?"

There was silence on the other end and Jack was beginning to wonder whether or not she was still there.

"OK. Coffee would be great. From your card, it looks like your office isn't too far from Linus P. High. I have to be at the school next week prepping for the new semester, but I can sneak out any day after 2 or 2:30. Tuesday would be the best day for me. What's your schedule like?"

"Tuesday would be perfect. How about 2:30 at the Grand Avenue Cafe? It should be about half way between us."

"I've never been there, but I've driven by. Tuesday at 2:30 sounds good. I'll see you then."

"Perfect."

Jack continued to look down at the phone for several seconds after Martha disconnected.

Jack

"What is a Quantitative Analyst?" Martha asked as she sipped her tea.

"Didn't I tell you? It's just a fancy name for a math geek. I look at the numbers around the stock market and try to create models for how things will perform in the future. Boring stuff really."

“It sounds interesting to me, I love a good math problem, but does it work? I’ve seen that Corolla you drive, so it can’t be too successful.” Martie laughed.

“I’m doing OK. I never cared much for fancy cars. I just want something that will get me from here to there and home again. The Toyota does fine for that. What about you? A big time high school teacher? You must be rolling in the dough.”

“Oh, yeah. Didn’t you see the Lamborghini out front?” Martie laughed again, then sat quietly for several seconds before saying, “But there are some real rewards from teaching. I wanted to be a doctor to help people, especially like my brother. I can do some of that as a teacher.”

“How is Bobby doing these days? I still remember him carrying that big Gatorade vat at the championship game. I don’t think any coach has been drenched after losing the big game before, but Bobby made it happen.”

“That **was** funny. Bobby’s doing well. He’s still living with my mom, and he works part time at Burger King. He’s in charge of the drink machines.”

“I bet Coach Howard doesn’t go to his BK.” They both laughed. “So, tell me something rewarding about teaching.”

Martha told him about Lucas and how she’d discovered the intelligence behind the non-verbal young man. Her eyes welled again when she described his bashing away at the oversized keyboard.

“Oh shit. Damn allergies.” Jack said as he dabbed his own eyes with a napkin.

“What allergies are those?” Martie smiled.

“I guess I’m just allergic to human kindness.”

“Maybe you should have been a lawyer instead of a ‘quant’.” Martha and Jack both laughed.

“But seriously, you are special. Most folks would never have recognized that kid’s potential or taken the time to find ways to unlock it. It kind of makes me sad my main career purpose is to find ways for rich people to make even more money. You’re changing lives, for the better.” Martie smiled and looked away.

They spent the next two hours talking about everything and nothing. They talked about the Physics class in high school where they built wooden toys and wrote papers on inertial forces. They talked about colleges and kids and careers. They talked about trail running and the view from the ridge. They talked and they talked and they talked.

“Oh, shit! It’s nearly five. I have to get going. My family will be wanting dinner soon. This has been great, but I have to go.”

Martie rose from the table and grabbed her purse. Jack dropped a few bills on the table as a tip.

“Um, yeah, it was really great seeing you.”

“Oh, give me a hug before I run.”

And he did. It lasted just a little longer than she expected and little less than she wanted. She broke the hug and hurried off with a quick “Bye.” Jack waved as she stumbled over a table leg on her way out of the cafe.

Martie hurried down the street. Her car was parked two and half blocks from the cafe. It was the closest place she could find without meters. As she approached the minivan, she dug into her purse to find her keys. Her fingers bumped against a rectangular shape at the bottom of the bag: a Walkman, with “J.H.” in permanent marker over the battery case. She laughed out loud and smiled briefly before shoving it down to the bottom of the handbag. She pulled her keys, unlocked the door and headed for home.

Martie

The Teachers Lounge was down the hall and around the corner from the Advanced Scientific Discovery classroom. In the middle of the morning, it was unlikely anyone else would be there, and the room was empty when she slipped through the door. She pulled the card from the small pocket in her skirt, dialed ‘9’ for an outside line, then punched in the number.

“Hi, this is Jack Harshaw in the Analysis Department. I’m either on the phone or away from my desk right now, but leave your name, phone number and a detailed message and I’ll get back to you when I return. Have a great day.”

“Um, yeah. Hi Jack.” Martie laughed nervously. “This is Martie, uh, Martha. It was great talking with you the other day. I can’t believe I forgot to give you back your

Walkman. I'm really not trying to steal it... or the tape that was in it. But it is a great tape. I really like the whole thing, especially that 'new day' song. You'll have to tell me where you got it. I might have looked in the wrong place, but I couldn't find it at Tower Records the other day." Martie realized she was blathering. "Anyway, I have to get back to class, but I do want to get the Walkman back to you. I'm pretty busy with school and everything, but I'll give you a call again sometime. Soon. Really, I am not trying to steal it. Talk to you soon."

Martie hung up. She couldn't believe it. She sounded like a babbling idiot. Nothing to do about it now. She smoothed her skirt and blouse then walked casually back to the classroom.

2.5 January 2000

Cooper

“You really are going to pay somebody else to run a marathon up and down mountains tomorrow?” Cooper asked.

“I told you before, it’s not a marathon, and yes, I am going to run it.”

“Your foot’s OK?”

“It’s a little sore sometimes, but it’ll be fine.”

“Well then, I’m proud of you. What time do you want me and the kids there?”

“I have to be there at least an hour early to check-in and everything, and the race doesn’t start until 8. I don’t think we want the kids to sit through all of that. At a little under 10 miles, it’ll probably take me close to an hour and a half. If you all get to the finish line by 9 or 9:15, you shouldn’t have to wait too long.”

“That sounds good. Is Carol still planning to be there?”

“I think so. I’ll give her a call in a little bit. Do you mind if she swings by here and rides with you?”

“That would be awesome. I’d appreciate her help with the brood.”

Jack

Martha finished her check-in and pinned her number to her T-shirt, #314. She had always liked the number 'pi'. It just kept going and going and going. Maybe it was a sign she'd have a good run today. She began to stretch against a tree when she heard a familiar voice.

"1-5-7, damn, I was only 2 digits away."

Martha turned to see Jack. He was wearing #157. Martha's face scrunched up as her head tilted to the right. She stayed frozen in place for a full five seconds staring at Jack. Then something clicked in her brain, and she burst out laughing realizing their combined numbers was almost pi to 5 digits, "3.14159".

"Well, you are more than 2 numbers away." She smiled. "If there were a few thousand more runners, maybe you could have gotten, 1 5 9 2 6 5."

"Or maybe even, let's see..." He paused and mumbled "three point one four" waited another second and then continued almost without a breath "1 5 9 2 6 5 3 5 8 9 7 9 3 2 3 8 4 6 2 6 4 3 3 8 3 2 7 9 5 0 2 8 8 4 1 9 7 1 6 9 3 9 9 3 7 5 1 0 5 8 2 0 9 7 4 9 4 4 5 9 2 3 0 7... 8 1 6 4 0 6 2 8 6 2 0 8 9 9 8 6 2 8 0 3 4 8 2... 5 3 4 2 1 1 7 0 6 7 9 8 2 1 4 8 0 8 6 5 1 3 2 8 2 3 0 6 6 4 7 0 9 3... 8 4 4 6 0 9 5 5 0 5 8 2 2 3 1 7 2 5 3 5 9 4 0 8 1 2 8 4 8 1 1 1... 7 4 5 0 2 8 4 1 0 2 7 0 1 9 3 8 5 2 1 1 0 5 5 5 9 6 4 4 6 2 2 9 4 8 9 5 4 9 3 0 3 8 1 9...um, I think 6, uh, 4, 4... I get stuck after 100 decimal places these days. IN college, I used to be able to take pi to a thousand digits."

"Wow! That must impress the ladies. I'm amazed you're still single."

“Yeah, I had to sneak out to this run to avoid all the groupies. I usually have to beat them off with a stick.”

“Or a shoe?” Martha smirked. “I didn’t know you were doing this run. I may be a little nuts, but what possessed you to come out to the boonies on a Saturday morning to torture yourself?”

“Well, the way you described it, I couldn’t miss the chance to see the OC backcountry, besides you didn’t give me your number, so I figured this was my best chance to get my Walkman.” Jack said. “I see you have it on.”

“I really was going to return it, but I need some music when I run, and you had mine.”

“Are you running to my tape?”

“No, it’s in my car. I’ll get it to you after the run. I made a new mixtape of running songs. Do you have my old one in my machine?”

“No, but I did listen to it. You have some great songs. It’s in MY car. I made a tape just for this run too. I tell you what. Let’s swap the players now. You run with my tape and I’ll run with yours. Let’s see which one’s more inspiring. If you outrun me, I can pretend it was because of my music.”

“I don’t need a tape to outrun you, but I’m game. Give me the Walkman.”

“OK, but don’t hit play until the starter gun sounds.”

“Deal!”

Martie

As the gun sounded, Martie pressed the play button and she set off at a strong clip, her feet pounding in time to the pounding drums of “Run Like Hell” from Pink Floyd. With the slight incline on the path for the first half mile, it both pushed her and helped keep her from getting out of control too early. That led into Tom Petty’s “Running Down A Dream”, followed by several songs Martie did not recognize, but all of which seemed to match what she needed for the right pace for each section of the course. The one song in common from her own mixtape was Rod Stewart’s “Hard Road” that came on as she pushed up the last hill before the turn around. Runners ahead of her kicked dust from the trail and Martie could feel it sticking to her sweat streaked face. She crested the hill, grabbed a paper cup of water from the aid table and threw it into her own face. The cold water was shocking but refreshing. She wiped away muddy dirt and then grabbed another drink and walked a few steps to actually swallow most of it.

Starting down the long hill, she laughed out loud as Rod Stewart gave way to the Muppets and their song, “Movin’ Right Along”. The Muppet Movie was one of Kestrel’s favorites and they’d been forced to watch the VHS tape what seemed like at least 100 times. She was surprised to not be sick of this particular song, but instead she increased her speed on the long downhill stretch. Halfway down the hill, Jack was struggling his way towards the turn-around. He gave her a thumbs up. She smiled and screamed “MOVIN’ RIGHT ALONG!” and they ‘high-fived’ as they passed each other.

As she approached what she hoped was the final hill, she cursed whoever had designed this course. She thought it was supposed to be uphill on the way out and downhill from the turn around.

The constant undulations of the course were destroying her quads and her calves. Starting the last steep rise, “Touch of Grey” by the Grateful Dead and its “I Will Survive” chorus convinced her to not only keep going, but to quicken her pace. She drove towards the summit and saw the last long decline to the finish line. Cresting the final hill, “Running on Empty” by Jackson Browne clicked on for the ‘empty’ rush to the finish.

“GO MOMMY GO!” Rang out from her left and Kes bolted from the crowd.

His nearly seven year old legs sprinted to catch her and he grabbed her hand as she crossed the line. A volunteer hung a plastic medal on a ribbon around her neck and she staggered over and laid down on a small patch of open grass. A minute or three later, Perry, Cara and Carol joined her and Kes. Carol handed her a water bottle, an energy bar and half a banana.

“Thanks.” Martie said between sips of water. She looked at the trail and said, “Just a minute, I’ll be right back.” and struggled to her feet.

She walked-ran awkwardly towards the finish line and got there as Jack completed his run. He received his finisher’s medal and limped over to Martie. She wrapped her arms around him in a bear hug.

“I guess my tape worked.” he said.

“I guess so. Come on over and meet my family.” She said and led him over to the lawn. “This is Cara, my youngest, Kes, and Perry is my oldest. Carol was my roommate at Stanford. I’ve known Jack here since kindergarten, off and on.”

Cara did a little curtsy. Kes, not to be outdone, did his own curtsy followed by a bow with a great flourish and wave of his hand. Perry shook his hand. Carol gave Jack a quick half hug and stepped away from the trail-dust-sweat-soaked runner.

“Where’s Coop?” Martie asked.

“He told me to tell you he was sorry he couldn’t make it. Jim had tee reservations and someone backed out at the last minute. They needed a fourth, so Cooper went with them. Apparently, it’s a very exclusive course and you usually can’t golf there unless you’re a member of the club.” Carol explained. Martie looked only a little disappointed.

“Let’s go see what they have in the expo area. They should have some cool free stuff.” She said to the kids, before turning to Jack. “You here with anybody, Jack? Or do you want to hang with the Spieler clan for a while?”

“It would be an honor to hang with you and yours.” And he gave his own extravagant bow.

They ended up spending the next hour gathering various water bottles with corporate logos and stress balls with corporate logos, samples of fitness bars, most with stickers of corporate logos, and corporate-branded bottled water. It was with some surprise they found the orange slices and bananas were not pasted with corporate logos, unless you count the little Chiquita stickers.

Cara got a free T-shirt from a radio station. Kes gathered the entry forms for at least two dozen future road and trail races. Perry spent five minutes in a massage chair. Carol, Jack and Martie mostly chit-chatted and did their best to keep at least one eye on each of the kids.

Near the end of that hour, they announced the race results. Martie won first place in the women's 25-29 year-old division. There were only three women running in her division, but she was still beaming with pride when they placed the gold-colored medal with the blue ribbon around her neck.

“Where are you parked? I still need to get you your Mary Margaret O’Hara tape.”

“Oh no. No way. There is no way I am returning this tape you left in my machine. You keep ‘Miss America’ and I’m keeping this.” Jack said as he waggled his Walkman in front of her face. “This tape was your secret weapon for training, and I am going to use it to put you down the next time we race.”

Martha just laughed. “OK. OK, but you’ll need more than a mixtape to catch me. Maybe if I run with one shoe.” And they both laughed again. “But maybe we can run together sometime. I don’t like running in the hills by myself. There are some scary people out there sometimes.”

“Yeah, I know what you mean. Strange men throwing shoes.” Jack smiled and winked. “I’d love to be your trail guide, bodyguard and running partner any time you want – if you don’t mind slowing down so I can stay close.”

“Sounds great. I need a few days to recover from this run, but I’ll give you a call sometime next week and we can arrange something.”

“I’ll be waiting by the phone.”

Carol side-eyed the two of them and gave Martie a half smile. Martie looked away and spun around to the kids.

“I’ve got Dad’s pickup so all three of you won’t fit. Who wants to ride with Mommy and who wants to go with Auntie Carol?”

“I want to go with you, Mommy!” Kes screamed.

“Me too.” said Cara.

“Carol told us she’d get us frozen yogurt on the way home. I want to go with her.” Perry exclaimed.

“Me too.” said Cara.

“OK, Perry and Cara, you ride with Aunt Carol. Kestrel, you come with me, and we’ll all meet at the TCBY on Main Street. Is that OK with you, Carol?”

“Perfect. Perry, Cara, to the Turtle Van! Roll Out.”

Martie gave a final smile and wave to Jack as he headed south towards his car. She waited a few seconds watching him, then she grabbed Kes’s hand and headed north towards the truck. She just missed Jack twisting to look over his shoulder with that goofy grin of his.

Carol

“Come on, kids. Let’s wait over here. Your mom and Kes will be here any minute, then we’ll get you a cone.”

“With sprinkles?” Cara whined.

“With sprinkles.”

Carol sat at one of the round tables on the patio near the frozen yogurt shop. The red and white umbrella cast a shadow over her side of the table, but she kept on her dark glasses. Perry sat down opposite her, impatiently looking at the selection on the menu inside. Cara ran circles around the small table and tapped on the rear of Carol's chair on each revolution. She started to tap on Perry's chair the first time around, but the look he gave her convinced her that was not a good idea.

After the fifth tap, Carol started to peruse the menu herself. It took her a minute to realize the little girl had not appeared behind her brother's chair on this rotation. She looked left and right and was about to panic when Perry pointed directly behind her. Cara was talking with a teenage girl with shoulder length black hair. She was facing away from Carol and had on a Ricky Martin concert T-shirt. She was bending over Cara with a cardboard box in her arms. Carol could not see what was in the box but heard the squeals coming from the youngest Spieler.

Carol jumped from her seat just in time to see Martie and Kes coming down the block from the other direction. She sprang towards the girl with the box when the giggles and squeals erupted further.

“MOM! Mom! Over Here! Can we keep her?”

Cara was holding a chubby little calico kitten cuddled in her arms. The little cat was rubbing its cheek against Cara's chin and purring quietly. Cara looked up at her mother. The look in the little girl's eyes was one of longing and love. This orange, black and white critter had obviously stolen her heart.

“I'm sorry, sweetie, but our landlord won't let us have a pet.”

“But mom, we neeeeed heeeeeer.”

“Cara...”

“She neeeeeeeeeeeeds meeeeeeeee. If we don’t save her, she’s going to have to go to the pound. Perry says they kill animals at the pound.”

Martie looked over at her oldest, but he just shrugged and looked away. The girl in the concert T supported Cara’s position.

“We found her wandering in the street. My dad says today is her last day. He doesn’t like cats much and won’t let us keep her. I don’t know what he will do if we don’t find her a home.”

Martie made the mistake of looking into the tiny cat’s eyes. She reached over and scratched a finger under its chin. The kitten gave her a soft love bite. The little cat and the little girl both stared at Martie with near identical expressions of longing in their eyes. She gave a stern look at the teenager who gave a shrug almost identical to the one her son had given a few moments before.

“Does she have a name?”

“No. My dad said we couldn’t keep her and so we couldn’t name her.”

“I KNOW! I KNOW! I KNOW!” screamed Cara. “Her name is Pixel!”

“Pixel? The computer thing?”

“NO! She’s not a computer. She’s a kitten. It’s cuz she’s cute like a pixie and round and fat like a little elephant. pix-el, PIXEL!”

Both of the adults laughed. Perry wagged his head back and forth. He was too old for pixies and silliness. Kes was reaching over Cara's shoulder to gently pet the small feline.

“We can't keep her, but we'll take her until we find her a new home.” Martie acquiesced.

The two youngest children broke into cheers and squeals. Perry tried to hide his smile, but it crept over his lips. Kes high-fived Carol and Cara hugged Pixel to her heart.

“Now, who wants fro-gurt?”

2.6 July 2000

Yuliya

“I look forward to learning in United States, but I worry about you, Father.”

“There is no need for worry. We will suppress those rebels in Chechnya in no time. Those rebels are no match for Russian might. My team is best in all of army. I will return to Kazan before school year over.

“You worry about improving English and learning from Americans. With new president, Russia will be number one in world again. We will need more scientists and diplomats. This is opportunity to make yourself ready for future.”

George

“But, Ma, I don’t want to move to California!” George complained. “Why can’t I just keep homeschooling here?”

“You are so far ahead of me, I can’t teach you anything, and the tutors don’t want to drive all the way out here to the ranch. Linus Pauling High is a great school. It’s rated number 2 in the country for science and technology. You’ll meet people who like the same things you do.”

“I don’t want to meet people. I don’t like people.”

“You like your little friends on the computer, don’t you?”

“Some of them are OK, but I don’t have to see them or talk to them. I go on the boards when I want, and I hang up the modem when I want.”

“Your father said the place he found near the school has, what did he call it? Cable innertube? Something like that.”

“They have cable internet? Cable’s like 40 or 50 times faster than dial-up!” George was starting to come around to the idea of the move. “Maybe I can homeschool in California?”

“No, we are not going to move a thousand miles for you to sit at home on your little computer. You are going to go to school. You will talk to real people, and you will make some real friends.”

“Does Pa have the spec’s for the internet connections at the new house?”

“I don’t know. He’s supposed to call us tonight. You can ask him to bring the paperwork with him when he comes home next week.”

2.7 September 2000

Martie

“I hope everyone had a great summer break. Most of you already know me from Biology or Chemistry tracks last term, but for those who don’t, I am Ms. Spieler. If the principal’s not around, you can call me Martie. Now, is everyone ready to get to work?”

There was a fidgety silence interspersed with a few coughs and a lot of not looking at Martie.

“I am so glad you are all so glad to be back, and soooooo enthusiastic.” Martie chuckled. “I could have used another week or three at home myself, but here we are. Before we get started, I’d like to introduce three new members of our Advanced Scientific Discovery team who are joining us this year.

“Some of you may already know Lucas, he was a student at Linus P last year, and he is joining us in class now. Lucas has some problems verbalizing so he will be using his computer cart to help him work with all of us this semester.”

“*Spazoid retard?*” drifted from somewhere in the middle of class. Someone else answered with “*freak*”.

“We will have NONE OF THAT. Lucas is a valued member of this class and can probably teach all of us a thing or two. Welcome, Lucas.”

She tipped her head towards Lucas who waved his left hand awkwardly. A half-hearted set of ‘hi’s’ and ‘welcomes’ came from about a quarter of the class.

“Next, this is George. George and his family just moved here from Texas. I understand you are quite the computer whiz. Is that right, George?”

The young man was tall and skinny. He trembled in place and looked down at his shoes. He did not say a word.

“Is there anything you’d like to say to the class, George?”

George whispered under his breath “no”, before scurrying to his seat near the rear wall of the classroom.

“Very well. Last but not least, this is Yuliya. Yuliya is an exchange student who comes to us all the way from Russia.”

The young girl had curly light brown hair. She was almost attractive, but her nose was a bit too large for her other facial features. Her brown eyes looked small, hidden behind thick glasses.

“Thank you all. My name Yuliya. Like English Julia, but with ‘y’ at front and ‘y’ near end. My English good but I want practice more. I like meet you all and talk you too.” Yuliya said, with a short space to think between some of the words.

“*A freak, a geek and the beak.*” someone whispered from the side of the room.

Martie missed the original comment, but did hear the titters of laughter flow around the class. She decided to ignore it and move on.

“Most all of you have had experience in one or more science courses here at LP studying what other folks have discovered. This semester, we’ll continue with the textbooks, but you are all going to work on a project for the science fair as well. We will see if we can do some discovering of our own.

“We’ll break into teams of 3-5 people each and we’ll submit the best projects for entry into the National Science Fair in Washington D.C. There are tens of thousands of dollars in scholarships available for the best projects. Last year, we had two different teams almost make it into the national fair. This year, let’s see if we can get to D.C. and win some of those scholarships. I would love to see some of you get help with your college careers and maybe make it onto the podium.

“I have a sign-up sheet on my desk. Once you decide on your teams, fill in this sheet with your team members names. If you haven’t picked your teams by Friday, I will be assigning you to a team on Monday. You’ll have three weeks before you have to pick a topic, but this project and the report on it are 50% of your grade so the sooner you get started the better.

“I’ll give you all until the end of the week to pick your teams. With that in mind, take the next few minutes to get to know your classmates and start to think about who you want to work with. I have to run to the teachers lounge for a minute. Behave while I’m gone.”

Lucas

Jennifer was seated in the front row. Her blonde hair was loosely waved and pinned behind each ear. Lucas wheeled his cart over to her, a long extension cord trailing behind him like a tail. He pounded away at his oversized keyboard then used the 'Lazy Susan' to spin the monitor to face her.

"I am Lucas. Do you want to be on the project together?"

Jennifer started to smile, but Courtney interrupted and pulled her to the other side of the room. Courtney was another blonde with a near identical color and length of hair, but she wore hers in a combination of crimped locks and curls. She wore a short denim skirt and a red tank top and sweater. She looked over her shoulder at Lucas then turned to her friend and whispered something in her ear. They both began to laugh.

He tried two other students and neither of them even waited for him to finish typing his message. They both rose and joined other groups milling about and chatting. Lucas found himself rolling to the rear of the room and situating himself near George. He did not even try to make contact as George immediately turned to face the wall beside him.

Yuliya

Yuliya had about as much luck as Lucas, but instead of being ignored and avoided, she was met with outright hostility.

"Why would I want to work with a damn communist?"

"Go back to Russia, Beak!"

“Sorry, I like my teammates to be able to speak English. Comprendre?”

“Here are two reasons I don’t want to work with you.” said one boy, giving her the middle finger with both hands.

She also drifted to the back of the room, and sat down at an empty table across from George and Lucas. She dabbed at the corners of her eyes behind the thick lenses.

The rest of the class broke off into little clusters. They didn’t even try to keep from being overheard.”

“Come on. Let’s get our team together fast.”

“I don’t want to get stuck with one of those losers.”

“Do they even have science in Russia?”

“That’s why she came here, to steal our secrets.”

“Come on, please let me be on your team. I don’t want the teacher to stick me with the Geek, the Freak or the Beak.”

Titters of laughter accompanied these conversations and soon the rest of the class lined up at the front of the room taking turns to fill in their team rosters on the sign-up sheet.

Martie

As she opened the door, most of the students were in groups towards the front of the room. A few of them were still at her desk to document their teams. She saw the sign-up sheet was almost completely full.

“I can tell this is going to be a great year, all of you so excited to get on teams. It looks like almost everyone is signed up. Is there anyone who doesn't have a team yet?”

Behind the rest of the class, Yuliya raised her hand, Lucas' hand spasmed a bit as it lifted over his head. George was still faced away from the class, but his hand slowly crept the wall towards the ceiling.

“Just you three? Well, OK, then I know you three would make an excellent team. Shall I write your names down now?”

George's hand raised higher this time and he mumbled something under his breath.

“Excuse me, George. I didn't get that.”

“Can I do the project alone? I like to work alone.”

“No, this is a team project and everyone needs a team. Since there are only the three of you left, then you will be the final team.”

Yuliya and Lucas looked at each other and then over at George. George refused to make eye contact. He turned and faced the wall.

“With all of our teams assigned, we're ahead of schedule. This project will require you to meet with your teams outside of class too. It looks like we have six teams and eight tables in the room. Each team gather around one of the tables. I will give you the rest of the period to give each other your phone numbers and to talk about your interests and possible project topics. Raise your hands or come to the front if you have any other questions.”

George

George did not take his eyes off the wall when Yuliya moved over to the table with Lucas, but he did speak loud enough to be heard on the first try.

“I don’t suppose either of you use email, or online message boards.”

“Da, I use message boards AND electronic mail. That is how I learn about American schools and exchange program.” Yuliya declared.

Lucas spun the monitor back and forth between George and Yuliya. He had already typed the following message.

“I like computers. My voice is not good, but I can type. I love Math and am learning more about computers and science every day, but I do not have an email account. What kind of project do you think we should do?”

George reluctantly turned to read the message.

“I love computers!” George exclaimed. He was surprised to hear himself say it aloud. “I like other science and tech stuff too, but computers are the best. Don’t worry about an email account. My folks will get me what we need. I can make a private message board for the three of us, and I’ll set up an email account for you, Lucas. I think I can get them to get us a private server, and maybe upgrade your rolling workstation. We can do all our work online. We might not even have to meet in person!”

“What about you, Yuliya?” Lucas typed.

“I like computers too, but also Biology and Chemistry. I like also idea of online meeting. I write more good English than I talk.”

“Great!” George was almost sounding enthusiastic now. “Yuliya, give me your email address, unless you want me to get you one too, and I’ll get the private board and send the login info to you. I’ll bring in your new email account tomorrow, Lucas. Then we can meet online.”

“Da. American email would be good for me. If you can do?”

“No problem, I’ll bring in both your email addresses tomorrow!”

2.8 October 2000

Martie

“Is that a new computer, Lucas?” Martie asked. “It looks very fancy.”

“Yes, it is new. George’s father bought it and loaned it to me for our project.”

“Where is George today?”

Lucas made some surprisingly adept and coordinated movements with his hands and feet and George’s voice came from what looked like a car stereo speaker at the front of the cart.

“I’m here, Ms. Spieler. We upgraded Lucas’ computer with a camera, microphone, and speaker. I’m attending class from home today! The computer’s going to be my eyes and ears.”

“OK. That’s very interesting, but you need to come to school to get everything out of my lessons.”

“I can see and hear everything from here. As part of our project, I want to investigate using technology in education.”

George fibbed a little bit. He knew he wanted to use computers in their project, but they hadn’t decided on a topic yet. George did not want to attend class unless he absolutely had to.

“Even if you can see everything, we all want to see you too. We’ll talk about this more later, and you must be IN class tomorrow, but for now we are going to talk about

Nicolas Tesla and Thomas Edison and science and engineering and competition and ...”

Lucas

As usual, after the bell rang Lucas was the last one out of his seat. He had to reel in the long extension cord and attach it to the wheeled cart before rolling it to his next class. George’s enhancements included a battery pack to keep the system running for an hour or so, but he still needed to plug it into a wall socket to make sure he got through the whole session. Yuliya waited to help him navigate the cart from their bench at the rear of the room.

Lucas cringed as he pushed the awkward cart through the classroom door. Across the hall, Jennifer leaned with one leg bent against the wall. She had a notebook clutched against her chest with her arms folded across it. Hovering over her was Troy.

Troy was not in their science class. Lucas couldn’t help but think Troy would be better suited to the special ed section than he ever was. But Troy was captain of the football team, and the quarterback, and the starting guard on the basketball team. The girls all seemed to love the muscular moron. Lucas and Yuliya tried to avoid eye contact. They would have to rush to make it across campus to the AP Calc course. They turned right and were hurrying by the dawdling couple when Lucas felt a flick against the back of his head.

“Hey Freak! Where are you going?” Troy taunted. “You and the Beak heading out behind the bleachers for some freaky fun?”

“Ah, let them alone, Troy.” Jennifer intoned.

“We’re just having fun, aren’t we, Freak?”

Lucas started to slam his hands down on the large keyboard to answer the athlete when the cart pulled away from him and Troy ran down the hall pushing it in front of him. Yuliya ran after him, but he was quicker. He put one foot on the base and rode it like a scooter to the end of the hall. The extension cord unraveled and flopped around as it dragged behind. As Troy reached the double doors at the end of the hall, Lucas was sure his only form of communication was going to go tumbling down the stairwell outside. Troy opened one of the doors and saw the assistant principal coming up the steps. He turned around and pushed the cart a few feet from him.

“Good morning, Mr. Simpson.” He said, tipping his head towards the administrator. Then he turned and looked down the hall. “Luke! You need to be more careful. You left your computer down here by the doors. Someone might have tripped over it.”

Jennifer followed him down the hallway. He wrapped his arm around her and pulled her through the doors and down the stairs. She looked over her shoulder at her classmates and gave a little shrug, then skipped down the steps with her quarterback.

“Everything OK here?” Mr. Simpson asked.

Yuliya looked at Lucas, but he only shook his head up and down and shuffled down the hallway to retrieve his cart.

“OK, then. Get to class.”

2.9 October 2000

George

Yuliya waited as the modem screamed through its various tones and finally connected. She clicked her way through a series of menus and entered the chat room George had created for them. She was five minutes early for their planned project discussion, but Lucas and George had apparently already been chatting for some time. She scanned back through their conversation, but as usual, they were more interested in talking about a movie than their science project.

Lucas: "Wolverine is cool, but he's too out of control. I still like Professor X."

George: "I know he was the bad guy, but Magneto really knew what he wanted. He had a good idea to make the others see what it felt like to be a mutant"

Lucas: "How could you like Magneto? He's a murderer."

George: "I didn't say I liked him. I'm not saying he should have killed everyone, maybe if the bullies knew what it felt like to be different, then maybe they'd treat people better. You can't tell me you wouldn't want to teach Troy a lesson for how he treats us"

Lucas: "Maybe. But I wouldn't want to turn him into jello."

Yuliya: "More movie talk? How about some science talk?"

Lucas: "Hi Yuliya."

George: "Hi, Yuliya. Magneto wanted to use science to turn all those guys into mutants"

Yuliya: "Science project talk!..."

Yuliya: "Besides, if you read original comics, you know Jean Grey is strongest and best of all the X-men."

George: "No way! Wolverine kicks ass. He doesn't take any shit from anybody"

Lucas: "Maybe we should discuss the science project, instead of the movie."

George: "Yeah, OK. Thanks to my dad, we've got the coolest computer setup, but how are we going to use it? What should our project be?"

Yuliya: "So you like computers. We know. I am more liking biology. In Russia, I study bacteria. Did you know you can make electricity from bacteria?"

George: "Are you making that up?"

Yuliya: "No, is true. Is not very efficient, but you can use bacteria as driver for chemical reactions to make electricity."

Lucas: "That is cool, but what sort of project could we do with that?"

George: "And how could we use the computers I got my dad to buy me? If I can't tell him what they're for, he might make me return them"

Lucas: "Maybe we power your computer with bacteria."

George: "Why would I want to hook my computer to some weird slime?"

Yuliya: "Maybe we use computer to control electricity and be powered by same electricity."

George: "How would that work?"

Yuliya: "Can you write computer program to monitor power and tell us when to add ingredients to bacteria tank?"

George: "I can write the program, but I'll need help on the algorithms for what and when things need to be added. In fact, I can have it control an automated 'feeding' machine"

Lucas: "If Yuliya helps come up with the biological variables, I can help with the math to optimize the inputs."

Yuliya: "I help with that, but this going to cost much money. If I was home in Russia, I could ask my father to help get access to University lab, but equipment and chemicals are much expensive."

George: "Don't worry about it. My dad already paid for the coolest computer room in the county at our house. He'll pay for the other stuff we need too"

Yuliya: "No, George. I use equipment at University in Russia. This would cost thousands of US dollars."

Lucas: "I am broke. Maybe we should find a cheaper idea."

George: "I said, don't worry about it. My dad won't even notice, especially since it's for school. He'll get me anything if it helps me get into Harvard"

Lucas: "Um, George?"

George: "Yeah?"

Lucas: "Are you rich?"

George: "Oh Yeah, I am"

Lucas

The driver pointed Yuliya and Lucas towards the large horse barn at the end of the drive. Two large red wooden doors hung on rails on the closest side of the building. To call that the narrow side would be technically correct compared to the rest of structure. It stretched back up the property towards a small hill covered with cypress. Yuliya knocked once then grasped the large handle of the eastmost door and yanked. It budged an inch or maybe two. Lucas tried to help with the other door, but it refused to yield. Yuliya turned around and slid her fingers into the slight gap, then used her legs to push against the barrier. It moved slowly at first, then clicked on to its rail and flew open with a bang.

Yuliya had been expecting the lingering odor of horses and manure, but instead she was greeted with a tart chemical smell mixed with scents of burnt electrical insulation. Her eyes adjusted to the large room brightly lit with overhanging fluorescent bulbs.

The building was one large room split roughly into quarters. Along the east side of the far wall, it looked like the previous tack room had been converted into a storage area. There were a few recognizable items: microscope, computer monitors, keyboards, speakers and headphones; but the rest was filled with rows of cardboard boxes and wooden packing crates, many of them unopened. On the west side, rows of lab tables, one even with an exhaust hood and several metal cabinets along both walls.

The near half of the room was stacked high with computer equipment. This is where they found George. He was sitting at a steel office desk with a large monitor and keyboard, tucked behind a cloth screen that shielded his face and arms from view. Behind him were racks of equipment that looked like something off the

bridge of the USS Enterprise, except there were not as many blinking lights. He stayed behind the screen and yelled to them.

“Welcome to our science project! I think I got everything you both asked for, and I got a few other things too. Sift through those boxes to find what you want.”

Lucas wheeled his computer cart over to the desk and tapped away with both hands on the oversized keyboard. The tinny voice emanated from the small speaker.

“You were not lying when you said you were rich.”

“Actually, it’s my dad who’s the rich one. I’m just spoiled.” George chuckled. “My great-great grandfather, or maybe there’s another great or two in there, bought up cotton plantations all across Texas and the rest of the south after the civil war. Apparently, they were selling cheap, and he had money from the old country.”

“Is your father THE GEORGE BAILEY, of Bailey Farms?”

“...and Bedford Technology and Bailey Park Plaza and a few hundred shell corporations and other ‘interests’. Yup, that George Bailey. George Bailey the Fourth to be exact. I told my dad if we win this science contest, it would improve my chances of getting into Harvard. Dad wanted to go to Harvard but wasn’t accepted. To him, it’s the best college ever. He can probably buy a building or two and get me in anyway, but it’s less expensive if I qualify on my own.”

"Harvard is an unbelievable school. I wish I could get in there, or maybe M.I.T. but I could never afford either of those."

"Well, it's all yours. I want to go back to Texas or maybe stay here in California, but don't tell my dad. I still want to win this contest. Maybe you can use the scholarship we win to pay for MIT or Harvard."

"I wish."

Yuliya

"George, this lab is fantastic. At home, I take class at university in Vladivostok. I think barn has more modern equipment, and maybe more equipment than whole university."

"There's a lot more in those boxes in the storage room. Feel free to go through them and grab anything you need. You and Lucas can have the rear half of the room, and I'll take the front here with my computers."

"I will need to help with the algorithms for the computer."

"Maybe, but for now help Yuliya check those crates and lay out her lab. If either of you want anything else, just write down what you need and my dad's team will find a way to get it."

George

“Really? A fish tank? Can’t we use something that looks a little more impressive than a fish tank.” George complained.

“Aquarium is good containers for solutions.”

“It looks so tacky. Maybe we can wrap it in something. My dad says marketing is more than half the battle. If it looks good, folks will think it is good.”

“It will be good. Market or no market. We will have great project.”

“We have already worked out many of the algorithms for the chemical mixtures. How is your programming coming?”

“The alpha version is already written, and I did a first test with the pumps. It’ll control exactly how much of any solution is added to the... fish tank. And exactly when it’s added. I’ll show you. Yuliya, aim this hose at your tank.”

George was spending less and less time hidden with his computers. He was looking at his teammates and not at the walls. He stepped behind his computer, but didn’t bother to pull the curtain. He tapped a few keys and a small pump on the table hummed to life and after a short pause, a small spurt of liquid squirted into the tank.

“Exactly 100 milliliters, and... exactly four seconds delay. I can control it down to 10 microliters and the time down to tenths of a second.”

“Lucas, you send algorithms and estimate volumes and time for each solution to George. George, we need four different solutions for mixture. Can machine and program handle so many?”

“I’ll need to pick up a few more of these metering pumps, but four is easy. How many would be ideal?”

“For very best solution, three more chemical mixes be best, but need only four. This cost too much already, and ingredients for other three are hard to get.”

“I’ll get enough for 20, just in case, and put those other three items on the list. My dad has people who can find them.”

“I will send you the algorithms that show how to mix the chemicals and when each should be added. We can use the monitor Yuliya made to measure the mixtures and the electrical output, then use your program to automate the adding and mixing.”

“I can do one better than that. I can write another program to read the output from the monitor. It’ll store both what we add and what happens when we add different mixtures. Then teach the program to try different things and figure out what works best and adjust itself on the fly.”

“It very risky. We might kill bacteria and have start over if we make mixtures wrong.”

“Hmmm. Good point.” George chewed on his index finger, then looked up. “Then we’ll get about a half dozen of your fish tanks and try different things in different tanks. See what works best. We can keep one of them with your base mixtures to make sure we have at least one that works.”

“You need to show me how you teach a computer to teach itself.”

“You bet. With your math skills you should learn it in no time.”

“Yes, Lucas learn anything. He now know almost as much biology as me.”

“You guys are just great teachers. And great friends.”

2.10 March 2001

Martie

“OK, OK, quiet down everybody.”

Mr. Simpson made downward waving motions to quiet the crowded gym. Most of the students did not really care about this science project, but the assembly did allow them to miss class. The assistant principal had to repeat his admonishments multiple times, but eventually the side conversations dropped to a few whispers.

“Thank you all for coming. It is with pleasure and pride that I introduce the first team from Linus Pauling High to qualify for the National Science Fair in Washington D.C. This is a great honor for the team and for our whole school. We have come close in the past, but this team of extraordinary young people has qualified in their first submission to the fair. Now to introduce the team, here is their teacher, mentor and advisor, Ms. Spieler.”

“Thank you, Mr. Simpson.” Martie began. “I will let the team explain the details of the project, but I did want to say a few words before we begin. These are three wicked smart young people. They have all overcome multiple obstacles to even get to LP Hi.

Lucas came to our school in the middle of last year and was only promoted to the core science curriculum in September. Using a computer to communicate, he has moved to the top of his class in his calculus and science courses. A young man with a thirst for knowledge and experience. The team tells me Lucas created most of the

detailed algorithms to track and control their project. Lucas?”

Lucas teetered his way onto the stage from the left-hand side pushing his computer cart. A long extension cord trailed behind him. He waved his hands awkwardly to the crowd. There were a few rude comments under the breath of some students, but mostly he was met with polite applause.

“Yuliya comes to us all the way from Eastern Russia as an exchange student. Living away from her homeland and away from her family, she has come to call LP Hi her home and we are happy to have her as part of our family. Yuliya’s biology background provided the foundation for the project. Yuliya?”

Yuliya joined Lucas, appearing from the right-hand side of the stage to continued light clapping.

“Last, but not least, George is another recent immigrant to California and LP Hi. He did not make quite as long a trip as Yuliya, only joining us from the far-off land of Texas.”

Muted laughter crossed the hall.

“George has brought incredible computer skills to the project. He built and programmed most of the machinery and used Lucas’ algorithms and Yuliya’s recipes to control and drive the overall project. George, George?”

Yuliya walked over and whispered into Martie’s ear. Martie scanned the audience, then took the microphone and continued.

“I guess George is helping with the presentation from backstage. Hopefully, we’ll get to congratulate him in person later in the assembly. For now, Yuliya?”

Yuliya

“Thank you, Ms. Spieler, and thank you everyone who come to hear about science. Do not worry. I not talk too much. We have video to tell details. Lucas, can start projector?”

Lucas made a few quick motions with his hands and his right foot, and the room darkened. A large screen lowered at the rear of the stage. From the press box above the audience, a beam of light shone, and George’s face appeared on the large screen.

“Thank you, Yuliya, Lucas. I will take the audience through our findings. We have made a natural power cell that produces electricity, something like a battery, but powered by bacteria. This is a naturally occurring microbe we cultivated over many generations to select the highest level of output. We use the natural chemical reactions from these organisms to generate electrical currents. In fact, we are able to use the energy from our process to power some of the machinery that runs the experiments.”

The video panned across showing thirty-two aquariums arranged across the whole back half of the barn/laboratory. Most of them were half-full with the same grey-green colored water. Rods extended below the surface with attached wires leading to various apparatus. Every few minutes a small squirt of liquid would spurt into one or another of the fish tanks and one of the rods would spin a small propeller to mix the solutions.

Three of the aquariums near the front had a slightly different colored liquid. These were a reddish brown with green overtones. The splashes of liquid came more often into these three and they were hooked to more of the electronic equipment than the others.

George's voice on the video explained how they monitored the chemical compounds they added to each of the tanks and the intensity of the current generated. He covered how they not only used different combinations of chemicals but also bred the most potent bacterial colonies to enhance their power output. They stored all of the data from each tank and analyzed those to improve the next batch of testing.

“These 32 tanks are the end results of months of testing different combinations of chemicals and bacteria. We processed over 300 batches over the last two months of testing. We call it our Electrogenic Life Form or ELF for short.

We admit not every test was a success. 64% of the tests produced negligible electrical current, and seven different batches killed all of the bacteria in their tanks.”

George gave a shrug on the video as if to say ‘watta ya gonna do?’ and a small wave of laughter spread through the bleachers.

“You will notice the three tanks at the front of the group. These were our biggest successes. These are ELF-30, ELF-57 and ELF-86 respectively. Each of these produces more electricity than we are using for the machines monitoring and feeding them. With the cost of the chemicals, this is still more expensive than city power, but it is pollution-free. More importantly, this is after only two months of growth. We have already improved our output over 400% from our early batches...”

George

George took the lead on producing and recording the video for the presentation, but he refused to be on stage when their winning project was demonstrated in the gym at Linus Pauling High. He had tried to avoid the assembly altogether, but Ms. Spieler insisted he be there when the school recognized the first project from the school to be in the National Science Fair. He was tucked below the stage near the side exit, lip synching to the video, when Troy came in through the same side door.

“Well, if it isn’t the Geek. What are you hiding from?”
Troy said.

George tried to ignore him and turned to face the wall.

“You think you’re hot shit cuz you and your egghead friends did a science project? Ooo, you get to go to Washington. Big fucking deal. You think you’re a big deal, Geek? Did you ever play a game in this gym? You think your little experiment is more important than the league championship we almost won last season?”

When there was no reply, Troy stepped closer. George was doing his best to disappear into the gym wall when his face and body smashed against that wall. The air was knocked out of him and before he could start to yell, a hand wrapped around his mouth and dragged him through the side door. George kicked and struggled as Troy pulled him all the way down the hallway and into the boys locker room.

“Yell if you want to. They can’t hear anything from in here. I know. I’ve been in this locker room during the big games. Have you ever even been in here? I doubt it. You

and your freaky friends don't know shit. You don't do anything real. You are shit."

He punched George in the gut, and the boy doubled over and fell to the floor. His nose and lip were oozing blood. He arched one arm up and over the bench between the lockers and tried to pull himself upright. Troy grabbed his hand as if to help him, but as soon as he struggled to his knees, he yanked him forward and dragged him the length of the bench. As his head slammed into the locker at the end of the bench, he rolled on his back to the floor again. He gazed absently into the rabid eyes of the athlete but said nothing and did not move. He closed his eyes trying to ready himself for the next blow.

"You just lie there, you piece of shit. If you say anything about this, I'll give you worse next time. Remember, you are just a geek and I am king of this school. You can take your brainiac little freak friends and go to your geek fair, but don't think that means anything. Those kids are only in the assembly cuz they want to get out of class. They don't give a shit about a pussy little fuck like you."

George groaned softly and turned his face towards the floor. Red droplets spilled on to and down the drain below the bench. Troy dug the fingers of his left hand into the hair on the back of George's head. He torqued the head around and planted two quick jabs into the smaller boy's face. Then he dropped him to the floor and walked across to the sink. He washed the blood from his hands, straightened his clothes and hair in the mirror. He rubbed his fingers across his teeth and smiled his winning smile. As he walked towards the exit, he gave George another kick in the ribs.

Troy

“Where have you been? The presentation is almost over.” Jennifer whispered as Troy strutted up the steps into the bleachers.

“Oh, here and there. I really want to see what these guys have done.” he said.

“I know! But you already missed most of it. It is so cool. They got into the National Fair. I wish my team could do that.”

Jennifer had not registered the boy’s sarcasm. Troy wrapped his arm around her and pulled her hard against him. She felt him, hard against her.

2.11 April 2001

Jack

Martha sat on the boulder at the top of the rock heap and squinted into the setting sun. The island of Catalina was barely visible, silhouetted on the horizon, and the clouds were illuminated with a cacophony of colors. Purples, grays, pinks, reds and yellows strewn across the sky. Overhead, a red-tail hawk circled slowly on an updraft. It screeched twice and a second hawk rose from behind the ridge, its red orange tail feathers highlighted by the coloring sky. The two flew, wheeling around each other in ever enlarging spirals. Then as if from some external queue, they both twisted from their flight paths and soared west into the sunset, wingtip to wingtip. Martha heard heavy breathing and scraping of feet to her right and smiled as the man came trudging over the ridgeline.

“I’ve been running with you every Saturday for, what, two/three months now? I still don’t understand how you make it all the way up to this ridge without walking.” Jack complained.

“Shut up and come see this sunset.”

“Oh, wow. That is a good one. How’d you even get on that thing?”

Jack leaned against the huge rock. Martha pointed to the smaller rocks and the crack slicing through the back of the boulder. He found a few hand and foot holds and pulled himself up next to his running partner. They sat in silence and Martha tried not to notice when their knees brushed against each other. Jack tried to pull his away, but there really was nowhere else on the slab for him to sit so he let it drift down against hers. A slight breeze came from the

west and Martha shivered, but not from the cold. She looked over and noticed a ladybug crawling through the tangles of his short-cropped beard. Martha started to reach for the small creature and then stopped. He didn't notice. He stared at the kaleidoscope of colors and the last sunshine shimmering on the ocean, twenty or more miles away. Martha looked down at the two knees gently pressed together.

“We should probably head down. It's beautiful, but we don't want to be stuck on the trail in the dark.” she said.

“Yeah.” Jack looked over at Martha and hesitated before continuing. “Beautiful... I've got a headlamp in my fanny pack, but you're right. We better head back. You never know what might happen after dark around here.”

“Yeah.”

Martha looked into his eyes for a second too long. She turned and scrambled down the rock pile, offering Jack her hand as he stumbled his way to level ground. He pulled a water bottle from his pack, took a large swig then handed it to Martha. She sprayed a stream into the back of her mouth. As she went to hand it back to him, the ladybug dropped from his chin onto her left hand. He brushed the palm of her hand as he tenderly picked the insect off the simple gold band on her ring finger and placed it onto the leaf of a sagebrush. Then he took the bottle from her and took another short drink.

“Thanks. Race you to the bike path?” Martha laughed and began running down the trail.

“Come on. I just got here. You've been resting.” Jack groaned.

He shoved the water bottle into the holder on his waist and sprinted after her. She continued laughing as she widened the gap between them.

Martie

Martie was still breathing hard as she pushed open the condo door. Cooper was sitting on the couch watching a basketball game. He muted the TV and got up to greet her.

“How was your run?”

“It was good. Sunset was spectacular. Where are the kids?”

“Perry and Kes are still at soccer. The teams were going for pizza after practice. I’m gonna head out in a half hour to go get them. Cara’s having a sleepover with, what was her name? Gina? Lena? In the unit over by the pool.”

“Then we’re alone?” Martie winked. “Maybe we can use that half hour to our advantage.”

“What have you got in mind?” Cooper’s smile twisted up at the right corner of his mouth.

“I’m already a sweaty mess. Do you want to get me even sweatier?”

Martie pulled the polyester singlet over her head as she moved towards the bedroom, and dropped it and her jog bra on the hallway floor. Cooper’s T-Shirt and shorts landed on the tank top as he slipped through behind her. Martie was already laid back on the side of the bed dressed in nothing but her pink running shoes. She closed her eyes and smiled. He laughed and dropped on top of her.

Cooper

“That was great.” Cooper said.

“Better than your football game?”

“Basketball, but you bet. Especially since it was a replay of last week’s game.” He laughed playfully. She did not.

“We have to do that more often. What got into you? Not that I’m complaining.”

“I don’t know. Running gets my heart pumping? The sunset? I don’t know.”

Martie didn’t look him directly in the eye. She smiled and gave her head a quick jerk from side to side and refocused on her husband.

“Don’t you need to go get the boys?”

“Oh shit! Yeah. I better get going.”

He scooped his shorts and T-shirt off the floor and flung Martie’s top and bra to her on the bed. He stumbled a little as he hopped on one leg pulling on his shorts. He grabbed his wallet and keys off the counter in the kitchen and slipped his bare feet into a pair of flip flops by the front door. Martie was coming down the hallway. She was still clad only in pink running shoes. She turned her head as Cooper ran over and kissed her on the cheek.

“You keep on running. I like the after effects!” he said.

Jack

Jack closed his eyes as the near scalding water cascaded across the top of his skull. He soaped up, rinsed off and ducked his head under the flow again. His thoughts kept returning to his knee and her knee and the lingering warmth, and the tingling that had shot through him on the boulder. He thought of her hand in his hand as he came down the rocky slope. He thought of the eye contact and the smiles and the laughter, and he thought of her legs as she ran wildly down the trail in front of him. And those pink shoes. Those pink shoes and her pink shorts.

Then he thought of the ladybug on a wedding ring. Three children and a husband. He thought of a family built over time. He thought of his own parents, divorced when he was about the age of her oldest. He thought of the hurt and the blame he felt then, and the anger every other weekend when he was handed off from one to the other. He flipped the shower handle, and cold water shocked his system. He played his head and body under the chilling spray. He shivered, but forced himself to stay under the cold spout. For two minutes, three, four, he stood unmoving with the cold water washing the warm tears down his cheeks.

2.12 June 2001

Lucas

The Linus Pauling High School team did not quite make the top of the podium at the National Science Fair. The judges had a hard time placing them in a single category. The project had aspects of biology, microbiology, chemistry, biochemistry, computer science, environmental science, and more than one category of engineering. They were considered in multiple categories and received a third-place award and \$1000 cash each in the microbiology category and fourth for another \$500 in energy science.

Lucas had never seen \$500 let alone had a check for \$1500 with his name on it. He was even happier when they announced the special awards and found the team had won a \$30,000 scholarship for the Young Scientists Award. A year and a half ago, he was the new kid in the special ed class and today, he had a chance to actually go to college. He wouldn't be able to afford an M.I.T. or Harvard, but with his \$10,000 share and some student loans, he might be able to swing a state school. Some of the U.C.'s had great science programs.

Jack

Jack was stretching against his Corolla, his right leg straight back and his left knee almost touching the dirty front bumper. His hands smeared palm prints in the dust on the small car's hood. The campground day-use parking area was almost empty, and his car was near the far end of the lot. It was tucked under the cover of a

century old California Live Oak. A dry leaf fluttered and came to rest against the top of his forehead. Trying not to break his stretch, he pursed his lips and blew trying to dislodge the bit of foliage. It was on his third poofing breath he heard the snickering and raised his head. Martha was coming along the bike path. Pink shoes. Pink shorts... and a white running singlet over a pink jog bra that just showed through the translucent fabric. He sucked in a huge breath at the sight of her, and the leaf came free. It flipped against his pursed lips and stuck there like a cork in a wine bottle. The snickering turned into an erupting belly laugh, and Martha bent over and nearly fell to the ground.

“I’m glad you’re amused.”

“Sorry, but you should see yourself.”

Martha gasped in a breath, laughing more. Jack shook his head from side to side to free the leaf then laughed along with her.

“How far do you want to go today?”

“I’m still a little jet-lagged from the D.C. trip. How about five miles or so?”

“I saw the article in the Times. The kids did great! Getting awards in two different categories. They must have a great teacher!”

“I am so proud of those kids. They are wicked smart, but they seemed like the most unlikely set of kids to put together such a great team, and such an amazing project.”

“From what you told me, it is pretty amazing. So five miles?”

“Five miles.”

“OK, but before we get started, I have something I have to tell you.” Martha looked at him, but Jack couldn’t meet her eyes. “This is going to be one of our last runs together.”

“What!? Why? Is something wrong?”

“No, nothing really.” He still could not face her, and pulled another oak leaf from a low hanging branch. He twirled it around his fingertips. “I’m transferring to our office in New York.”

“Oh.... Um... congratulations? I guess.”

“Seldon is putting together the new data center right next to the NYSE computer center. They want it as close as physically possible to the stock exchange computers. When it comes to beating the competition on a trade, sometimes microseconds make all the difference.”

“Data center? I thought you were just a math geek.”

“Yeah, I am, but the math runs on the computers. I’m pretty good with computers too. I’ll be there for at least 6 months, getting everything configured and making sure it’s working optimally.”

“Well, that’s great for you, but it sucks for me.” Now Martha couldn’t meet his eyes. “Well, shit. If this is our last run, let’s make it a good one.” and she sprinted up the bike path.

“Hold your... Ah, Shit. Wait up!” Jack opened the door to lock the Toyota, and slammed it closed. Then he took off after those pink shoes.

Martie

Jack was huffing as he rounded the corner to the tunnel under the freeway that led into the hills. Martie was now stretching against the wall of the tunnel. A cyclist in red, white and blue flew past the pair.

“You know, I would still have kept coming here to run with you, but you’re not the only one with some changes happening.”

“How so?”

“Remember I told you about how the cat, Pixel, adopted Cara after our 15K?”

“Yeah. I thought you were going to find a home for it with one of the other teachers.”

“That was my idea, but Cara has other plans. There is no way I can peel that kitten away from her. It would break her heart... and mine.”

“OK, so you have a cat.”

“Unfortunately, our landlord found out about her. It looks like the Spieler clan will be moving. We’ve got a month to get out. We’ll move in with my dad until we find a place. Orange County has gotten so much more expensive since we moved in. We’ll probably have to settle for Anaheim, or maybe Santa Ana. I don’t think we can afford Yorba Linda anymore.”

“Hold on. You said your husband does maintenance for the city?”

“Yeah, but what does that have to do with anything?”

“Can he do basic plumbing and small repairs around the house?”

“He can, but I usually do those around our condo myself. What’s your point?”

“You know I’m down at the Riverbend Villages, right?”

“Yeah.”

“What I didn’t tell you is I own two other units in the complex, and a house in Fullerton. I rent the others out, and with me leaving for New York, I am going to need someone to help manage the rentals. The three-bedroom place in Riverbend just closed escrow. If you are willing to help clean it, paint and such... and you help manage the other properties while I’m on the East Coast, I’ll give you a good deal on the rent.”

“It would be good not to have to move the kids to a new school, but I’ll have to talk it over with Cooper.”

“It’s not a lot of work most of the time. Generally, it’ll just be getting the rent checks and dropping them off at the bank for me. Every once in a while, you might get a call from a tenant for a repair. If it’s small and you guys can handle it, that’s great, and if it’s a big job, then hire someone to do it, and send me the bill.”

“I still have to get Coop’s OK, but it sounds great to me.” Martie looked at him and a smile crept over her lips. “Four properties? Four properties and you drive a piece of shit Toyota?”

“What can I say? I can’t afford more than a piece of shit with four mortgages.”

Martie laughed and wagged her head back and forth.

“You son-of-a-bitch. I know I said five miles, but this might be our last chance to see the view. Are you OK with heading up to the ridgeline?”

“Where you lead, I will follow.”

“It might be your last chance to see the ocean. I hear they don’t have oceans in New York.”

“I do know I’ll miss the views.”

Martie slugged him lightly on the shoulder and ran through the tunnel towards the switchbacks. Jack hesitated for a few seconds to watch her. He would certainly miss the views. Then he wiped his eyes and sprinted after her.

Part 3:

3.1 May 2002

Yuliya

It was less than a month until the end of their senior year when Yuliya returned to her homeland in Eastern Russia. She would miss the graduation from Linus Pauling High with Lucas and George that she had planned. Her father was killed in a special military operation somewhere in Chechnya, or at least that was what she was told. His team was often somewhere other than their official location.

After losing her mother when she was seven, she had no family left in Russia. As her plane touched down in Vladivostok, she clutched the small stuffed bear her father sent her the month before for her 18th birthday. She was technically an adult, but she didn't know what she would do next. Her father would get a military burial, but what would she do? Could she finish school? Could she get into the university? How would she even survive?

A light rain was falling as she stumbled her way down from the airplane. A young man, about 30 years-old, was standing at the base of the rolling staircase. He was in a dress military uniform with several medals and ribbons pinned across the chest. When he spotted Yuliya, he held a small torn photograph. He looked from the photo to Yuliya then snapped to attention. He focused directly into her eyes and brought his right hand up in a crisp salute. In his left hand, he held a small case that looked like it could hold jewelry or some other precious item. When she stopped in front of him, he swung the right hand back to his side.

“Yuliya?”

“Yes?”

“I am Yuri. I was under your father’s command.”

“I think I remember you from last time I visit base, before I go to America.”

Yuliya burst into tears and buried her face in the stuffed bear. Yuri opened the small case. There was a silver medal displayed there. The image of a knight on horseback slaying a dragon was in high relief. It was hung on an orange ribbon, black stripes lined either side.

“The Order of St. George. A great honor for a great man. It was my honor to serve with him. It will be my honor to protect and to serve you in his absence.”

“Wha... what happened to him? No one will tell me anything.”

“The details are not important, but your father was a hero. He saved over 20 men with his actions on that last day. He saved my life then, and many times before. He was a very brave man.”

Yuliya said nothing. She only cried louder.

“I was with him when he passed. I promised him I will take care of you. I am here for you now and always. I owe him my life. I give you my pledge. You will be like my own daughter to me.”

She sniffled, tried to stop her tears, then began wailing uncontrollably. She pulled the bear to her chest and slumped

against Yuri. He enveloped her in his arms and gently patted her back.

Lucas

Ms. Spieler was seated at a table in the front of the classroom when Lucas wheeled in his cart. She motioned him to the seat across from her. He rolled over to the electrical outlet near the door and plugged in his cart before returning and sitting in the chair across from his teacher. With the cart next to him, he spun the monitor to face Martie.

"Hello, Ms. Spieler."

"This is our last counseling session before graduation. How is everything going?"

"It is very good. I want to thank you again for everything. No one paid attention to me before you."

"I want to thank you, Lucas, for inspiring me to be a better teacher." Martie wiped her right eye before continuing. "So, are you ready for college? UCSD, right?"

"Yes. I am sad for Yuliya, but since she had to return to Russia, she gave me her share of the science fair scholarship. George never wanted his share. UC San Diego will be almost all paid for. I never thought that could happen."

"UCSD is a very good school. It has some great science and math programs, and a medical school right next door."

"I cannot even imagine med school. I will be happy to get to go to college at all. I never thought it would be possible. You saved me."

"I'm glad I could help, but you saved yourself. I just noticed what a wicked smart young man you are. Do you know what you want to major in?"

"I am not sure. I love math, but the science project showed me biology is fun too, and computers make it all easier. Can I major in everything?"

Martie chuckled. She'd wanted to major in 'everything' herself at his age.

"You don't have to decide right away. They have several little colleges in UCSD. You are in Revelle, right? I saw they make you take courses from multiple disciplines. You can take a year or so and pick what seems best for you after you 'sample' what they have to offer."

"That was why I picked Revelle. I want the chance to learn everything!"

"I know you will be successful. You just have to be careful when you are learning 'everything' you still learn one thing very well. Is there anything I can help you with?"

"You've done so much for me already, but I do need some more help. Since I am 18 now, when I graduate from high school, I will need to leave the foster care home. I will have a dorm room when I

start college, but I don't know where I will go for the summer months. I have some money left from the science fair prize, but I don't know how to find a room."

"I am sure I can help you find a place, but that might not even be necessary. I have a friend who is out of town for the next few months on business. I am helping to take care of his property. It's in the same condo complex where I live. I bet he would appreciate someone house-sitting there for the summer, as long as you take good care of the place."

"I will be very careful. I will be very clean."

"Well, let me double-check, but I am pretty sure he will agree."

Lucas' dark eyes welled with liquid and a huge smile lit his entire face. They spent another 15 minutes going over his current classes and how he was doing in each of them. Martie suggested a few books he might want to read over the summer, several of the math related ones were already in Jack's condo. As they were wrapping up, Martie looked at her watch. They were a few minutes past the hour.

"It looks like George is late for his session... again." she said quietly.

"No. He is on time. I will return in thirty minutes to get my cart."

Lucas pecked away at this keyboard and toed the pedals on the floor. George's face appeared on the monitor. Lucas rose from the chair and shuffled from the classroom.

George

"Good afternoon, Ms. Spieler." George's voice came from the small speaker below the monitor.

"Really, George? You couldn't make it in person to our last session?"

"You know I do better remotely, Ms. S. I wish I could do all of my schoolwork from the computer."

"Well, you certainly are expert enough to do it, but everyone has to talk to real people sometimes."

"I'm talking to you right now."

"I mean in person. Face to face."

"I see your face. You see my face. It's just better on screen."

"OK, but you'll have to attend classes in college." She flipped through some notes on the table. "You're heading to CalTech, right?"

"Yup. My dad wanted me to go to Harvard, but it's too damn cold in Massachusetts. Too snobby too."

"So, I'm guessing you're focusing on Computer Science?"

"Yeah. That's my passion, but my dad's still making me take some business courses. He wants me to work in the

family corporation. I already started my own business, but he thinks I need more ‘book learning’ about it.”

“Your own business?”

“Yeah. I used the servers I put together for our science project. I’m making a place where anyone can come and talk and plan and get to know people and find out what they’re up to without ever having to see them ‘face-to-face’ as you call it.”

“Well, it doesn’t sound like something I’d want, but there might be some folks who would like that, I suppose.”

“I’ve got over 500 members on my BaileyBoards already. Mostly it’s just high school kids now, but I’m going to branch out to college students when I get to CalTech. I’ve got some ideas on how to sell ads so I don’t have to charge people to join.”

“Ok. If anyone can make it work, it sounds like you can. Is there anything else I can help you with?”

“Well, there is something I am hoping you can do.”

“What’s that?”

“You may not realize it, but I do like our sessions. You helped me a lot over the last few years. I don’t think I ever could have got on the plane to D.C. without you. I am wondering if we can talk sometimes, when I’m away at college?”

Martha was shocked. George was the last one who ever signed up for sessions and only came when she practically twisted his arm. He never looked her in the eyes when they talked, and he did his

best to change them to phone calls if he could. She eventually got him to talk about things, but she was surprised to hear he valued their conversations.

“Sure. We can schedule a time for a phone call, or even meet in person. You’re only going to be 20 or 30 miles away.”

“I was thinking I could make a private BaileyBoard for the two of us and we could chat online from time to time.”

“I don’t even have a computer at home, but maybe I can use one of the ones in the computer lab after school sometimes.”

“I can give you a computer.”

“I can’t accept a gift like that from a student.”

“We’ll call it a loan. Besides, I won’t be a student in another month, and I can make you an unofficial BaileyBoard consultant. My dad says I can write it off as a business expense.”

“It sounds like you have some businessman savvy already. We’ll see.”

Troy

Troy was in his own last academic counseling session of the year. Since he had focused on athletics, his assigned counselor was Coach Perkins from the football team.

“Come on, coach. What am I gonna do?” Troy complained. “You know I belong at ‘S.C. I need to get into a top school if I’m gonna make it to the NFL.”

“I warned you about this since sophomore year. You need to keep your grades up if you want to get into a top school. USC can afford to be picky, and we didn’t get much attention from the scouts at Linus Pauling.”

“I heard Franklin from Santa Ana got into SC, and he don’t have much better grades than I got.”

“Yeah, but they won the conference championship, and he threw for three touchdowns and ran for another in that game. Schools are more forgiving of grades when you win.”

“We came in second in the league, and I did it with a bunch of nerds on my team. Franklin had a real offensive line. I took the basketball team to the finals too. It’s not fair.”

“I don’t know what to tell you. Did you apply anywhere besides SC?”

“Alabama, Clemson, Georgia, Penn State, Ohio State... I applied to the whole Big Ten. I was on the alternate list on a couple, but now they say I didn’t make the cut. What do I do, coach?”

“This late in the year, it’s just about impossible to get into any four-year college. The admissions are all complete, but there is something you might be able to do.”

“What?”

“You play at a community college and get your grades up for a year or two, then apply to a top school if you can keep those grades higher and maybe win some big games at the two-year program.”

“A J.C.? Are you kidding me? There’s gotta be another way?”

“Don’t dismiss the community colleges. Some of them have pretty good football programs. Terrel Owens started at a community college. He’s one of the top receivers in the NFL.”

“Terrel Owens? Really?” Troy looked thoughtful, something he was not accustomed to. “Which of those J.C.’s around here got decent football teams?”

3.2 June 2002

Jack

Jack twisted the small key to open the mailbox in the lobby of the apartment building. He immediately recognized the elegant fluid handwriting. He slipped his finger below the flap and tenderly lifted the length of the envelope. The letter inside showed the same beautiful penmanship. Honking and swearing and sirens floated in from the Manhattan street outside, but it didn't register with him. With his eyes focused on the paper in his hand, he almost collided with the woman from 5C who was exiting the elevator. He mumbled his apologies as he entered and pushed the button for the 15th floor. He continued to read as the elevator climbed.

Hey Jack,

Thanks again for letting Lucas stay at your place until he goes off to school. I'll make sure he doesn't trash the place. He really is a good kid and I am sure he will take good care of it. Thank you again for giving us such a good deal on the rent in our place. It really helped us out when we needed it. Cara and Pixel thank you the most. The little kitten is getting bigger and fatter every day. She sleeps on Cara's chest every night. It is just adorable the way she massages her with her paws, but you probably don't want to hear that. What else is there to tell you about?

You remember those three kids who made it to the National Science Fair I talked so much about? Lucas, the one who is house sitting for you, has taken the scholarship winnings and should get almost a free ride to UC San Diego. For a kid who everyone thought was mentally deficient, he is

really going places. I can't wait to see what will happen with him.

George will be studying computers and business at CalTech in the fall. The kid is so shy I was worried about him, but talking with him lately, I have a feeling we'll all be working for him before long. He is wicked smart, and with the business background of his family, he's going to go places too.

The elevator chimed and the door slid open. Jack pulled his key from his pocket and opened the door of his apartment. It was small, but the rent on this one bedroom in Manhattan was more than any one of his mortgages in California. They charged him extra for 'the view'. Looking through his kitchenette window, between two other buildings, if he leaned just right, he could see, through the gap, the Empire State Building. He tossed his keys on the counter and returned to the letter.

I finally heard from Yuliya too. She was the Russian exchange student. She's still in mourning for her dad, but luckily she has an uncle, Yuri something, who is helping her. She told me she snuck some samples of the science fair solutions home with her in plastic soda bottles and she's growing them in her apartment kitchen! She's going to be going to some university (FEFU?) near her home in eastern Russia, studying biology. Apparently, it's very prestigious. She won't be starting until the spring, but it looks like all of my little misfit toys are making their way in the world, at least for now.

The Spieler clan are all doing well too. We've settled into the condo and have most things put away (if you don't count those unpacked boxes in the garage). Did I mention

how much we appreciate the deal on the rent? The other tenants have been great. We had a leaky sink in the studio unit's kitchen, but it only needed a new washer in the faucet and it's fine now. I put this month's rent checks in the night deposit box. You should have them in your account by now. Let me know if there's any problems.

I've been running, but it's not the same without you dragging your ass along behind me :-). I don't feel right doing the ridge run by myself. I've been sticking to the bike path. Short runs. Not often enough. I'm afraid to step on the scale.

Enough about me. How are you? How is New York? How is the project coming? Do you know how long they're going to make you stay there? Have you been running at all? Are you making any new friends? Or do you sit in at night and calculate pi to another hundred decimal places?

I do miss running with you and I do miss you. Keep in touch.

Martha

P.S. That kid, George, set up an email account for me. If you have email, you can send it to me at TeacherLady@baileyboards.org. He also has something where we could chat online, but I don't fully understand how it works. Maybe later. Anyway, take care.

Jack never did tell Martha he was the one who had requested the transfer to the New York office. He felt temptations were too high when he saw her on a regular basis. He needed space and separation to try to move on. He also realized asking them to move into one of his condos was irrational if he really wanted to move

on. Now, three thousand miles away, he had the distance he thought he was looking for. Temptation was still high, maybe higher than ever, but opportunity was non-existent. He carefully folded the letter and put it back into the envelope, then slipped it into the shoe box in the drawer behind the others she'd written him.

3.3 October 2002

Rebecca

Rebecca was never popular in high school despite her natural good looks. She kept them well hidden. She hit puberty early and sprouted several inches in the 5th grade. She endured relentless teasing about being the tallest one in the class. When she entered middle school, she still towered over most of her classmates. She played video games before, but it was middle school when she immersed herself in how they were made. In her free time, she began to study computer and gaming code.

By the time she reached high school, a few of the boys caught up to her in height, but she was far and away the tallest girl, and probably the skinniest. She continued to suffer muted and not so muted mocking and ridicule for her beanpole physique. She had only a few friends from the computer and math clubs, shunning the popularity politics of the campus. She dedicated herself to academics and took several honors and AP courses.

As she started her senior year, she spent less and less time with the few friends she did have and more time at home on her computer. She stopped going to the club events and started learning how to work her way behind corporate firewalls. She didn't hack into the networks to do damage, or even to steal information. She did it to see if she could, and most of the time, she could. She became fascinated with the puzzles of security protocols and how to work around them.

She was thrilled when she was accepted to CalTech and vowed to focus on learning everything she could, especially in computer science and security systems. She had never been fashion

conscious, and she now switched to a wardrobe almost exclusively of oversized black T-Shirts with black jeans or sweats, faux leather jackets and occasionally her favorite oversized orange turtleneck sweater. Her long black hair had swept midway down her back since middle school, but now she cropped it raggedly right below her ears. She ditched her uncomfortable contact lenses for thick black frames.

For the first two years at the university, Rebecca did not attend a party or a dance. She tended to eat alone in a corner of the cafeteria or just scarf down a burrito in front of her laptop in the computer lab. She avoided interactions with the other students except in classes, and maybe anonymously online. She joined the computer club on campus but realized she was already advanced beyond the other students... and the faculty advisors. She moved on to several underground internet sites and learned from them how to improve her skills at avoiding online security.

As her skills improved, one of her favorite weekend pastimes was to see if she could hack her way into company sites without leaving any trace. For extra fun, she'd penetrate the sites put together by the hacker circles themselves. She was usually disappointed at how little security these supposed computer experts put on their own sites and discussion boards. How difficult it was to breach was one of her main criteria for whether or not a group was worth her time. If she could bypass their security within a day, they were not sophisticated enough for her. She cleared most of them within hours. Occasionally she found a site that took three days or more; that might indicate some members who were worth talking to.

These days, as she started her third year at CalTech, there was only one site she interacted with on a regular basis. Early last summer, she'd 'joined' the PenLites. It had taken Rebecca a full week to

bypass the first layer of security on the group's site. Infiltrating this layer was the 'PENetration LITmus' test that gave it their name. Once through the first layer, she was presented with an online interview and a set of rules to agree to before she could join. She was amused as it scrolled across the screen in a dot matrix font reminiscent of a 1970's computer terminal.

"Welcome to the PenLites admission review. Enter the name you would like to be called here."

Rebecca thought for a few minutes before entering "kiesler"

"Greetings, kiesler. How are you feeling today?"

Not 70's, early 1980's. "I'm fine. How are you?"

"Excellent. It's been a long time. Can you explain the removal of your account number on 6/23/73?"

Rebecca knew this script. "People sometimes make mistak"

"Yes, they do. Shall we play a game?"

"Love to. How about Global Thermonuclear War?"

"Maybe later, kiesler, but first you need to agree to the rules of PenLites."

The system was no longer mimicking War Games. The font changed as well as the messaging.

“The first rule of PenLites is: ‘You do not talk about PenLites.’ Do you agree?”

“So, now it’s Fight Club? LOL”

“Do you agree?”

“Sure. Yes, I agree.”

“The second rule of PenLites is: ‘You DO NOT talk about PenLites.’ Do you agree?”

“Yes”

“Oath of the PenLites:

I swear to fulfill, to the best of my ability and judgment, this covenant:

- 1. I will respect the autonomy, anonymity and dignity of my PenLite comrades, and I will always act to protect their confidentiality.*
- 2. The number one goal of PenLite actions is to NOT be detected in our actions. I will do everything in my power to avoid personal or PenLite group detection.*
- 3. I will always avoid leaving evidence of PenLite explorations, ideally by not creating evidence and/or by removing any evidence after activities.*
- 4. I will safeguard the privacy and confidentiality of my PenLite comrades’ identities, tools, code and other data.*
- 5. I will use my skills with competence, integrity, and compassion, striving to do no harm to innocent individuals.*
- 6. When I identify those who would use their power or wealth to damage the weak and powerless, I will do my*

best to bring their actions to light, and as appropriate, punish them or obstruct their actions.

- 7. I will continue to challenge myself to increase my skills and knowledge and to look for areas where my knowledge and actions can be improved.*
- 8. While I may strive for personal enrichment, I will work to increase the well-being of society as a whole as well.*
- 9. I will uphold the principles of equality even under pressure, and I will not allow financial, legal or other considerations to interfere with my commitment to using my skills, tools and talents in a manner keeping with the PenLites oath.*

I make this solemn oath freely and upon my honor, with a deep sense of responsibility, and with the utmost respect for the sacred trust the PenLites place in me. I will be faithful to this oath as long as I may live.

If you accept this oath. Enter your PenLites name, and be forever bound.”

“kiesler”

“*Welcome, kiesler*” and the screen went black and then transferred to an online chat board. There was a message addressed to kiesler. It explained how to access the second layer of security where the other PenLite repositories were located. These included various shared tools and data sets the different members of the boards had created, found, modified, etc. It also explained how to make information available to all PenLites versus ‘private’ data. Rebecca was not naive enough to believe anything on this board would be truly private to anyone with the skills to get on to the board.

After reading the initial message, she created her own ‘public’ and ‘private’ repositories. There did not appear to be anyone currently active on the board when she entered, so she typed a brief welcome message to the entire group, uploaded a few of her simpler tools, and then perused the other members’ public spaces. The PenLites were not overly forthcoming with information, but she did find some interesting tools and data that had been downloaded from various sites with unique customizations.

Over time, she learned when she could expect live interaction with the other members and started to understand some of their personalities. She discovered, including herself, there were a total of only six people who had ever hacked their way through the PenLites admission process. The founder of the group went by the id, ‘geek’. He did not share any real data, but did share several tools and backdoors into numerous corporate, academic and government systems.

The handles of the four others were: ‘rabbit’, ‘zero’, ‘snow-cache’ and ‘spine’.

Spine seemed to be mostly interested in finding information on hypocritical politicians and other public figures. Their embarrassments somehow found their way to various news organizations.

Zero had links into most of the major banks, insurance and brokerage firms. They were diverting funds to several charitable organizations, especially those providing scholarships to underprivileged students. Rebecca couldn’t prove anything, but she suspected zero was enriching herself as well.

Rabbit liked to crack into corporate systems for companies ‘unethical’ by rabbit’s standards: polluters, oil companies, tobacco companies and the like. Many of them found unexplained glitches

and their systems slowed down. Sometimes embarrassing internal information made its way into the public eye.

Snow-cache didn't seem to be very active. They would appear and take advantage of the tools and data others provided but added very little of their own expertise. They seemed to be interested in gambling sites and manipulating point spreads. They were one of the long time members, but also seemed to have a lower skill set than the others. Rebecca wondered if the penetration litmus test had been simpler when snow-cache qualified.

Geek was the original PenLite and self-proclaimed leader. He created the site and implemented the security for it himself. Officially, no one else had ever made it further than the second layer of security. Kiesler took another month to crack through to the third level. The hardest part was to avoid setting off various booby traps in the code that would alert geek to her presence as she wormed her way behind each subsequent boundary.

She'd identified at least four more major security barriers beyond the first three. She poked holes through each of those walls but was unable to do more than gain glances before each wormhole she created was plugged behind her. Beyond the second wall, it was like navigating an ever-changing labyrinth where passageways would close behind you and walls would appear or disappear or move without notice. It utilized a revolving system which was the equivalent of frequency hopping, changing from one blocking process to another to another on a seemingly random pattern. She was frustrated and obsessed with cracking through those next four layers. She hadn't had this much fun in years.

George

George's dad bought him a bungalow just a few blocks from the CalTech campus when he insisted he could not live in a dormitory. He was a little disappointed his son had not tried for Harvard, but had to admit CalTech was a better school for the technical areas George was passionate about. He was also excited he'd registered for several business courses. His dad didn't believe there was much potential in the "BaileyBoards" company, but it would give him some business practice until he was ready to enter the family corporation. He even sent some of the company's plans over to George to let him familiarize himself with some of their strategies and tactics.

The BaileyBoards servers were still in the converted stable in Orange County. George hired a student from the state college to take care of any hardware fixes that needed 'hands on' effort. He returned home most weekends to double-check his work, but with the high speed ethernet connection to the bungalow, George was able to maintain the 'Boards and still attend classes at the Pasadena campus.

Of course, he only showed up at those classes when he absolutely had to. He was able to test out of all of his lower division computer and math courses. He received credit for his AP courses from LP Hi. He started his first year at CalTech with enough units to be more than halfway through sophomore standing. He was still working through the basic business courses, but was taking all upper-division for his computer science classes.

Before registering, he read through the student comments on various professors and tried to take classes where the content was all in the textbooks so he wouldn't have to attend in person very often. For others, he hacked into the registration system to get the

contact information of his classmates. He found people in almost every class who were willing, for a small payment, to record the in-person sessions with video recorders he supplied. When he was forced to attend for tests and such, he'd sit as far to the rear of the class as he could. More than one professor asked him to remove his sunglasses, but he claimed to have a medical condition that required the dark lenses. If pushed, he could produce a professional looking diagnosis on a well-known hospital letterhead.

Rebecca

“Come join the Bailey Boards at TheBaileyBoards.com. As a member of the CalTech Computer Science Community, you are one of the few with this early exclusive invitation to join the ‘Boards. Connect with your friends. Find out what is happening in your school and your community. [Click here to register.](#)”

Rebecca almost laughed out loud at the ridiculous email invitation. She was already connected to the few ‘friends’ she really respected, even if she didn’t know who they were in the real world. She didn’t need a bunch more imaginary friends on some internet circle jerk. She was ready to dump it into the recycle bin when she thought better of it. It might be fun to do some hacking and cracking into this online aggregation of social cliques. She didn’t register, but she saved the email. She needed to spend a few days getting ready for the database design exam, but she’d find an hour or two later to work her way into TheBaileyBoards servers.

George

The Bailey Boards were proving more popular than George had dreamed. He'd had to drive home for the last three weekends running to connect servers, network routers and disk storage space. From a few emails to various university students, it had spread across nearly every college campus in California, and others across the country. He was currently only inviting folks with educational ".edu" email addresses, but was already over 50,000 users. He thought his father would be especially interested when he started seeing the first few registrations with the "@harvard.edu" domain. He may not have gone to Harvard, but it looked like they were coming to him.

Between schoolwork, the 'Boards, and his independent computer coding adventures, he had no time for, or any interest in, social events. He spent most of his time in front of a screen in the master suite that had been converted into his headquarters. He slept in the small third bedroom on a single mattress on the floor. In the old living room, he'd built his own personal gym with various weightlifting machines, a Stairmaster, a treadmill and a spin cycle. There was an imitation rock-climbing wall in the backyard of the bungalow.

Ever since the beating he took in the locker room, he'd decided he needed to be strong physically as well as mentally. At least 3 times a week, he'd spend an hour or four in his exercise room or on the climbing wall or practicing in front of various martial arts videos. On other days, he'd run or walk several miles between midnight and dawn. He was still very thin, but he'd sprouted several inches in the last few years of high school and now topped six feet. He was not bulky, but his muscles stretched across the bones of his arms and legs like steel cables. He vowed if someone came at him again, he'd be able to fight back, or at least be able to escape.

Rebecca

Rebecca was rechecking her answers on the second section of the advanced database design exam before she was going to move on to the coding exercise. She wouldn't need more than a half hour to finish that off, but the grad student who led their group was a stickler for the written answers. She not only wanted the correct answers, she wanted correct grammar and spelling and syntax, and for full credit, a nice narrative of how you determined each of your answers. As far as Rebecca was concerned, this was overkill for a glorified coding course, but she wanted to maintain her position at the top of her class, so she'd give Jan Bradford all the tiny details she wanted. Jan was a TA, but she was one of the few faculty members who really knew their shit.

She was reworking some awkward sentences, when a tall skinny kid stood up somewhere behind her and walked towards the Teaching Assistant at the front of the class. She didn't remember seeing him in the class before. He wasn't a bad looking kid, but he was young. His face was mostly obscured by the dark glasses and the hoody, but from what she could see, he couldn't be more than 18.

What was a punk like him even doing in DB405? Running up to the teacher for help? Well, he doesn't know better, but Jan is not going to help anyone during an exam. Rebecca had her as a TA for her CS330 course last semester. She was very helpful during class and office hours, but come exam time, she expected you to perform on your own. Well, the tall skinny kid would find out soon enough. It was early enough in the semester he could still drop the course and try again later. The lean young man kept his eyes on the floor as dropped his test paper in front of Jan.

“Can I help you with something?”

“All done, Ma’am.”

“Really? Ma’am?”

Jan smiled at the young man, but he just nodded his head, mumbled a “yup”, turned and walked through the side door. Jan laughed, picked up the paper and began reading it over. Rebecca shook her own head in disbelief at the kid’s arrogance and started on the coding exercise. He’d learn.

3.4 October 2002

George

Martha was finally getting used to the online chat application George had given her.

TeacherLady: "Hello"

BoredMaster: "Hey, Ms. S. How are you doing?"

TeacherLady: "I'm good, George. How are things going at CalTech? Are you keeping up with your schoolwork?"

BoredMaster: "Knocking it out of the park on the computer stuff. Surviving the business and general ed courses"

TeacherLady: "And how's your social life? Last time we talked you were going to try to make some friends with the other students."

BoredMaster: "I've got more than 200 friends from CalTech on the 'boards, and another 500+ around the country. I talk with them all the time"

TeacherLady: "And how many of those have you actually met in person?"

BoredMaster: "Well, I still chat with Lucas. He's doing great down in San Diego"

TeacherLady: "That's great, but you said you want to get better at talking to people in person. How can you do that when you only talk online?"

BoredMaster: "I know, but I freak out when people look at me"

TeacherLady: “You’re a fine looking young man. Why does it bother you when people look at you?”

BoredMaster: “I don’t know. I just feel all squirrely, like my insides are trying to break through my belly button. Do you have any idea how to stop that?”

TeacherLady: “Maybe you should talk to someone with more experience. Maybe a psychologist or something.”

BoredMaster: “Nope. Not gonna happen. You got any other ideas?”

TeacherLady: “Well, I’ve done some reading on this kind of stuff. If you don’t want to talk to someone about what might be causing this, you could go straight to conditioning the behaviors themselves.”

BoredMaster: “What do you mean?”

TeacherLady: “It seems like you have almost a phobia about people seeing you in person.”

BoredMaster: “I don’t know if it’s a phobia, but I hate people looking me in the eyes. It’s like they are twisting away at my brain or my soul or something”

TeacherLady: “Let’s pretend it’s a phobia. One of the best ways to get over a phobia is gradual desensitization. Expose yourself a little at a time to whatever bothers you, then increase it over time until you can deal with it.”

BoredMaster: “Maybe”

TeacherLady: “Look, at least once before we talk again, I want you to find one person, and let them look in your eyes for one

minute... No. On second thought, not even a minute. For 10 seconds. If it freaks you out too much, try for 5 seconds. Whenever you succeed, try to slowly increase the time and frequency of when you let someone see you.”

BoredMaster: “I’ll think about it”

Rebecca

Rebecca looked at the exam results posted outside Jan’s cubby hole office. She couldn’t believe it. Not only did she not get the highest grade, the top grade was high enough to throw off the curve. Even with the second highest score, she was almost reduced to an A minus. She hadn’t gotten an A- since Spanish class sophomore year of high school. The list didn’t have names attached, but it did have student ID’s. She jotted down the ID off the top of the list. She could hack the registrar later, but she already had an uneasy, almost queasy, feeling of who that ID would belong to.

George

George ignored the knock on the door the first three times. Then he ignored the five times the doorbell chimed throughout the bungalow. The fourth set of knocks were more pounding than knocking. The drapes were pulled across all of the windows, but he was careful as he tiptoed to the front door to make sure he would not be seen through any crack in the covering. He was not expecting visitors, or deliveries. He peeked through the peephole and his head knocked against the door as it vibrated from another round of pounding.

“I know you are in there, George Bailey! Open this door!”

The young woman at the door looked vaguely familiar, but George couldn't quite place her. She stared directly at the peephole and George was transfixed. Her shoulder length hair was as black and glossy as a raven's wing, but the jagged hairline made it look like it had been cut with nail scissors, or maybe a weed whacker. She was almost as tall as George, but even thinner. She was draped in an oversized men's T-Shirt. It was black with a picture of a dozen red roses and a single blood-spattered white rose. He recognized the cover art from Concrete Blonde's Bloodletting album. One of his favorites.

He was drawn to her face. It was almost perfectly symmetrical. Her eyes were a dark dark blue, bordering on black, behind oversized glasses. Her eyebrows were not plucked or trimmed but arched above the glasses frames like adorable little caterpillars. She didn't appear to be wearing lipstick, but her lips were only a shade lighter than the blood red drops on the T-Shirt. Her nose? Her nose was just perfect. Not too big. Not too small. It fit her face. George's eye was still tight against the peep hole when the thumping started again. He rubbed the small bump above his right eye where the door rattled against it, lifted his sunglasses to his face and slowly pulled the door open a crack. He looked down at her black jeans and her black work boots. The boots had steel toes and splatters of lime green paint across the uppers.

“What do you want?”

“I knew it would be you!”

“What?”

“So how did you get the test ahead of time? And who helped you with the answers?”

“What are you talking about?”

“I looked you up. I know your dad is rich. Who did you pay off to get the exam? I am pretty sure it wasn’t Jan Bradford. She’s a hard ass, and she doesn’t cheat.”

She turned around and let out a frustrated scream. George recognized the jagged haircut at the back of the head of the girl in the third row of DB405.

“You mean the database design exam? Why would I cheat? I’ve been designing more complicated databases since I was a freshman in high school.”

“Bullshit!”

“You want to see? Come on in. I’ll show you.”

He could not believe he had invited this girl into his sanctuary. Her eyes tracked around and across the sparse living room as she moved cautiously through the doorway. One old sofa with milk crate end tables. A stereo system in the corner with four 3-foot-tall speakers, one in each corner of the room. No T.V. For a college student, it was remarkably clean. No old pizza boxes. No empty beer cans. He still would not meet her eyes, but as she passed, he was captivated by the curve of her neck below the uneven hairline and let the sunglasses drop to the bridge of his nose. She spun quickly and briefly caught George’s eye before he pushed the glasses up into position.

“Come on. This way.”

She followed him into the master suite and, for the first time, realized she might be wrong about this young man. There were four laptops on a table on the east wall. Three server sized towers were under the table. All of them seemed to be connected to a

switching center that could display any or all of them on a set of seven large flat screen monitors. Any one of those screens probably cost more than her car.

Her eyes were drawn to the two halves of a large geode at the base of the largest monitor. It was the size of a cantaloupe, and almost the same shape. She lifted the larger of the two halves and ran her fingers across the deep orange crystals clustered within. Rebecca raised her eyes as George took the stone from her hand and set it carefully on its custom base.

He sat down at a keyboard and flipped a dial. His fingers flew across the keys and a diagram appeared on the largest of the high-definition screens. There were tens, if not hundreds of labeled rectangles linked by a thousand interconnecting lines.

“This isn’t my best work, but it’s handy. This is the central DB design for the BaileyBoards site. It doesn’t have all the ancillary tables, but you get the idea.”

“Wait? Bailey Boards? Are you that Bailey?”

“Yeah. TheBaileyBoards.com is my site. I started it in high school, but it’s really taking off with the college crowd.”

Rebecca found herself at the large screen. She tracked connections and relationships with her finger across the display. As she reached the far-right side of the screen, George clicked the mouse and the diagram shifted to let her see the next set of tables and links. Her mouth fell open and she got even closer to the screen.

“Can I see the code?”

“OK, but you can’t tell anyone my secrets, or I’ll have to kill you.”

They both laughed, and George clicked a few more times and another of the large monitors came to life with a full page of SQL code. Rebecca ran her finger down the screen, and he scrolled along in time. She asked a few questions and even made a few suggestions for minor improvements in his code. After about 20 minutes, she stopped and looked over at George.

“I don’t do this. It is very hard for me.” Rebecca stammered.

“What?”

“Just hold on.” Rebecca coughed and took a deep breath. “I am sorry. I was wrong. I believe you did that exam yourself. Thanks for showing me your stuff. It’s good. It’s really good.”

“Thank you. I understand how hard that was to admit... Can I ask **you** a favor?”

“What?”

“Someone challenged me to do something very hard for me and I need someone’s help.”

“As long as it’s not something weird.”

“It is a little weird, but it’s not kinky or anything.”

“Too bad. What is it?”

“I’d like you to look me in the eye for 10 seconds.”

“What the fu..?”

“No really.” Even with the sunglasses, he was still looking at her boots. “I’ve got a weird... phobia.” He had a hard

time saying the word "...or something. It's hard for me, but I'm trying to..."

"OK. Sorry. How do we do this?"

"Just look at me, and I'll look at you, if I can. Start counting out loud slowly to 10 when I look you in the eyes."

Rebecca pulled off her glasses and focused on the point right above George's downturned eyes. He removed his own dark glasses and raised his gaze. Those blue-black eyes drilled into him. He felt his guts twist and turn. He felt an electrical shock vibrate from his pupils, splash across his retina then race down the optical nerves deep into his brain. His entire brain lit up. The deepest depths of the ocean lit with a thousand bioluminescent organisms. The sparkle at the corner in the blue of her eyes.

"...8, 9, 10, 11. OH SHIT! Are you OK?"

George looked away as his entire body spasmed for a few seconds. His eyes rotated away from her face and looked at her green spattered boots. He staggered and leaned his left hand against the sofa. He wavered twice but finally got control enough to catch himself before he fell. He saw the sunglasses in his right hand and slid them back into place.

"Are you OK? Should I call someone?"

"No. No. No, I'm OK."

"Your nose is bleeding!"

"Oh, It does that sometimes. Old football injury."

He pinched the bridge of his nose and leaned his head back.

“Anyway, thanks for your help. I really appreciate it. How long did I make it?”

“I got 11 seconds before you flipped. Are you sure you’re OK?”

“Yeah. I’m crazy as a loon, but I’m fine. Physically. Thanks again.”

“Uuhhh? ... Any? ... time?” She replied.

3.5 October 2002

Rebecca

When she got home that evening, Rebecca decided it was time to hack into the Bailey Boards. She opened the invitation email and reviewed it. Based on the embedded code in the link, George could identify who was sent each email if she used it as is. She didn't want to be tracked so she hacked into the registrar system of another Southern California university to create herself a fake student id and email address, since the 'boards still preferred emails ending in '.edu' for students. She initiated her virtual private network (VPN), then hopped her connection through servers across a few different server farms with a couple more VPNs before the final connection to TheBaileyBoards through a hacked personal computer in a dorm room at that other So Cal University.

Having gained access through the front door, she began looking for ways into the code behind the system. Some of the first level hacks were pretty easy. She found a simple JavaScript insertion that, once she ran it, made her fake ID a moderator of the boards. With moderator access, she could look at any of the normal user postings on the board, whether or not they were set as public or just meant for particular friends. She spent an hour reviewing some of the private posts of a few of her CalTech schoolmates and confirmed her view that none of them were worth her time, online or in person.

She looked for the one person she really respected at CalTech, but Jan Bradford had not registered at all. That confirmed Rebecca's high opinion of the grad student. George Bailey had no private posts, and all his public posts seemed artificial and contrived,

designed to demonstrate features of the site more than to say anything about himself. She wasn't sure yet about the kid. There might be something there.

The next level of security was more difficult. It took her the rest of the weekend, spending 6-8 hours a day and she barely made it past the front-end JavaScript. She kept running into brick wall after brick wall with her standard front end hacking techniques. She tried SQL Injection and Cross Site Scripting. There was a recent Zero Day vulnerability reported only 2 days before for Linux systems. She tried to exploit it, but the vulnerability was already plugged in the Bailey Boards. It looked like it had been plugged before it was even reported.

It was 3 o'clock Monday morning when she decided her 'moderator' permissions were not going to be helpful for anything but eavesdropping on random board users. She was ready to head to bed when she thought about the time with George in his bungalow. She closed her eyes and visualized the code on his huge monitor. She imagined her finger running down the screen as it scrolled up. Then it flashed and she froze the image in her mind. With her eyes still closed, she walked her fingers across the tabletop she used as a desk. She passed the stapler, the Linux manual, then found the small spiral notebook. She opened it and continued her finger stroll across the surface. A small thin cylinder. She popped the top on the highlighter and quickly scribbled onto the notebook, "bb##x38915170gb5\$x28811010gb1\$".

She opened her eyes and looked down at the light-yellow characters. She picked up a pen from across the desk and rewrote the character string in black ink. Yes, that was it. Her memory wasn't perfect, but it was a damn sight better than most. The password was far from simple, but he'd left it unencrypted in his

source code config file. She didn't even have to close her eyes to remember the server addresses. Enough with trying to break down the brick walls on the front end, she had a back door, and she had a key.

George

George couldn't get the young woman out of his mind. Her face. Those eyes. Oh, man, those eyes. Even her boots with the weird green spatter patterns fascinated him. She'd been gone a good 20 minutes before he realized he still didn't know her name. He knew she was in the advanced database class. It took him less than 10 minutes to work his way into the class registration DB. There were only three women in the class: Oksana, Mei and Rebecca. Mei was probably the Asian girl who sat in the front row, so Oksana or Rebecca. Oksana sounded Eastern European. The girl in his house had a Californian accent. He was guessing she was Rebecca.

In another five minutes, he was in the school registration data. He displayed pictures of Mei and Oksana and saw neither of them had come to his house. When he opened Rebecca's file, the picture in her file was not the girl who had been to his house either. It was a picture of Velma Dinkley from the Scooby Doo gang. He liked this girl.

Rebecca

As she scrolled through the thousands of lines of code in the repository, Rebecca became more and more impressed. In her opinion, The Bailey Boards in and of itself was a rather trivial application, but the coding supporting it was first rate. She had a hard time believing George had written most of the site when he was still in high school. From some of the comments, parts of it had started even earlier.

Most self-taught programmers tend to hack their way to a solution. If they are very talented, they get to something that works, but the code is usually disorganized and often chaotic. Following the logic is like following strings of intertwined spaghetti in a never-ending pasta bowl. George's code was elegant. It was modularized in a way to allow him to reuse large parts of the application in different ways by how he called the routines. She could read it like reading a story. It made sense. It fit together. It worked. It was beautiful. George Bailey joined the very short list (with Jan Bradford) of people Rebecca found interesting on campus.

3.6 March 2003

George

George skimmed his email inbox. The one with the subject that read: “Job Opportunity” seemed to be coming from Jan Bradford, but the email address was not from the TA’s CalTech address. Pretending to be someone else was one of the easiest ways to gain access to a person’s computer. George used this technique on a frequent basis when he was hacking and cracking. He would not be so obvious, however. At minimum, he would have spoofed the Caltech email address. George almost deleted it without opening, but there was a chance it was legitimate. He opened a customized antivirus program he had extended from a commercial package. He scanned for embedded viruses and hidden scripts and other evidence of tampering. It seemed clean. He ran a second scan using another set of scripts. Once again, nothing seemed worrisome and he opened the email.

It did appear to be from Jan, but it had nothing to do with last semester’s database design course. Apparently, Ms. Bradford ran her own business managing electronic medical records for several small clinics across the country. She was looking to expand the business and go after some bigger customers. She was looking for a few people to help with re-engineering the database design and upgrading the security architecture of the system. “Blah blah blah.. only a few talented engineers... blah blah blah... a place on the ground floor of a growing industry... blah blah blah... cutting edge... blah blah blah... once in a lifetime opportunity...blah blah blah... Meet in the Computer Science Bldg Rm CS107, Tuesday 6 PM... Reply to confirm...”

It actually sounded like it could be a good business, but it just sounded so boring. Besides, he didn't need any extra income, and he was already way too busy. Between his schoolwork and the Bailey Boards, his workouts, and some of his other extracurricular activities, he didn't have time to redesign a glorified clipboard. He hit the delete key and sent the email to the bit bucket.

Rebecca

Rebecca received the same email. Her tools checked for hazardous content before it even made it to her inbox, so she was confident it did not contain any Trojan Horse or other viruses, but she did run a second process to capture the hidden list of other email addresses who had been BCC'd. There was only one other addressee.

She paid it much more attention than George had. She agreed with him medical records were not overly exciting, but it sounded like the Artificial Intelligence and some of the other techniques Jan described were potentially interesting. The scuttlebutt around school was Jan's little business was successful enough to pay for her graduate program without scholarships or loans or grants.

Rebecca did need some extra income. Her scholarship covered only 25% of tuition and she was on the hook for the rest, and for other expenses. Student loans were keeping her afloat, but it rankled her to have debt hanging over her head. She clicked "Reply", and pasted in the other bcc address, before sending to confirm she'd be there Tuesday at 6.

George

George reviewed his email inbox again. The one with the subject that read: "re: Job Opportunity" seemed to be coming from that

girl Rebecca. How did she get his email address and what was all this with the job opportunities?

It was a reply to Jan's original email. He read the reply, then he restored the original email and read them both more carefully. The original was not a blast to the entire computer science department or even all the DB405 students as he suspected. Only Rebecca and George were copied on the original email, and both should have been hidden from the other. Rebecca had the chops to find his invisible email address and the hubris to add him to her reply. He liked this girl. George clicked "Reply" to the original email, pasted Rebecca's bcc address, and confirmed he'd be there Tuesday at 6.

Jan

"George, I only asked you to come to the lecture hall so I could use the projector. You can come on up to the front with Rebecca." Jan raised her voice so it would carry all the way to the last row where he sat.

"It's OK. I'm fine where I'm at. I have a better view of the screen from here anyway."

"OK, suit yourself."

She climbed the steps and placed a sheet of paper on the desk in front of George. He turned his head away as she approached, then looked at the document as she descended the stairs. It was simpler than the ones his dad's lawyers would have used, but he recognized a Non-Disclosure Agreement. Jan walked to her laptop and displayed the first slide in her presentation.

“The NDA is a formality. I’m not going to be sharing too many of the real game changing details today. You don’t have to sign it if you decide not to come work with me, but I want you to understand I’m serious about this business. If you do come on board, you will need to sign it.”

George was only here to see the dark-eyed girl with the Velma Dinkley ID picture. He had no plans to work with Jan, and he doubted any business launched by a grad student from Bakersfield was worth stealing. He scribbled his name on the NDA, folded it into a paper airplane and flew it down to the podium at the front of the class.

“I’ve seen some of your other presentations.” Rebecca said. “I want to see those game changing details. Tonight if you’re willing.” She signed the form and handed it to Jan.

Jan spent a few minutes reviewing the current status of her business. The profit margin was good, but not huge. She’d recently added her 100th small clinic to the service, and there were several more in the queue. She had a small team near Bakersfield, but they really only did the ‘manual labor’. They digitized the paper medical records and did minor editing of the data when the program had trouble translating something. One of her high school friends was the entire salesforce. She was the one who did the configurations for each new clinic. Jan was the president, the accounting team, general trouble-shooter and did 100% of the programming.

She moved on to a technical overview of the services. The AI components were mostly based on a set of key rules and decision trees, but she’d added a machine learning capability and a basic neural net into the latest production version. She had a major

upgrade planned to coincide with her doctoral thesis. She was incorporating extended neural networks and next generation intelligence features she had created for the platform.

George got interested as she described some of the ways her system took a multi-threaded approach to solve problems. There was a base set of core rules and then it branched, attacking multiple variables and multiple paths simultaneously, and branched again and again, before consolidating and coordinating the multiple streams into a single result set. Then those results were fed back in as input to further processes. Self-reinforcing and self-subverting algorithms would more quickly lead to more relevant and accurate results. Those results fed into the data to make the subsequent runs even more accurate. He actually removed his dark glasses when she brought up some code samples. Her natural language processing modules were inspired, and even he had trouble following the thread of the code.

“That is pretty cool. So you want our help with bringing the neural nets to completion?” he said.

“Oh, no. I have that under control, at least for now.” Jan answered. “I’m open to ideas, but functionally, I think it’s in a very good place. There’s a few areas I don’t have the time to concentrate on. The database is getting to be huge and with the projected growth, my new metaphor-based pattern recognition, and the real time language processing and analytics, I need to find a way to re-engineer it to make it more flexible, extensible, and honestly, just plain faster.”

She presented the database diagram and explained some of her concerns. George had a couple of immediate ideas on how to modularize certain areas of the code and to isolate the data, so each customer was in its own virtual database. This would allow each

to operate almost as an independent system, but still have the full content available for advanced analytics. He had a few ideas on creating temporary virtual links “on-the-fly” to allow the neural net to create its own paths through the data, and to create patterns based on the individual clients and cross client data patterns. Rebecca chimed in with ways to improve the design to make it more secure.

“Speaking of security. That is the other big area I need to address. I am looking to expand to bigger customers: larger hospitals, health groups and insurance companies, who knows, maybe some government agencies.

“To accelerate the growth of both the number and the size of customers, I need more help, and I’ll need more money. I’m looking for external investors. I’ve had some nibbles, and security of medical data is one of their big concerns. I won’t be able to pay you too much right now, but if you decide to join Aladdin Co., you will get a share of the company on the ground floor.”

George

The three of them spent the next four hours reviewing code and making suggestions and plotting improvements. George repeatedly asked her to return to the neural network coding and configurations. He had only a passing knowledge of AI, and Jan’s solution was eye-opening. He didn’t fully understand the details of how it was done yet, but he recognized the possibilities for this technology, and not just in medical records. Jan was not exaggerating when she called this game changing.

At 9 AM, the following morning, he placed a call to his father’s office in Austin.

“Hi Georgie-boy, What’s wrong?”

“Nothing’s wrong, Dad.”

“You never call me at the office. The last time I got a call from you at the office was when you were expelled from school in the third grade.”

“I was only a kid then, and that was NOT my fault. You know she was lying.”

“OK, OK. Whatever. Water under the bridge. What’s wrong now? Do you need some more spending money?”

“Not for me, but I think there’s an opportunity to make some money for Bailey Corp.”

“You want more money for your Bailey Boards thingy?”

“No, not for me, Dad. Not directly, but I have someone I think you should talk to before she finds a different investor. You might not understand the technology, but trust me, she knows her stuff, and she’s got a good business plan.”

The elder George was impressed his son was paying attention to business plans. He still didn’t trust this internet stuff, but maybe it would help bring his son onboard with the real company. He agreed to meet with the young woman.

3.7 January 2004

Jan

Jan balanced the stack of pizza boxes on her left hand and leaned it against the wall. She twisted the knob and pushed the door open with her right hand. As the door swung free, Rebecca appeared out of nowhere. She set down her red plastic beer cup and grabbed the pizzas and set them on the table next to the pony keg. Jan looked around the large room. In the 10 minutes it had taken her to run downstairs and get the pizzas, the team had strung a banner made of computer and hand printed sheets of paper strung together with cellophane tape. There were a few pictures from the animated Disney movie on either end of the string and then a single letter per page across the middle section. A second banner hung below the first.

“A-L-A-D-D-I-N C-O-R-P-O-R-A-T-I-O-N I-N-C-!”

“J-A-N B-R-A-D-F-O-R-D, C-E-O-!”

Jan’s eyes watered and she wiped them before they overflowed.

“SPEECH! SPEECH! SPEECH!” The small crowd cried out.

She tamped her hands in the air to quiet the team and their guests.

“Thanks, everyone. It’s been a long time coming, but today marks Day One in our new offices. It’s no First Interstate tower, but at least we don’t have to work out of the computer lab on campus anymore.” Gentle laughter spread around the room.

“But really. I want to thank all of you who have helped me make this a reality. We are no longer just Jan and her crazy friends. We are now Aladdin Corp. and this is only the beginning.” She started to tear up again but powered through.

“I want to thank you all but let me start with Jimmy and the gang. Thanks for driving all the way down from Oildale. Any day now, we should be able to move you out of that storage unit where you’re doing the imaging. We should be able to get you some high-speed scanners soon too.” Cheers erupted from three long-haired young men along the east wall.

“Tulia, I can’t thank you enough for keeping this business afloat and keeping it growing. I know it’s been hard with me down here at school and leaving everything to you to find new clinics and get them configured and everything.”

“Shit, Jan. This system sells itself. One clinic talks to another, and they call me, but thanks for letting me hire Vernon. He’s really helping with the new customers.”

“Great! Get him trained. We’re gonna need you to focus on bringing in some bigger clientele. I love the little clinics, but we may have an opportunity for some of the larger hospitals. I’ll need you to focus there.”

“No problemo, boss lady. We ARE GOING TO KILL IT!” Tulia pumped her fist in the air and this time the cheers around the room were even louder.

“I didn’t forget the High Dive Five.”

Jan nodded her head towards a group of men, or maybe boys, sitting on the table next to the keg. They raised their cups and let out a whooping war cry. They were wearing nearly identical Hawaiian print ‘jammer’ swim trunks and Hawaiian shirts.

Kai had given the team their name shortly after Jan hired them from the CalTech Computer Science club. She warned them she did not have time to train them on the code, but they’d have to dive in. Kai responded. “We’ll dive in alright. Right off the high dive. You can call us the High Dive Five.” And they did dive in. They were not quite up to Jan Bradford level, but they were talented programmers.

“And for the first of our Southern California Aladdin employees, Rebecca!”

A round of raucous applause and yelling started with the High Dive Five and spread throughout the crowd. Rebecca’s cheeks turned a bright red and she nodded to the High Dive Five then bowed repeatedly to every corner of the room.

“Rebecca has done a fantastic job the last several months tightening our security and improving our database designs. We probably wouldn’t be in the running for the Medical Center contract if she wasn’t there to shut up their ‘security expert’. Maybe I shouldn’t tell this story, but he was questioning the security protocols of such a small company, and within 5 minutes, she was able to hand him his own employee file that was protected with his security protocols.”

“It was OK. We had an NDA.” laughed Rebecca.

“He was a little annoyed, but the IT Director was impressed. They called us back this morning as a matter of fact.” More drunken squeals.

“Take it easy. And keep those beers away from the laptops. Those are brand new. Speaking of our new hardware, where’s the architect? George? George? Shit, he promised, he’d be here.”

“He keeps his promises... in his own way.” Rebecca replied.

George

She clicked a few keys and the large monitor behind Jan flashed to life with the face of George Bailey. His head was two feet high, and you could see every pore. These new high-def screens were great. His eyes were a silver blue, his hair a sandy brown. He had light stubble across his chin and cheeks. No doubt a trick of the camera angle, but Rebecca had the feeling he was staring directly at her. She kept expecting him to put on his trademark sunglasses or at least focus on the floor, but his eyes continued to follow her as she paced back and forth by the pizza boxes. She was the one who averted her gaze.

“Hello, Dr. Bradford.” George stated matter-of-factly.

“Enough with the doctor bullshit.” Jan said.

“You were approved?” Rebecca screamed. “That’s great!”

“Yes, they accepted my thesis last week, and this morning they said I passed my orals. They loved the project that just so happens to be the basis for the next generation of this company. I’m not sure how Mr. Bailey discovered that

information, and it won't be official for another week or two, but yes, it looks like I will get my doctorate."

"DOCTOR! DOCTOR! DOCTOR! DOCTOR! DOCTOR!" The chant reverberated.

"ENOUGH!" The whole room went silent. "I have always been 'Jan', and I will always be 'Jan' to all of you, but tonight is not about me. It's about all of us. To continue where I left off, I want to give a special thanks to our external consultant from the venture capital firm that is helping us expand this company, George Bailey and Bedford Technology."

"I thought he was the hardware dude." Kai said to no one in particular. "I don't think I've ever seen him outside of the server room."

"George helped with a lot of the coding, and the server infrastructure Kai so aptly mentioned, but he also helped secure the funding to let me lease this palatial office space and more importantly to hire several of the rest of you. Thank you, George, and now let's eat. The pizza's getting cold."

Somehow on-screen George had a box from the same pizza kitchen that shared the space downstairs from Aladdin. He took a slice and raised a red plastic cup. Froth dribbled over the lip of the cup. He toasted the crowd in the office. Jan lifted her own beer in return and took a deep swallow. She really had her own company now and the funding to make it happen.

Bedford Technology was a subsidiary of Bailey Corporation. They were far from a cutting-edge company. They mostly provided IT services to the other companies within the Bailey

umbrella. George had a hard time convincing his dad they should invest in this medical record software startup. He was convinced 99% of these internet companies were burning cash with no results. The fact Jan's business was already turning a profit helped and meeting her in person convinced him she had sound business sense.

Still, he nearly opted out when he heard there were three other VC firms interested in kick starting Aladdin. Bedford Technology was not going to get into a bidding war with other venture capitalists who did not understand the meaning of the word 'profit.' They offered the lowest investment bid at right over half the funding of the second lowest bidder, and a quarter of the highest bidder. George thought they were going to lose the deal before he volunteered to act as an unpaid consultant for the first year.

That helped, but the thing that sealed the deal was when Bedford agreed to remain completely out of day-to-day management of the company. The other three VC groups all wanted the option to bring in their own management levels to 'professionalize' the corporation. Jan would rather forego funding than surrender control of her baby. With Bedford, they agreed to a technology sharing agreement, with appropriate non-compete clauses, and non-voting shares equivalent to 20% of the company, but Aladdin would be 100% in Jan Bradford's control to run the way she thought best.

Rebecca

Later that night, Rebecca went to the PenLites board for the first time in a few weeks. She logged in as 'kiesler' and checked the cracking routines she'd launched the last time she was here. She still had not broken through the fourth set of security blocks.

There was a new member of the boards. Their handle was ‘ami’. Rebecca always wondered how folks picked their ID’s. She sent the new PenLite a message and was surprised when ami replied almost immediately.

kiesler: "Hi ami."

ami: "You write interesting code."

kiesler: "Thanks."

ami: "In the tunneler tool, why did you use the counter control instead of a self-referential loop?"

Rebecca was used to technical folks being blunt, but this ami was BLUNT.

kiesler: "You know it is traditional to say hello before asking someone about their code."

ami: "Hello kiesler. In the tunneler tool, why did you use the counter control instead of a self-referential loop?"

Rebecca laughed out loud before returning to the chat. The new kid was very bright but lacked even the rudiments of social skills. She spent two hours discussing and comparing code with ami. She suspected English was their second language as they seemed to avoid conversation, but they really knew their shit when it came to programming. The self-referential loop they suggested was similar to some things Rebecca had recently coded for Aladdin.

They reworked her tunneler tool together including the self-referential loop and other changes that ami suggested. After she

got off the chat, she relaunched the tunneler tool and cracked the fourth level of PenLites security for the first time.

3.8 October 2004

Lucas

It was the last Friday of the month and Lucas was doing what he did most nights, studying. He was enjoying his senior year at UCSD better than the previous three. The voice synthesis software on his new computer made it easier for him to contribute in classes. He also was happy to have a single dorm room this year. By staying on for the summer quarter, he was able to move into a single and keep it in the fall. The room was small, but he didn't have a lot of stuff, and he liked to be able to close the door and be alone.

Even with the door closed, he could hear the thumping beat of a No Doubt song reverberating through the wall. The pair of freshmen next door must be getting ready for Halloween. The thumping was joined by a sharp knocking and the door to his room flew open. The muffled bass became an overwhelming drum assault. He typed frantically on his keyboard, cranked up the volume and aimed the small speaker at the door.

"CLOSE THE DOOR, Clyde!"

He was still friends with Cleides, his roommate for his sophomore and junior years, but it was nice to be able to study without a stereo blasting and pot smoke drifting around him all the time.

"Chill, Luke ma'boy, and you know I hate to be called Clyde."

"OK. Close the door, Hippocleides!"

“Oh, Jeez. Go back to Clyde. No one calls me Hippocleides except my dad and only when he’s in full on ‘the Greeks are the inventors of civilization’ mode. I still can’t believe my mom let him name me that.” He pushed the door closed.

“What are you doing here?”

“What am I doing here? What are **you** doing here? Bent over your books again. It’s the weekend. It’s almost Halloween. You need to explore the world beyond these four walls.” Cleides intoned.

“I am going down to the cafeteria in an hour or so. I just have to go over my notes for Biochem first.”

“Speaking of Biochem. Can I borrow those notes?”

“You know if you came to class more often, you might take your own notes.”

“Nowhere near as good as yours, ma’man. Nowhere near. If I’m gonna get into med school, I need all the help I can get. McEvoy is a real bear.”

Doctor McEvoy was one of the leading scientists in the Neuroscience Department. She didn’t usually teach undergraduates at all. She usually concentrated almost solely on research, but she’d been drafted when the normal professor went on sick leave. Everyone said the advanced level Biochemistry was a beast, but it was Lucas’ favorite subject. He found it made sense to him. It was kind of like math, but with different types of puzzles of how things fit together and how they interacted.

"I like McEvoy. You should have heard her talk about her research on Parkinsons and Epilepsy today."

"Is it going to be on the midterm?"

"Well, no, but she's actually sticking electrodes into people's brains to help prevent seizures and spasms and stuff."

"If it's not going to be on the exams, then you can skip those parts of the notes, but you will email me the rest of the notes, won't you?"

"Sure. I'll send them when I finish here."

"You are finished here and now. Send them to me tomorrow. It's Friday night. No more studying. We're gonna grab a burger at the caf' and then we head to the student union for the Halloween dance."

"Cleides, you are going to dance away your chance for med school."

"I don't think so, but if it comes to that, Clyde don't care."

Yuliya

Yuliya could not use her US Science Fair scholarship at the FEFU University in Vladivostok, but between her father's military benefits and with help from her 'uncle' Yuri, she was able to afford tuition and the small apartment nearby. Yuri had insisted she have two rooms, but she hated depending on Yuri, so she

brought in a roommate, Natalia, to share the small flat and the expenses.

“What is this with all the fish tanks in the common room? And why are they such dirty water?” Natalia asked.

“Those are not for fish. Those are research. I working on electrogenic microbes since I in America.”

“Electrogenic? What is this?”

“They are microscopic organisms that generate small electric currents. My team won big awards in USA studying microbes. I sneak into Russia, in soda bottles. Only two bottles survive, but I grow them and they thriving now, in all four tanks.”

“Oh. So those are not aquariums for fish?”

Yuliya’s eyes darted to the tank at the far corner of the room where the sun was shining in through the window. The way the light hit the tank; she thought she saw a bluish silver streak through the reddish brown liquid.

“No. You see those electrodes coming out of the tanks. Not for fish.” And silver flashed again in the sunlight. “What was...”

“I thought you could not afford new fish. The tetras was supposed to be surprise for you.”

“You put fish in one of my tanks?”

“In two of your tanks. I was going to get more for the other two later.”

“Which two?”

Natalia pointed to the two tanks closest to the window.

“Those two had the highest output. I do not have the equipment we had in America. It has taken me months to improve the electricity only 1.7%. You have spoiled everything. You are idiot.”

“I am sorry. Maybe I help you?”

“You stay away from my work. You just stay in your bedroom.”

It was too late. Natalia had already scooped one of the small fish from the nearest aquarium. It wriggled and sputtered from her grip and landed on a small metal plate on the desk nearby.

“Idiot! You ruin everything!”

Then as her roommate got hold of the squirming streak,

“WAIT! Put it back! PUT IT BACK!” screamed Yuliya.

Natalia’s eyes widened and she slowly, carefully, placed the small fish onto the metal plate. Yuliya saw the same thing she thought she might have imagined before. The needle on the galvanometer attached to the plate jumped ever so slightly with every twitch of the small creature. Natalia began to ease away from her crazed roommate and towards her small bedroom.

“No, No. You stay right there! Pick up fish and put it down, slow.”

She was beginning to be a little frightened by the frantic science student, but Natalia complied.

“Again. Again. AGAIN!”

Each time she touched the fish to the conductor, the needle registered a tiny electrical current.

“OK, OK. You are idiot, but you are lucky idiot. Put fish back in tank.”

3.9 February 2005

George

TeacherLady: “Hello. I saw a segment on the TV news this morning about the Bailey Boards.”

BoredMaster: “Yeah. It’s taking off. My dad is even asking about investing in the company”

TeacherLady: “That’s great. I’m proud of you. And how are things going with that girl?”

BoredMaster: “Rebecca? Yeah. She’s great. I think she talked me into actually going OUT together. Not just pizza and video games at my place”

TeacherLady: “She sounds like she’s good for you. Are you still working on eye contact?”

BoredMaster: “I’ve worked my way up to a few minutes, and the spasms have almost stopped. LOL”

TeacherLady: “LOL?”

BoredMaster: “Well, sometimes we make eye contact in bed. At the right time, those spasms are pretty cool, if you know what I mean”

TeacherLady: “I am glad to hear you are connecting, but I really don’t want to hear those details. Anyone else?”

BoredMaster: “I do real time video without the dark glasses and let people see me. For some reason that’s never bothered me, but I haven’t risked it with anyone else in person”

TeacherLady: “Baby steps are OK as long as you keep taking the next step. Maybe when you go out with this lady friend of yours, you can take off your glasses for a glance or two at a random stranger. That seems pretty low risk.”

BoredMaster: “Yeah, maybe. We’ll see. How are things with you and Mr. S. and the kids?”

TeacherLady: “The kids are great. Thanks for asking.”

Rebecca

George peeked through the peephole at the knock. He forgot to put on his sunglasses before he pulled open the door.

“HOLY SHIT! You look amazing! A dress? Have you ever worn a dress? And makeup too?”

“Drop it, Georgie. I am a girl after all, and this is a special occasion. You’re still coming out with me, aren’t you?”

“I guess so. Where are we going?”

“Don’t worry. It’ll be very low key. There’s a coffee house just a few blocks from here. It’s one of the only places near campus with Wi-Fi.”

“Is it crowded?”

“At this time of night, we’ll probably be the only ones there. It’s one of the reasons I like the place. I can study there in peace most of the time.”

Troy

Troy was facing the other way when the couple came in. As he turned, his eyes were immediately drawn to the beautiful girl in the red dress. She was nearly as tall as he was and had legs all the way up to her neck. It took him a few seconds before he recognized her as the frumpy nerd who would nurse two cups of coffee for hours while tapping away on her computer. He'd never really even noticed her before. How did he miss what was under those baggy sweaters? The two sat at a small table near the corner. The girl smiled at her date whose back was to Troy. Shit. He wouldn't miss her again.

“Can I get you guys something?” Troy said as he came around the side of the table.

“Black coffee for me.” Rebecca said. Her usual.

“And a cappuccino for me. Nonfat milk, if you have it.”

“Sure, I can do that... Wait a second?!” Troy saw the boy's downturned face. “Georgie BOY! Is that Georgie Boy Bailey!? I haven't seen you since high school.” Troy laughed out loud.

George glanced at the waiter from behind his dark glasses.

“Troy? What are you doing here?”

“Just workin' here for a few extra bucks. I'm playing football over at the city college.” He turned and smiled at Rebecca. “Next year, I should be transferring up to SC.” He turned to the beautiful young woman and gave her a big grin. “What are you doing here with the Geek?”

“Don't call me that. Don't ever call me that.”

“OK. OK. Don’t get yer panties in a wad. I’ll go get yer coffees.” He smiled and winked at Rebecca. “Be right back.”

George

“We should go. This was a bad idea.” He shook his head from side to side.

“Come on, George. One cup of coffee and then we’ll go.”

“I don’t know. I don’t want to see that guy, especially with you. I don’t want him to see me.”

“Well, I want to be seen with you, and I don’t care who sees us. And I want to see you. I do see you, George Bailey.”

She smiled again and George even lowered his glasses for a few seconds. He purposefully took three deep breaths and let each of them go, slowly, then focused on her deep dark eyes.

“OK. One cup of coffee and we’re out of here.”

“One cup. Then we can head back to your place.”

Troy returned with the two mugs. He barely glanced at George as he set the steaming mug in front of him, but he let his finger trail across Rebecca’s hand as he set down hers. She looked away as he smiled down at her and winked again.

“Leave the check, please.” George insisted.

“Whatever, geek!” Troy said and dropped the bill on top of George’s mug. The foam from the cappuccino soaked into the check.

Rebecca

George was agitated the rest of the evening. He let her walk him home, but he didn't even want her to stay the night. She knew he was a private person, but the waiter calling him 'geek' seemed to really get to him.

She went onto the PenLites board. She already had suspicions George could be the PenLite's 'geek'. The backend security on the Bailey Boards and some of the work he'd put together for Aladdin were both reminiscent of the PenLites security. She took the PenLites oath not to identify other members seriously, but her curiosity got the better of her. If George was geek, then how did the waiter know? He couldn't be a PenLite could he?

She went through each of the profiles, the chats and other data for all of the members. Snow-cache mentioned hacking into some sports books to get better odds. He'd bragged about money he'd made on some of the college football games, and how he'd used some of geek's tools to help beat the odds – on the SC game. He didn't seem like a very talented hacker, but maybe he'd been grandfathered in as a high school friend of George, of geek? He didn't seem like the type of guy George would be close to, but then she thought of some of her friends in high school and laughed. They didn't seem very close at the coffee house, but then again, revealing his PenLite ID would piss off geek. Curiosity had gotten her into trouble from time to time, but...

3.10 February 2005

Troy

Troy never liked working the late shift at the coffee house. He had to handle everything by himself, and the young coeds and high school chicks almost never came in this late at night. He still had three hours on his shift. He'd be lucky if he got any more customers. Why do they even keep a coffee house open this late? There hadn't been anyone in for 45 minutes, and that was a pair of pimple-faced nerds from the university who got plain coffee to go. They didn't even leave him a tip. The whole school was full of cheap-ass nerds, but at least in the daytime, there might be a cute girl or two in the mix. Sometimes the local high school girls would drop in looking for college men. He liked when that happened. He was a college man after all. Community college counts, and next year he'd be starting at SC. He was crushing paper cups and bouncing them off the wall into a trashcan when she came through the doors.

“Hi, I’m Rebecca. Remember me from the other night? I was here with George Bailey.”

“Oh, I remember you, Becky! I’m Troy. I must say, you looked hotter in that dress, but yeah, I remember you. Can I get you something to drink?”

“Uh, sure. Black coffee?”

“Consider it done. It’s on the house. Any friend of the geek and all that.” Troy went behind the counter, set down a mug and filled it with a dark black liquid. “This coffee’s been in the pot for quite a while. You sure you don’t want

some sugar or sweetener? It's pretty bitter after this much time."

"Oh, Okay, a little sugar would be OK."

Rebecca looked at the art from some local painter on the walls. She didn't notice when Troy scooped a spoonful of sugar into the brew. He shook in something else from a small bottle in his pocket and stirred the mix well before setting it in front of her.

"Thanks." Rebecca blew the steam off the top and took a careful sip. "You're right about this coffee being old."

"You're not here with Georgie-boy so I'm guessing you're coming to see me." Troy pasted on a wide smile and winked.

"You were friends with George in high school, right?" She said, taking another sip.

"Um, yeah, friends, that's right."

"Why did you call him 'geek'?"

"Oh, everyone called him geek at LP High. It was kind of a pet name."

"Did you have a pet name? Like maybe 'snow cache'?"

"What is this? You're not a cop are you? I might sell a little something on the side, but I'm no coke dealer." He hesitated for a few seconds, and continued. "But if that's what you're looking for and you have the cash, I might know someone who can get you the snow." He gave that disturbing smile of his.

"No one called you 'snow cache'?"

“In high school, I was just ‘Troy.’ ‘Troy’ is cool enough all by itself if I do say so myself. Of course, they called me ‘quarterback’ too. First string, Varsity, sophomore, junior AND senior year. I hear some of the cheerleaders called me ‘stud muffin’ behind my back.” and he gave another one of those unsettling smirks.

Rebecca was beginning to suspect she’d made a mistake. This guy could never have been a PenLite, and she didn’t think he was ever George’s friend either. She took a larger sip of the coffee. It really was bitter, even with the sugar.

She was trying to come up with a way to make a polite exit when she noticed the edges of the room seemed to be blurring. The blur gave way to darkness as her vision narrowed from the full room. She seemed to be looking through a long dark tunnel at Troy’s head, then her focus shrank to his face, to his smirking smile, then blackness. She tried to grab hold of the counter, but toppled into Troy’s outstretched arms. He lifted her gently and carried her to the small storeroom at the back of the cafe.

Rebecca

Her eyelids felt like they were made of lead. She struggled to force them open and was surprised to see a man’s face as he shook her shoulders.

“Wake up, honey. That was fun, but it’s time to go. I have to close up shop. You don’t have to go home, but you can’t stay here.”

Troy’s laugh grated on her frayed nerves. He was lifting her from a small, padded bench. Her T-Shirt was rolled up to her throat. He tugged it down to her waist. She nodded her head down and saw

she was wearing nothing below the shirt. She was still trying to focus when he shoved her feet into the legs of her jeans.

“Come on, Babe. You gotta help me. Push your legs on in... there you go. You were great, but now it’s time to go home.”

He brushed her hair behind her ear and kissed her on the cheek. She shuddered and started to pull away when he lifted her bodily off the bench by the belt loops of her jeans. He jerked a couple of times, and the pants slid the rest of the way up. He buttoned the top button, but didn’t bother to pull the zipper. He handed her her boots and car keys and guided her from the backroom and nudged her through the front door.

“Here’s a coffee for the road. We’ll talk later, babe.”

She was only half conscious she’d taken the coffee when he clicked the deadbolt behind her and turned away.

Rebecca was only starting to realize she was still at the coffee house. She tripped twice down the small set of stairs to the street. She shook her head vigorously from side to side trying to throw off the cobwebs clouding her vision. She spotted her little Hyundai a half block away and swayed down the sidewalk.

She set her boots on the roof of the little car and stabbed her key at the door lock. She dropped the coffee cup on the ground, and it splashed across her stockinged feet. She swore and jabbed at the lock again. On the third try, she got the key into the slot and opened the door. She took the empty cup and tossed it onto the floor of the passenger seat. She flopped herself into the driver seat and used her hands to help pull her legs in behind her. It took two tries to find the ignition. As she pulled away from the curb, the first boot fell into the gutter. The second one made it three blocks

before toppling off as the compact car swerved its way through the neighborhood.

3.11 March 2005

George

It had been a week since he'd got the call from Jan. He couldn't believe Rebecca was gone. According to Jan, the police said it looked like she fell asleep while she was driving. Her car rolled over the side and down to the bottom of a ravine near the Colorado Street Bridge. He found it hard to believe the girl who was so full of life could have just drifted off to sleep and drifted off a cliff. What was she even doing out that late? He'd hacked into the Pasadena PD system the same day he heard, but the preliminary report didn't give much more information than Jan's phone call.

He felt lost. He would not attend the funeral. He would not talk to anyone. He'd already dropped all of his classes and withdrawn from the university. He stopped all work with the Aladdin team. He was barely keeping the Bailey Boards online. His one release was his workouts and he'd gone for runs every night since he heard.

The first few nights he'd run to the crash site. He saw the broken trees and bushes, but the little car had already been pulled from the ravine. On the fourth night, he brought a rope and rappelled down to where the car came to rest. Broken glass, a piece of the front bumper, a to-go cup from the coffee house she liked, and a few copper-colored stains on a rock that might be dried blood. Nothing to indicate what she was doing or why she crashed.

He hacked back into the Pasadena PD to see what else they'd added. They noted she was in socks without shoes and was wearing no underwear. There were signs she may have had sex not too long before the accident, but if so, they had probably used

a condom. The toxicology report was finally in too. It showed she had some sort of depressant drug in her system.

He was sure she wasn't sleeping with anyone else, and in all his time with her, and he'd never seen her take anything stronger than a beer. Her drug of choice was caffeine. Thinking of caffeine reminded him of their last, and really their only, date. Tonight, he'd run by the coffee house. He'd take the same route they took on that last walk home.

Troy

It wasn't the first time one of his conquests had given him the cold shoulder. That Becky chick was fine once you got those nerd clothes off of her, but she hadn't been back to the coffee shop for over a week now. Oh well, there were more fish in the sea, and he had the right pole for the job. Maybe she was playing hard to get.

He tucked the polaroid photos into the folder in his file cabinet. He'd tossed her bra in the dumpster behind the coffee house, but he kept her panties for his collection. He almost didn't want to put them in with the rest of his treasure trove. They were hideous white cotton granny panties, but they did hold memories, so he took them home and put them in his special box with the rest of his trophies. As he stuffed them down to the bottom of the box, he came across another pair, and caressed a red satin thong, his favorite. One of his firsts.

He got those in high school from Jennifer under the bleachers at LP High right after graduation. She was another bitch who blew him off afterwards, but the fun of it was worth it. He wished he could've gotten photos that time. She was probably still sore. He

smiled and brought the crimson fabric to his nose and inhaled deeply.

George

It was after 3 AM and George was taking his time. This was an easy run to remember his last night with Rebecca. He should have let her stay with him that night, but Troy was such an ass. He let him get under his skin. Maybe he would pick up his pace. He needed a hard run to try to burn this pain and frustration out of his system. He was still a few blocks from the coffee house when he increased his speed.

He was used to wearing his dark glasses when he ran in case anyone was around. It was a rare occurrence, but he was careful. His eyes adjusted well to the dark and he usually ran in the street near the curb, against traffic so he could see any cars that might be approaching. He was near sprinting as he turned the last corner before the straight away to the coffee house. He stepped on something, and his feet started to drift out from under him. He stumbled and twirled his arms trying to catch himself. Headlights were coming towards him, and he was able to get up onto the curb before losing his feet and flying face first into a bougainvillea hedge. The car honked at him and he flipped a middle finger as he pulled himself from the bush.

Bougainvillea branches are spindly arms of leafy green with huge cat claw thorns spread along their length. He was lucky. He got a few nasty scratches across his cheeks and forehead, but his sunglasses had protected his eyes. There was a six-inch-long rip along his left arm. It was oozing red. He'd put a stigmata hole in his right palm as he extricated himself from the thorny snare. His

ankle was sore too. He must have twisted it on whatever he'd stepped on in the gutter. He decided maybe tonight was not the night to retrace his steps, but the physical pain moved some of the emotional pain to the backburner.

He walked over to the street to see what had flipped him into the spiny hedgerow before he headed for home. It was a boot. He held it and turned it over. Blood from the wound in his hand seeped onto the laces. There were some other patterns there and he removed his glasses to see it better. Another car approached and the headlights illuminated the red drips and some lime green splatters on the leather uppers.

Rebecca's boot. She'd told him the story of her freshman roommate dripping green paint all over her shoes doing some Art 101 project in their dorm room. She was pissed off at the time, but then got to kind of like the chaotic pattern once she got used to it. George laughed at the memory, then closed his eyes as salty tears mixed with the blood on his cheeks.

He looked all around the intersection for her other boot, but didn't find anything else. An owl hooted from the top of an elm tree across the street. He slipped his sunglasses into the top of his shirt and looked towards the sound. He could just make out the silhouette of the large bird and its ear tufts. It hooted again and flew, floating silently inches over his head. George tucked the right shoe under his arm and followed the bird down the street.

He scanned the roadway and sidewalk as he limped the three blocks to the coffee house. It was closed and dark at this hour, but he inspected the area. He climbed the four steps and looked through the locked front door. Nothing seemed out of the ordinary. He didn't understand why Rebecca would be on this street unless she was coming here or going to his house. She hadn't been back

to his house since that night. He descended the stairs and wandered aimlessly along the sidewalk. Another owl, or maybe it was the same one, hooted at him from a telephone pole a half block up the street. He glanced up at the large bird then down at the road.

That's when he saw it. The other boot. It was close to the middle of the street. He waited for another car to pass before sprinting over and grabbing it. It looked like it had been hit by a car or three. A lot of scuff marks and maybe a tire tread pattern, but overall it was in decent shape. Rebecca had said they were sturdy boots. The steel toe was still intact, and the uppers were scarred but not torn.

She had been at the coffee house, but that made no sense. If she was here, she'd have been caffeinated and buzzing, not sleeping at the wheel. He tied the laces of the footwear together and looped them around his neck. He walked another five or six blocks down the street searching in all directions but found nothing more of interest. Eventually, he turned around and limped his way towards home. As he came to the corner where he found the first boot, the owl was there and dropped from the tree, swooping close over his head again and off into the night, in the direction he'd come from. George limped after it.

3.12 March 2005

Martie

Martie had gotten used to using the computer George had given to her as a ‘special consultant’ to the Bailey Boards. She decided to check her email and maybe poke around on the world wide web for a while. It would tie up her phone line so she wouldn’t have to deal with calls from folks trying to sell her things. The modem screamed its tones and connected.

Martie switched over to her Bailey Boards email account. It looked like George had been trying for the last two days. There were a half dozen messages from “BoredMaster” inviting “TeacherLady” to a private chat. The most recent one was only 15 minutes old. She clicked the link.

TeacherLady: “Hello. Are you there?”

TeacherLady: “I saw your emails. I’ve been kind of busy/preoccupied the last few days. What’s up with you?”

After about 90 seconds...

BoredMaster: “Thanks for answering. I really need someone to talk to”

TeacherLady: “OK. How are things with Rebecca?”

...

BoredMaster: “I don’t know how to say it so I am just going to say it. She died in a car accident a week and half ago”

TeacherLady: “Shit. Really? Oh, I am so sorry. How did it happen?”

BoredMaster: “I don’t know. The cops say she fell asleep at the wheel, but that doesn’t make any sense”

TeacherLady: “Some things just don’t make sense.”

BoredMaster: “Do you remember Troy from my time at LP?”

TeacherLady: “The basketball player?”

BoredMaster: “More football, but yeah, he played basketball too. We saw him a couple of days before she died. I can’t help but think he had something to do with it”

TeacherLady: “Why would you say that?”

BoredMaster: “It looks like she was at the coffee house where he works on the night she crashed”

TeacherLady: “That’s probably just a coincidence. Have you talked with the police about your suspicions?”

BoredMaster: “They already closed the case. Accidental death, possibly drug related”

TeacherLady: “Drugs?”

BoredMaster: “She had some sort of downers in her system, but she didn’t use drugs like that”

TeacherLady: “Sometimes people hide things from the ones they love the most.”

BoredMaster: “I don’t think so”

TeacherLady: “OK, but how are you doing?”

BoredMaster: “Not great, but I’m OK, I guess”

TeacherLady: “Maybe you should find someone to talk to about how you’re feeling.”

BoredMaster: “That’s what I’m doing now”

TeacherLady: “I’m a teacher. I don’t know that much about this stuff. Have you looked into grief counseling? There are professionals who can guide you better than I can.”

BoredMaster: “But you know me. And you know I can’t do that. Do you have any ideas on how to get my mind off things?”

TeacherLady: “When my folks split up, I put all my energy into my studies. It probably didn’t help in the long run, but it distracted me. How are your classes coming?”

BoredMaster: “I dropped out. I probably would have done that soon anyway. The Bailey Boards is taking off and it was already eating all my time”

TeacherLady: “You really shouldn’t tell a teacher you think dropping out is the answer. Education is important for success in life.”

BoredMaster: “Since I added advertising to the site, I bet I’m making more in a month than you make in a year”

TeacherLady: “OK. Then perhaps work can be your distraction for a time. But don’t distract yourself too long. At some point, you are going to have to deal with the fact she’s gone.”

BoredMaster: “How do I do that?”

TeacherLady: “I don’t know. Maybe instead of trying to forget her, you do something to honor her memory. What things were important to her?”

BoredMaster: “Her privacy was very important. I suspect that was one of the reasons she spent so much effort on information security. She wanted to make sure no one could breach the walls she put up, technically or personally. I can empathize.”

TeacherLady: “That’s not what would have occurred to me, but maybe you can do something with it.”

BoredMaster: “Maybe I can. I’ll have to think about it. Thanks. I do appreciate you taking the time to chat with me”

TeacherLady: “You’re welcome, but you don’t have to wait for me to check the chat board. You can call me anytime.”

BoredMaster: “Thanks. I’ll think about it”

Jan

The phone rang for the third time before George answered.

“Hello.”

“Hi, George. This is Jan. I know this is a really horrible time for you, but I am up a creek.”

“How so?”

“We’re in the final negotiations for the Medical Center contract and no one can get into Rebecca’s security code. She made some major upgrades and it’s working great in our test systems, but she never checked it in. I know your

free contract time with Aladdin is over, but we'll pay you for your help."

"OK, Jan. I've been thinking that I wanted to see what she was working on and maybe help finish some of her work, kind of a tribute to her, if you know what I mean."

"That would be great, and the code would be part of our technology sharing agreement. If you wanted to incorporate it into Bailey Boards or something else in your dad's companies, that would be OK by me. So long as it has nothing to do with health records."

"Sounds great, but I'm falling behind on some changes to the Boards. I might want to borrow some time from the High Dive Five to help with some upgrades – out of my pocket, of course."

"If you can get this security code ready before the Medical Center review a week from Thursday, I'll give 'em to you on my dime for the rest of the quarter."

George

George had administrator permissions to everything in the Aladdin data center. He could reset any password or take over any account with those rights. It still took him three days to break his way into Rebecca's security code. When he finally was able to see it, he missed her even more.

She had incorporated Jan's artificial intelligence neural network sequences into the security modules. The main Aladdin AI algorithms had been designed and tuned to handle medical records, creating them, analyzing them, interpreting them.

Rebecca had somehow made the AI more generic and then pointed it at handling security.

She had implemented self-referential loops into the security programming of the AI. It continuously questioned its own tactics and strategies. It was its own automated white-hat hacker. The system taught itself how to breach its own security and then patched those vulnerabilities automatically before someone else could take advantage of them. It not only challenged itself from within Aladdin, but it embedded itself in external systems and used those to simulate external attacks. The system would inspect itself both from outside and inside, and then adapt both the internal and external modules. Then it would begin the loop all over again to make itself even more resilient. It was beautiful, but it took a lot of processing power.

Rebecca had solved for that as well. She modified the AI code to use its own security protocols to find available processing power on any computer, then worm its way in to embed modules on those computers. Her white-hat hacker code was infecting other systems around the internet and using their processing power to help test and improve her security algorithms.

Upon closer look, some of those hacking algorithms looked very familiar to George. Many of them were standard hacking tools you could find in numerous places on the dark web, but some of them were more esoteric. In fact, he recognized several tools he had designed personally and only made available on the PenLites tool kit. He wasn't too surprised by this. As geek on those boards, he'd already traced the identity of kiesler and was pretty sure it was Rebecca. He wasn't surprised she'd taken advantage of some of those tools. He was surprised she'd found a way through the sixth security wall at PenLites to get some of his most sophisticated cracking and protection modules. He had thought those were

secure from, and not even visible to, the other PenLites. The algorithms had been annexed and extended and enhanced beyond what he'd created.

There were also a few executable modules in direct machine language. Those kernels seemed essential to the overall functioning of her programs, but he couldn't find the source code to those. With the medical center contract deadline coming fast, he didn't have time to de-compile those modules. He created wrapper code around them to continue to use them without exposing them. With their ability to infect any system, he was a little concerned, so he included blocks in his wrapper code to prevent the security AI from directly accessing and adapting the Aladdin AI systems.

She had been more impressive than he had even realized. She'd combined the best of his techniques with the best of Jan's AI algorithms and her own innovations to create a system that taught itself to hack itself and then patch itself and protect itself then attack itself again. It was an unbelievable accomplishment. Tears filled his eyes once more as he thought of losing her.

Jan

"You're a lifesaver. The Medical Center just signed the contract."

"Great. So do I still get the High Dive Five?"

"How about a High Dive Three? I need Kai and Chuck to finish the custom repository for the Med Center."

"That works for me. I mainly need them to automate some of the standard maintenance routines. It's nothing very complicated, but I don't have time to keep kicking off all

the manual processes to keep the system up and running. I doubt it'll take them more than a couple of weeks.”

“OK. If you need more help at the Bailey Boards, I have a small HR team contracted with Aladdin. They can help you find more folks to expand your team.”

“That would be great. I've hired a few people, but I don't have the time to find people to free my time enough to find people. Catch-22.”

“I get it. I don't understand how I was able to do all the coding for Aladdin for so long. Are you working on something in particular?”

“I want to do something for Rebecca. Her code in the security modules is amazing and I want to see if I can build on it somehow. Something to remember her by.”

“OK, but remember we still have the tech sharing and non-compete agreements. If you get anything very cool from it, Aladdin owns 20%. You'll let me know, right?”

“Of course, I will. There may not be anything really commercial in there, but I'll keep you in the loop. After all, my dad's business still owns 20% of Aladdin. When either of us wins, we both win.”

3.13 January 2006

SWIFTE

It had taken George almost a full year to incorporate some of Rebecca's models into his own product. The new SWIFTE (Secured With Internal Full Token Encryption) app allowed anyone who purchased an additional electronic token to completely protect their data. The app was available at a discount for users of the main Bailey Boards sites and let any user upload pictures or other private information to the boards. It was guaranteed to be an unbreakable area for storing your data. Data protected by SWIFTE could only be accessed by the owner or by someone with the owner's secure private 'key'. Even the site administrators could not break the encryption.

It wasn't a big seller on the Bailey Boards itself, but some users liked the additional security. It did a little better as a separate data storage and protection site, but it didn't really take off until the court case for the Cassidy Cartel.

The Cassidy Cartel was accused of being one of the biggest illicit drug distribution networks in California. They used the SWIFTE application to store and protect their records. The DEA and the FBI produced court orders requiring the Bailey Boards to provide decryption on this data. The company did not refuse to decrypt it, but was able to prove beyond a reasonable doubt that even they could not break the encryption without the private token owned by Cassidy or a key directly generated from that token. The FBI's Cryptanalysis teams spent over three months and were unable to crack the security either. Rumor was the NSA had tried and failed as well.

Once it was proved impregnable by the courts and law enforcement, it became much more popular. Groups and individuals clamored to protect their private data with SWIFTE.

AnonyBoards

SWIFTE also became the basis for another new site offering from Bailey, the AnonyBoards. This allowed anyone to create their own ‘anonymous’ groups where the creator and people posting to the sites could remain completely anonymous and untraceable. The SWIFTE algorithms erased all links back to the original users. These became popular for various people who wanted to share embarrassing or otherwise private stories and opinions without revealing their identity.

The most popular were the ‘public’ boards where anyone could read and post anonymously. Most of these really didn’t need the SWIFTE Anonymization, but it was key to the popularity of some. There were such boards as:

- BakeAnon - Focused on sharing baking recipes and ranking the bakers on online cooking shows, and for sharing secret family (or company) recipes. There were several other similar recipe sharing sites.
- DollarMealAnon - Started as a fast-food enthusiast location, but morphed over time into a recipe board for cheap easy to prepare food.
- RoxanAnon - Named after Roxana Vengas who served 5 years after killing her rapist. Mostly women shared their own stories of rape and abuse and gave support to each other.
- AutistAnon - For autistic persons and their families to share stories, support strategies, coping mechanisms, etc.

There were other boards for various medical, physical and mental health conditions and disabilities.

- EuropeAnon - for sharing pictures and stories of well-known and obscure tourist locations throughout greater Europe, and to share stories of potentially embarrassing encounters on vacations.
- AmericAnon - Started as a place for anyone to share their vacation photos and stories of National Parks, State Parks, and other tourist locations. Within two months of its initiation, it was flooded with posts by uber ‘patriots’, conspiracy theorists and end times preppers.

In addition to the ‘public’ boards, some users created private boards where only invited guests had access to the content. With SWIFTE security around these groups, some politicians and other public figures complained the sites could and would be used for illegal and unethical purposes. It could not be proven, but it was suggested many of those same politicians were users of both SWIFTE services and the AnonyBoards.

George

Data stores with SWIFTE could only be accessed by someone with the proper key. Even the administrators could not access this data without the keys, and those keys could only be created by the keeper of the token. George had sworn to this under oath during the Cassidy cartel case, and proved his company could not break the encryption on any customer’s repositories. He did not mention he had created a master token for himself that he had never shared with his own company. He didn’t have time or desire to look at his customer’s information, but he liked knowing he could.

Troy

Troy liked the online view of his various trophies. Now that SWIFTE was confirmed to be completely secure, he traded his old bulky polaroid camera for the small digital one. He still kept the polaroid prints at home, but he scanned and uploaded them to his personal SWIFTE account. From almost anywhere in the world, he could admire his past conquests.

3.14 May 2007

Cooper

“Who was on the phone, Coop?” Martie asked.

“It’s that girl in the studio unit. She says her kitchen sink is leaking again. I replaced the washer last week, but maybe I didn’t tighten it down enough. I have to drop this stuff over at Jim’s, but I’ll head over there right after.”

“You want me to take a look at it?”

“No, that’s fine. You’re busy enough with dinner and she said it’s only dripping a little bit. She’ll hold until I get done with Jim.”

“OK.”

He took a brief detour to the bathroom before picking up a cardboard box and leaving.

Martie

Martie finished cutting the vegetables and the sauce was ready too. She had a good hour to kill before she had to finish pulling dinner together. She decided she’d take a quick look at the faucet in the studio and see if she could save Coop some trouble. He had the big toolkit in his truck, but if it was just a dripping faucet, she could probably take care of it with the small one they kept in the pantry. She removed a green plastic container that looked like an oversized lunchbox and checked it. There were wrenches and pliers and there was even a box of washers. She pulled on her running shoes and locked the door.

“Keep an eye on your sister for a little while. I’m going to go check on something at one of the other units.” She yelled down the hall.

“Do I have to, Mom? I’m winning this game.” Perry replied.

“You can play your video game, just keep an ear open.”

“I don’t need a babysitter.” Cara yelled from her room.

“OK. Both of you stay here. I’ll be back in a little while. Just stay in the condo until I get back.”

“OK, Mom.” They both said, in unison.

The rental studio apartment they managed for Jack was on the other end of the complex. She walked past the small community pool. Kes was playing with one of the other boys, holding hands and jumping up and down in the shallow end almost as if they were on opposite ends of a teeter totter.

“Kes! I’m going to go over to fix a problem at one of the rentals. I’ll be back in a half hour or so.”

“OK, Mom!” Her son yelled at her.

“You can stay in the pool with your friend, but you’ll need to get out for dinner when I come back by.”

“OK, Mom! See you later.”

He splashed water in his friend's face. The other young boy returned the aquatic assault, and a water war commenced. Martie laughed and cut across the pool deck towards the far side of the complex.

She climbed the stairs to the second-floor unit and rang the bell. She knew the girl was a coed at the local nursing college, but she was surprised when the door opened.

“What took you so lon...”

The young lady was dressed in a near see-through blouse, with a sheer black brassiere showing underneath and a very very short skirt. She had a beer in one hand that she held out as if to offer it to Martie. Martie was surprised to be greeted in this fashion, but the renter seemed even more surprised to see her.

“Is that for me?” Martie asked, pointing at the bottle.

“Uh, no. Um. This is mine.” said the girl and she took a swig.

She grimaced a little at the taste as she swallowed. Martie stepped inside and noticed a bottle of wine and a half full glass on the table in the kitchenette.

“Your sink is leaking?” She asked.

“Oh, that. Um, yeah. It was, but maybe it wasn’t turned off all the way. It seems OK now.”

“Maybe I should check it.”

“No, don’t bother. It’s fine. Sorry for bothering you. You can go.”

“Ooo... kay...” She took a quick look at the faucet, turned the water on and off again. There was no leak.

“Really, it’s fine now. You can go.”

“Okay. Give us a call if it acts up again.”

“Yeah, yeah. Talk to you later.”

The young woman put her arm on Martie’s shoulder and guided her to the front door. She pulled the front door open to find Cooper with his finger an inch from the doorbell. He had changed clothes, and he was NOT dressed for home repair. He didn’t have a toolbox, but he did have a small bouquet of wildflowers. Martie looked into his eyes and saw panic there. She closed her eyes and shook her head slowly from side to side. She opened them just a slit, and she smiled with her lips tightly closed.

“Uh, honey, um, I, um, yeah, ah...” Cooper stammered.

“Uh, huh.”

She lifted her head and brought it down abruptly. She very purposefully took a deep breath through her nose and blew it out slowly through pursed lips. Then ignoring his unintelligible babblings, she pushed around him and stalked down the stairs. He started to come after her, but she turned and glared and said “**Don’t!**” Her face stopped him in his tracks. He looked down at her and then at the young coed and back at Martie. He buried his face in his hands and whispered “fuck” under his breath.

“Come on, Kes. Time to go.” She said as she hurried back across the pool deck.

“That wasn’t a half hour. It was like a half minute.”

“Time. **To. GO!**” She gave him a look only a mom could give, and he relented.

“See you later, Franky.” He said to his friend and hopped from the pool.

Robert

Martie was herding the three kids towards the door. She had a large gym bag over one shoulder and was pulling a rolling suitcase behind her. Kestrel ran ahead and reached up to knock the decorative knocker on the front door. Cara was trailing behind. She had her arms wrapped around Pixel who was now a very large orange, black and white cat

“What a nice surprise!” Robert said, looking at his granddaughter.

“Hi, Grandad.” Cara said.

She seemed a bit distracted. Her two brothers were even less excited to be there.

“Hi, Dad. You mind if we stay with you for a few days?”
Martie asked.

“Of course. What’s wrong? Where’s Cooper?”

“We’ll talk later, Dad.” He saw the look on her face and dropped the issue, for now.

“Come on in. I was about to put a frozen pizza in the oven... I’ll put in two and we can have a little party.”

“Pizza? Okay.” Cara said, as she let the large feline drop to the floor.

Kestrel just looked at his mom as Pixel disappeared somewhere into the house.

Martie

They'd been with her dad for two days now. It was Cooper's turn to drive the carpool, but she was not going there. He'd called at least 15 times since Friday night. She knew she'd have to talk to him sometime, but she wasn't ready for that talk quite yet.

"What's going on, Mom? How come you won't talk to Dad?" Perry asked.

"Don't worry about it, right now. Right now, I just have to figure out how to get you all to school in the morning."

"I've got my permit. I can borrow Grandad's car and take everyone."

"You cannot drive without an adult in the car."

"You never let me do anything. You can stay here, but I'm going to go back home with Dad."

"You are going to go to your room."

"My room is at home. NOT HERE."

"Just go." Martie whispered. She wiped her eyes.

"Fine!" Perry said and stormed out of the room.

Cooper

It was another three days before he appeared at Robert's door. Martie opened the main door but left the screen door closed. Cooper stood on the stoop and looked down at his feet. He had a pained expression and was having a hard time meeting her eyes. When he did look up, her eyes bored into him like flaming arrows.

“Hi, Martie.”

“Hello”

“I think you all should come home. The kids need a mom AND a dad, and Robert doesn’t need three kids tearing up his house.”

“Maybe you should have thought of that before you... ‘fixed that girl’s plumbing’.”

“I tried to tell you. Nothing happened. I really did fix her sink the first time and she hit on ME, but nothing happened.”

“Really? And you just happened to bring flowers when you went back?”

“I had a moment of weakness, but in the end, I was glad you were there and stopped me before anything happened. I left there right after you did.”

Martie glared through the screen. A criss-cross pattern of shadows played across her face.

“I’m a stupid man. I admit that, but you have to admit you haven’t been exactly ‘loving’ even before this. We haven’t made love in almost three months.”

“So, it’s MY fault you decided to go chase some tail half your age?”

“No. That’s not what I’m saying. Shit. I love you and I want to be with you. I don’t want to be with her. I want to be a family. I want to try again, please? Come on home.”

Cooper dropped his chin lifting his gaze with partially closed eyes and gave her a half smile. That look used to melt her legs when she was a teenager, but she was 35 now. She didn't melt, but she did thaw a bit.

“Please. I’ll do anything to get you back. Cross my heart. Anything!”

“If we do come home, you are sleeping on the couch until I say otherwise.”

“Sure. Anything.” And the half smile broke through to a full grin. He knew he’d won.

3.15 June 2007

Lucas

“Do you mind if I sit here?” Jennifer asked.

The former cheerleader was dressed in a conservative dark gray pantsuit. Her hair was stylish but cut short and barely touched her ears. Lucas was sitting alone at a table near the far wall of the hall. His laptop was on the table. Its custom keyboard was still oversized, about half again as big as a standard keyboard. He’d gained a lot more dexterity over the years. He typed quickly using a thumb and pinky finger on each hand. A slightly robotic voice answered from the small computer speaker.

“Please do, but don’t you want to be with your other friends?”

“I’d really rather stay here by the door with you. It’s good to have an escape route.” She half smiled. “Honestly, I’m not sure why I even came tonight.”

“I am glad you did. It’s good to see you. What have you been doing for the last five years?”

“I was kind of messed up after graduation. I took some time off. Got some counseling and stuff. I don’t want to go into it. What have you been up to?”

“I am still in school.”

“Me too. I finally got my shit together. Well, more or less together, and I’m working on my bachelor’s at Cal State.”

"Cool. I just got my masters at UCSD. I am working on a PhD."

"Fantastic. I always knew you were the smartest one in our class. What's your major?"

"Neurology. I am trying to figure out why my brain and body don't work together well."

Jennifer laughed. "I guess we're both trying to figure out how we're messed up. I'm majoring in Psychology."

A loud squeal shrieked its way around the room as feedback blasted from every speaker in the hall. Courtney waved frantically at a man on the side of the stage. After a volume adjustment the shriek faded away. She was a tall woman with wavy blonde hair cascading halfway down her back. She wore a low-cut red dress that clung to her like a second skin.

"Sorry about that, everyone. I never was one of you megamind technical folks. Welcome again to the Linus Pauling High Class of 2001 for our five-year reunion. It seems like only yesterday." After a brief round of applause, she continued. "I hope you all returned your ballots and surveys, because it's time to announce our five-year awards!"

She held a clipboard and ran her finger down the top sheet.

"We'll start with an easy one. Who traveled the farthest to get here tonight? I see Janet at the front table. She told me she came all the way from Miami. How many miles is that, Janet?"

"It's a little over 2000 miles."

“Ooh, 2000 miles. Did anyone come farther?” A hand was raised.

“I came from Maui. That’s 25, maybe 2600 miles.”

“Oh, I think we may have a winner. Anyone more than 2600 miles?”

The backdoor to the hallway banged open and a young woman called out.

“Vladivostok, Russia. Over 8,800 kilometers – 5,500 miles.”

“Now, I know we have a winner. Come get your certificate and trophy, um, Julie?”

“Yuliya.”

Yuliya rolled her suitcase over to the table where Lucas sat. He nodded in her direction before she dropped it by his chair. She strode through the crowd and climbed the stairs to collect a six-inch trophy with a plastic airplane glued to the top.

“Next, we will go for the top nerd trophy.” She laughed. “I mean, the most educated. This award goes to the LP Hi graduate who has collected the most degrees in these five years. We’ve taken the awards from your surveys and…”

“Coming in third is Joanne Robbins with a degree in biology. She is currently working on her medical degree at UC Irvine. Sorry, you only get partial credit for the med school since you haven’t finished yet.

“In second is Frank Murphy with a BA and a Masters in Fine Arts in theater arts from Cal State Northridge. That’s two completed degrees. Way to go, Frank.

“And our top nerd is none other than Lucas Abernathy who completed a double major in Biology and Mathematics at UC San Diego, and recently completed his Masters in Neurology at the same school. Even for a science magnet school like LP Hi, that is some impressive work in five years.”

Lucas typed away at the table for a moment or two, then worked his way to the microphone. He took the small trophy with the mortar board on top. He held his laptop close to the mic and tapped a button.

“Thank you for this honor. I never thought I would ever get to finish any school, let alone go to college. I want to thank all of you at Linus Pauling High. I want to thank Yuliya and George who helped get me the scholarship to pay for school. Especially, I want to thank someone who is not here tonight, Ms. Spieler, who gave me a chance and saw me when no one else did. Thank you, everyone.”

There was a loud cheer at the mention of Martie’s name. She was the favorite teacher of many of the LP Hi Alum. Lucas returned to his table. He and Yuliya compared trophies. On the stage, Courtney presented several other trophies for various categories.

Troy

Troy didn't care about any of these stupid awards, but he was very interested in Courtney and getting her out of that scarlet skin she was wearing. He was at the first table almost directly under the stage. He took pictures of the young woman on stage with a small digital camera. If a few of those photos happened to capture the view up a dress, that was purely accidental. He reached into his pocket and fingered the small bottle there. He didn't think he'd need it for Courtney, not after the way she was smiling at him, but it couldn't hurt to keep it handy. He hadn't been paying much attention to anything she was saying until he heard his name. He saw she was holding a small plastic statuette of a large golden dollar sign.

“The last award is for the most successful LP alum after five years. Five years is not enough time to really know who will be the biggest success, but we do have a few folks who are already making their mark. Our own quarterback, Troy Tiran, was picked this year by the Oakland Raiders in the NFL draft!”

Applause and cheers exploded around the auditorium, especially from the front two tables. He stood and bounded up onto the stage. He waved to the crowd and approached Courtney ready to collect his trophy.

“Troy. Congratulations. Which round were you picked in?”

“6th round. If I hadn't had to spend two years at the JC. I would've gone in the first round, I'm sure. But Tom Brady was in the 6th round, and he's won three Super Bowls

already. I plan to put him to shame soon. I'll be the most successful QB in history, not just from LP High."

He started to reach for the little trophy.

"That's great, Troy, but now let's get to the other person who may even have exceeded you in the success department."

Troy looked around at the crowd. His cheeks pinkened, and then went full red when she continued.

"You may not have realized who was behind it, but I am sure you all have posted there with all of your friends. Our own George Bailey created the Bailey Boards. I used the boards to find many of you before tonight. With his recent IPO, Forbes says he is worth more than 100 million dollars. That's even more than I make in tips at the steak house." Courtney laughed. "George Bailey is the winner of our most successful half decade award. Unfortunately, it doesn't look like he made it tonight."

George

Troy was still standing next to Courtney at the podium when the mic suddenly went silent. A large screen descended from behind her, and it lit up with George Bailey's face. Lucas and Yuliya both broke out in loud guffaws.

"Thanks, Courtney and thanks to all of you who made it here, in person, tonight." George began. "I started the boards back when I was a student at LP Hi, and some of you were my first users. It's hard to believe it's only been five years and it's hard to believe it's already been five years. Sorry, I couldn't be there with you all tonight, but

the Bailey Boards and other work keeps me pretty busy. Please, give the trophy to Lucas. He'll make sure I get it. Even though I can't be there in person, I will join you all in a toast. I will be picking up the bar tab for the rest of the night, so if you don't have a drink already, go get yourself one – or two or three.”

George paused as cheering alumni formed a long line at the bar on the side of the auditorium. After most of the crowd had a glass of something in their hand, George continued.

“To my classmates from Linus Pauling High! A few of you have been real friends and a few of you have been real assholes.” Titters of laughter rippled across the crowd. “But all of you have inspired me in one way or another. To LP High!” He raised a glass, and the crowd raised theirs in return. “Enjoy your time tonight, and maybe I can be there with you for our ten-year. The bar is on me for the rest of the night.”

Troy

Troy scowled as the crowd broke out in cheers. Then he pasted on a plastic smile and walked down the steps from the stage. He forced his way through the crowd to the bar.

“What's the most expensive whiskey you have?” When the bartender told him, he replied. “Give me a double, no make it a triple, on the rocks.”

He poured it into the trashcan next to the bar and ordered another. This one he sipped as he returned to his table.

“Fucking geek.” He whispered under his breath.

Lucas

Yuliya leaned in over Lucas' left shoulder to see George on the laptop screen.

"This was priceless. You should see the face of Troy. Such red color his cheeks did." She said to the multi-millionaire on the screen.

"He had this stupid little plastic thing in his hand like he won the Lombardi trophy."

Lucas typed awkwardly with his left hand as he waggled the dollar sign in front of the laptop camera with his right.

"Really. This may be my finest award." George said. "Thank you for all your help, Lucas. And it's great to see you again, Yuliya. I'm sending you both my personal contact information. You're probably my two best friends in the world. If you ever need anything, shoot me a message. And if you ever get tired of going to school, there's always a place at the Bailey companies for two people as smart as you guys."

"My place now in Russia, but I do want we talk more than last 5 years."

"I plan to go into research after my PhD. I don't think a social media site needs Neurology research."

"You never know. We do different things than just connect old school mates on the internet. Maybe neurology is our next big thing."

Lucas laughed.

“I still keep our science project alive. Maybe you sponsor electrogenic microbes?” and she laughed too.

“Maybe so.” George replied.

“George Bailey? Is that you?” Jennifer said as she craned her neck around Lucas' other shoulder. “Congratulations, George.”

“Jennifer? I wouldn't have recognized you. You look great. I never would have thought of you as the executive type?”

“Oh, shut up. I don't like dresses these days. Too exposed.”

“Yeah. I don't like ballrooms.” George said with a smile. “Too exposed.”

Jennifer laughed until she was yanked back from the screen by her shoulder. She turned and saw Troy staring down at her. Her heartbeat leaped to 150 bpm. Sweat flooded her palms and her pits. He had a $\frac{2}{3}$ full whiskey glass in one hand, and it was clear it was not his first. He slightly slurred his words.

“Jennifer? What are you doing over here with the Freak and the Beak?” Then he saw George's face on the screen and continued. “...and the Geek! The whole fucking shit ass trifecta is here! How you doin' Geek? You think you're so hot cuz you got money. Big fuckin deal. That's the only way you'll ever get a girl. You still with that nerd girl? How much did you pay her to go out with you? What was her name? Betty? Becky? Something like that. She was hot once I got those nerd clothes off her.”

“Shut up, Troy.” He was a good eight inches taller than her, but Jennifer stood tall and pushed her finger into his face.

“Whoa. Hold on there, Jenny. Don’t be jealous. I’ll get to you too. What are you wearing anyway? You’ll look a lot better when I get you out of that corporate cosplay. What you got on under that outfit?”

Troy winked. He was pleased to see a bead of sweat form and roll down her forehead. It merged with tears welling in her eyes. He caressed the side of her face with the back of his hand and... doubled over with a loud “OOF!” as she kneed him in his groin.

“YOU STAY AWAY FROM ME YOU MOTHERFUCKING RAPIST!”

Sobs shook through her. Lucas raised his hand to comfort her, but she slipped under it and ran through the doors. Yuliya followed.

“Crazy cunt.” Troy said and downed the rest of his drink in one gulp.

He smiled at Lucas, sitting alone now at the table with his laptop, then he staggered his way back towards the bar. Halfway there, he intercepted Courtney and wrapped his arm around her shoulders and pulled her against him. She smiled and squirmed away from him.

George

“Did she call him a rapist?” George asked from the small screen.

"That's what she said, but she left so fast, I didn't get the chance to ask her about it. Yuliya went after her."

Lucas could see George typing away on his own keyboard.

"What are you doing?"

"Oh, nothing. I just thought of something I wanted to check. Probably nothing."

He pulled up Troy's page on the Bailey Boards. There were lots of public pictures of Troy at the NFL draft and Troy with Raiders cheerleaders and Troy with a brand-new car, etc.

Troy had a SWIFTE account too with encrypted content marked for his eyes only. George used his own key and opened the repository. He scrolled through picture after picture of young women and girls passed out and naked. He thought he recognized a couple of them from high school, and then he saw Rebecca. He somehow knew this was the last picture ever taken of her alive. Naked, unconscious, but alive. He returned to the public pictures and looked more closely at Troy's new car and its vanity plate.

Yuliya

George was still typing away when Yuliya returned a few minutes later.

"Jennifer very upset, but she calm down. She say she going home now, but I give her phone number of my hotel if she want more talk later. She said she maybe call me when she get home."

"I hope she's OK." Lucas typed.

“I think so, but I go back to hotel now in case she call.”

“If there’s anything I can do to help, let me know. I can’t be there, but I’ll send someone or something, if you think it would help.” George said. “Damn Troy. He fucks up everything. It was great to see you two again. Sorry we didn’t get to talk more.”

“I go now. Jennifer may call.”

“I should go too.” George answered. “I have some more work to do tonight.”

“I will email you later.” Lucas typed.

Troy

Courtney was a bitch too. She was too old for him anyway. He didn’t need any of these fucking school mates. They didn’t understand what real success was. He swung over to the side of the ballroom and lifted a full bottle of 21-year-old scotch from behind the bar. Success is an NFL contract and a girl younger than your scotch.

“Put it on George Bailey’s tab.” He slurred.

“Hey Troy, maybe you should get a cab.” Jim, the ex-linebacker, said.

“Nah, I’m good. I’m barely buzzed. Besides, my new car has super cruise control that almost drives itself. It’ll be fine.”

“You sure? You can get a room here at the hotel.”

“The chicks at this place are ancient. I’m gonna head to the clubs back near my place where I know I can score some young pussy.”

“I really think...”

“Shut the fuck up, Jim. I’m outa here.”

Considering the amount he’d already drunk, Troy was remarkably stable as he made his way through the parking lot. He took three more swigs from the bottle as he made his way around the parking garage mashing away on his fob. He finally zeroed in on the beeping and found his parking spot. He took one last long swallow, then put the bottle in the trunk of the jet-black sports car. He didn’t want to risk an open container violation.

He was 20 minutes from the reunion and traffic was light on the freeway. He set the cruise control to keep him moving at a constant 75 miles per hour in the fast lane. It maintained speed and position in the center of the lane, except it automatically braked if he got too close behind another car. Safety first.

Occasionally, he’d need to navigate around a car to maintain speed. He flipped off the cruise control to swerve around a Porsche that was doing 65 in the fast lane. He flipped off the Porsche driver too. What kind of an idiot would buy a Porsche and then drive it at only 65, in the fast lane no less? But now there was no one in front of him for a good half mile at least.

He pushed the car to 80, then thought about how much he’d had to drink, and decided to back off. He eased his foot from the gas. The car did not slow down. In fact it continued to accelerate to 85, then 90, then 95. He tried to disengage the cruise control, but it wasn’t on – 100, 105, 110. He stomped on the brake and the car only shook lightly and continued to increase speed: 120, 122, 123,

125. He tried to turn off the ignition, 127, 128, 130, 131. As he approached the connector, it no longer maintained its place in the center of the lane. The vehicle swerved onto the flyover freeway connection and sped up the steep incline – 132, 134. It hit 140 as it summited the interchange. The road curved sharply to the right. The vehicle continued straight, hitting the wall and rocketing skyward. Troy threw his hands across his face as the car rotated several times in midair and came crunching down on its roof in a flood control ditch, 80 feet below.

Martie

Martie leaned against the wall at the base of the stairs. She liked to stretch her calves and her quads after a run. She'd only gone 3 miles today. For some reason, she did not have the energy and initiative to do the long runs anymore, and she didn't really want to climb those stairs. She and Cooper hadn't been fighting lately. In fact, they were hardly talking to each other. She still didn't completely trust him. He'd given her no evidence he'd cheated (again?), but she found herself looking for hints and clues. Intellectually, it seemed he was being faithful, but her gut still wrenched a bit whenever he left the condo. She took a deep breath and climbed the steps.

“Hi Honey, how was your run?” Cooper was watching the sports wrap on the local news.

“Good enough. I did it.”

“Say, do you remember a kid from LP named Troy Tiran?”

“Maybe”

“He was picked by the Raiders in the NFL draft this year.”

“Yeah, OK. The quarterback... graduated what? Five years ago? He was never in my classes, but he was a big man on campus back then. What brings him up?”

“He died in a car crash. They talked about it on the news.”

“Oh, that’s horrible. I remember the kid. He was a little bit of a jerk in school, but...” She trailed off. “Do they know what happened?”

“Not a lot of details. It sounds like he was pretty drunk. Twice the legal limit and driving way too fast.”

“Five years ago – that was the same year my science fair winners graduated. I keep in touch with a couple of them. I’ll need to check in with them and see if they know. Even if they weren’t close, losing someone your own age always seems worse.”

George

BoredMaster: “Hey Teacher Lady”

Lucas: “Howdy, Ms. S.”

Yuliya: “Greeting Ms. Spieler.”

TeacherLady: “Hello. I recognize George and Lucas, and is that Yuliya? Are you still in Russia?”

Yuliya: “Yes, This Yuliya. I am in town for five year reunion. I return to Russia in two days more.”

TeacherLady: "It's good you are here too. I don't know if you all heard, but one of your classmates, Troy Tiran, was killed in a car accident three nights ago."

When no one answered her, Martie continued.

TeacherLady: "Apparently he'd been drinking."

Yuliya: "He drinking very much. That was night of reunion."

TeacherLady: "So you just saw him? I'm sorry that's got to make it even tougher to hear."

Lucas: "Might make it easier. I'm sorry he's dead, but he was a real asshole, in high school and the other night."

BoredMaster: "I wasn't there, but I was video chatting with Lucas for part of the night. I agree I am NOT going to miss Troy. He got what he deserved. Karma's a real bitch sometimes"

TeacherLady: "How could you say that?"

Yuliya: "I talk with Jennifer after reunion. Troy was bad man."

TeacherLady: "?"

Yuliya: "I no tell secrets told to me, but I am also not sorry. He do bad things to her."

BoredMaster: "To lots of girls"

TeacherLady: "What are you saying?"

BoredMaster: "Never mind. There's no point speaking ill of the dead"

Part 4

4.1 September 2009

Martie

It was hard to believe her eleventh year teaching at Linus Pauling High had only begun and she already had to ask for time off. She'd need two or three days, and it wasn't until next month, but this time of year was the hardest to miss. She was just starting to get to know the new kids, and the substitutes didn't understand the curriculum for her tougher courses. She'd have to spend extra time putting together complete lesson plans for the sub. Cooper probably wouldn't even notice. It seemed like he spent more time over at Jim's than he did at home these days.

The kids would be fine. They didn't seem to need her help with homework anymore. Three teenagers. They didn't seem to want much help with anything anymore. She remembered when she was their age. Her dad had been so stupid. He got a lot smarter after she started having kids of her own.

Perry had done well enough at the local public high school to get a track scholarship at the state college. If he could keep up his grades, and his training, his college would be paid for. That was helpful. They were doing OK, especially with reduced rent, but there still wasn't a lot of extra money around.

She couldn't believe Kes was already a junior at Linus Pauling High. She was pleased when he qualified for the science program. Maybe he'd let her help him with some of his homework or maybe

with a project or two, but then again, maybe not. He was a different sort of kid, and wicked smart.

Cara was a freshman. 14 going on 25. How was she the mother of three teenagers? Where did the time go?

This was not how Martie anticipated starting her second decade of teaching at LP High. The lump was scary enough, and the needle biopsy coming back inconclusive freaked her out even more. The doctor kept saying these things were usually benign, but he still wanted the surgery... just to make sure.

Jack

Jack slit open the envelope expecting another report on the status of his rentals: receipts, repairs, etc. printed off from her computer. He was surprised to see a page written in her beautiful long hand. It had been months since Martha had written him a personal letter.

Hey Jack,

I'm not sure why I am writing to you, except I had to tell someone, and you are someone who I feel I can trust. I haven't told anyone else this, and it helps you are 2500 miles away. It makes me feel safer somehow.

I had a mammogram the other day and they found a mass in my left breast. It's probably nothing. The doctor says these things are usually benign. It still scares the hell out of me. If it was serious, he wouldn't have delayed the surgery until next month. I'm going in on the 15th for a surgical biopsy and while they're at it, a lumpectomy. It's only an outpatient thing. I'm sure it'll be fine. I'll be home that night, and I should be back on my feet within a day or two.

I'm not sure why I'm even writing to you about it, except I always felt like you were there for me on our runs. I always felt like I could talk to you about anything. I felt safe with you.

Anyway, I'll try to get all the rent deposits in before the procedure, but depending on how things work out, there might be a little delay for some of the tenants. I promise I'm not running away to Mexico with the rent checks. :-)

If you think of it next month on the 15th, push some positive energy my way.

Thanks for listening, or reading.

Yours,

Martha

Cooper

Martha backed through the front door. She grunted as she heaved her oversized bag up onto the kitchen counter. Several stacks of ungraded papers and a teacher's edition of the advanced calculus text spilled across the surface. One exam slid off the edge and landed near the couch. Cooper grabbed it from the floor and dropped it on the closest stack.

Neither one of them met the eyes of the other. Martha pulled open the refrigerator and popped open a can of cranberry flavored soda water. Cooper turned and lifted his beer and the remote control from the end table next to the couch. He pushed the button, turning off the game. Martie swung around and looked at him. This was the first time in months Cooper had actually turned off the TV without her specifically asking him to.

“Hey, Mar. I’m glad you’re finally home.”

“Is everything OK?”

“Well, maybe. We need to talk.”

“O–Kay. I wanted to talk with you too. You go first. What’s up?”

“Um, do you remember Clarissa?”

“Who?”

“Clarissa. She rented the studio unit. She moved out a few years ago?”

Martha’s eyes widened and her mouth hung halfway open.

“Oh, I remember that girl.”

“Yeah, well, I was telling you the truth back then. Nothing happened between us.”

Martha just glared.

“But you and I never really did click after that. I really tried to be there for you and the kids. I never even visited her unit, not even for repairs... and then she called me at work – after she moved.”

“Uh huh”

They both looked at each other. Martha staring at Cooper and Cooper looking past Martha.

“I’ve been seeing her for the last year and... She’s pregnant. I’m gonna move in with her.”

Martha laughed but said nothing. A snickering laugh escalated to guffaws. She could barely catch her breath.

“Don’t worry. I’ll still help with the kids and stuff.”

More laughter.

“If you need any help with the rental repairs, you can call me for that too.”

Martha wiped her sleeve across her face. Stopped laughing and took a deep breath – and began laughing again.

“I guess I’ll be going. We’ll talk later. Call my cell when you’re ready to talk.”

He picked up a grocery bag full of socks and underwear and slung another large duffel over his shoulder and edged through the front door. Just before the door closed, he turned around.

“You said you wanted to talk to me about something too?”

Through fits of laughter, she said “Never mind. Not important.” and waved him out the door. It closed quietly. The door usually banged like a gunshot when the kids ran through, and now her husband was slipping silently away. She stopped laughing, but still had a wry smile. She shook her head from side to side and started to ponder what she’d say to the kids.

4.2 October 2009

Carol

“Thanks for the ride, Carol. With everything going on, I appreciate the help.”

“You know I’d do anything for you, but I still think you should have told Cooper. He should be here for the mother of his kids.”

“Did I tell you the thing that bothered me the most about him leaving me?”

“What?”

“The thing that bothered me the most was, it really didn’t bother me. He told me he was running off with some young thing, and I realized I didn’t really care. I guess we haven’t really cared for a while.”

“You’ve been married almost 20 years. You think he wouldn’t care if his wife is going in for surgery?”

“Oh, I’m sure he’d be here and say the right things, but it wouldn’t mean anything. He’d still be somewhere else in his head. Besides, it’s only a biopsy. It’s not a big deal.”

“Anytime there’s a chance of the big ‘C’, it’s a big deal.”

The nurse pulled back the curtain around the bed.

“You’ll have to wait in the lobby. There’s a display there to show when she goes into recovery.”

“How long will it take?”

“It’s hard to say for sure, but for a biopsy and lumpectomy, she’ll be in the OR for roughly an hour, but it’ll be around a half hour prep time before and maybe another hour of recovery after. If you want to go get some food or something, she won’t be ready for visitors before one or so. Give or take. Then at least another hour of observation before we let her go home.”

“I can wait. You said there’s a display in the lobby?”

“Get out of here.” Martha interjected. “I’ll be fine and there’s nothing to do out there.”

“OK. I brought a book, but maybe I’ll go grab a bite. I’ll be in the waiting room before one. Call my cell if you’re done early.”

“I’ll be fine. Go go go.”

Martha smiled and waved with the back of her hand. As Carol disappeared through the door, the smile faded, and a small tear drop ran down her cheek.

“Let’s get you going.” The nurse said as she inserted a syringe into the IV line.

Martha wiped the tear from her face with the other hand and noticed her arm was already getting very heavy. She let it fall across her chest and closed her eyes.

Martha

“How are we doing?” the nurse asked.

“A little groggy, but I’m OK. When can I go home?”

“The doctor will be in in a few minutes to go over your results. Would you like to talk with her first or would you like to see your friend and your husband while you wait?”

“My husband?”

“Yes, the gentleman is in the lobby with the woman who brought you in.”

“Carol?” *She knew I didn’t want him to even know.* “I guess you can have them come on in.”

The nurse wandered out. Martha pasted on a forced smile and tried to decide what she would say to Cooper. She didn’t want his sympathy or his pity. He could stay with his little piece of ass and leave her and the kids alone. The forced smile morphed into a genuine grin when she saw the man coming in behind her friend was a half head shorter than Carol.

“JACK! What the hell are you doing here?”

Carol put her fingers to her lips and whispered.

“Shhh, he’s your husband. They wouldn’t let him in otherwise.”

“Sorry. I know I was supposed to send positive energy from New York, but I couldn’t decide which way to direct it. I thought it’d be easier from here.”

“You shouldn’t have, but I’m glad you did. It is really really great to see you, even under these circumstances.”

The door opened and a woman wearing green scrubs entered. She had shoulder length gray-blonde hair spilling from around the

edges of a surgical cap. She had a clipboard in her left hand and held her right towards Jack.

“Hello, I’m Doctor Feynman. Martha’s surgeon.”

“Pleased to meet you.” Jack replied as he shook her hand.

“I’d like to ask the two of you to step outside for a few minutes while I go over the results with Martha.”

“Oh, sure,” Jack said and started towards the door.

“No. No. It’s OK, doctor. They can stay.” Martha interjected.

“You sure?”

“Yes, I’m sure.” and she smiled again as Jack returned to her side.

“Ok. I’ll get right to it then.” Doctor Feynman flipped through the sheets on the clipboard. “We found a small tumor, and it was malignant... but we caught it early and it looks like we were able to remove it all.”

Martha didn’t even realize she’d grabbed Jack’s hand. He squeezed lightly as the doctor continued.

“The prognosis for something like this is very good. We will want to start you on a course of chemotherapy, possibly some radiation treatments.”

“I thought you got it all.”

“Yes, we think we did, but sometimes there are a few runaway cells, and we want to make sure they don’t have the chance to reestablish themselves.”

“What would that entail?”

“You are low risk, so I’d recommend chemo every three weeks for, say, 12 weeks. We’ll check along the way and if we see anything questionable, we might extend it to 24 weeks or add radiation, but I don’t think it will be necessary.”

Martha took a deep breath and squeezed Jack’s hand. Then she smiled and gave a half laugh.

“The important thing. Will I keep my hair?”

“I’ll be honest. The combination Dr. Harris is likely to recommend are milder than some, but you’ll still have a 50/50 chance of some hair thinning. Only 15-20% chance of complete baldness.”

“How about running? Can I still run?” and she winked at Jack.

“You’ll have less energy, and you may have to shorten your distance, but you can still run. I wish all our patients exercised. Exercise is great medicine.”

“But I should have someone run with me just in case, right doctor?”

She looked at Jack in his scuffed running shoes, then at the doctor, and winked again. The doctor looked down at those shoes and gave a knowing smile.

“It’s always better to have someone to exercise with if you can find the right person.”

“You heard her, Jack.”

“Yes, I did. Yes, I did.”

Jack

“Thanks for the ride home, but I will be OK from here.”
Martha said.

“I’ll make sure you get settled in. You don’t want to pop your stitches.”

“OK. Can we swing by the mailbox? I wasn’t expecting to spend the night at the hospital and there might be a rent check. I don’t like leaving those in the box overnight.”

“Sure. It’s the boxes on the corner behind your unit, right?”

“Yeah.”

Martha twisted the small key in the lock and extracted the assorted envelopes, fliers and catalogs. There was one large manila envelope from Peters & Peters. She slid her finger under the flap and pulled it open. She flipped her way through the set of stapled sheets and laughed under her breath.

“Something amusing?” Jack asked.

“In a way. Cooper is serving me with divorce papers.”

“I’m sorry.”

“Oh, I’m not. My folks split when I was little, and I didn’t want to put my kids through the same thing. But I have to admit, Cooper and I never had very much in common besides the kids.”

“Even if it’s a good thing overall, I’m still sorry it didn’t work out for you.”

“Yeah, I guess I am too, but life goes on.” She looked at the mail and waved another envelope back and forth. “Rent check from the Simpsons in 407. They’re only two days late this month.”

4.3 December 2009

Jack

“Thanks for letting me crash your holiday dinner.”

“Nonsense, Jack. I’m glad you could join us. My dad likes to make a fuss. It’s helpful if there’s an outsider. Keeps him under control.”

“That was under control? You must have had an interesting childhood.”

“Yeah. He’s the best, and wicked smart. Taught me it’s OK to be different.”

“You are different from anyone I have ever known. I guess I have to thank Robert.”

“I’ll tell him you said that.” Martha said with a half-smile.

“So, how are you doing? You didn’t leave me in the dust on last night’s run. How’s the chemo hitting you?”

“Not too bad. I’ve had three treatments so far. It wipes me out for a few days, but I’m still able to teach and I can run if I don’t push it too hard. This Christmas break has given me some extra time to rest too. That helps.”

“You look good.”

“Oh, shut up. I look like hell. These circles under my eyes, one and a half tits and now my hair is starting to thin. I don’t feel too bad, but I can see that I look like crap.”

“You shut up. You’re an amazing beautiful lady.”

“OK. OK. What time is your flight on Friday?”

“7 AM.”

“So what time do you want me to swing by?”

“You don’t have to drive me. I can catch a shuttle.”

“You’re going back to New York, and I won’t get to see you again until who knows when. I am going to drive you to the airport.”

“If you insist, you can stop by at five, but I knows when.”

“Five? AM? What did I agree to?” Martha laughed. “Wait? You knows what when?”

“I knows when I’ll be back. I’m transferring to the OC office. My first day will be January 19th.”

“MLK Day?”

“I forgot the holiday. I guess January 20th. Maybe we can hang out on the 19th.”

“Maybe we can.”

Martha

“At least you still have a job. I thought all of the investment houses were going bankrupt. Is that why you’re coming back here? Are they closing down the New York offices?”

“Quite the contrary. Seldon is growing. We’re taking over some of our bigger competitors for pennies on the dollar. The NY office is growing.”

“Really? Then why are you coming to So Cal?”

“The weather – and a few other things. The company is letting me have just about anything I want. I don’t want to brag, but it was my models that started flashing the warning signs for subprime mortgages. We sold off all of our mortgage-backed securities by Q3 2006. And then we took a big gamble and shorted the market heavily.”

“Shorted the market?”

“Basically, we bet the market would fall. I was sure it was going down, but not even my models predicted how big the meltdown would be. My models made Seldon Financial a few billion dollars.”

“Billions?”

“Several. I think if I asked to work from Tahiti, they’d set me up in an office there.”

“Well, I’m glad you chose to come home.”

4.4 April 2010

Jack

This wasn't the first time he'd driven her to and from a doctor's appointment. They'd either seen or talked to each other almost every day since he returned from NY. Still this was a special day.

Martha was a little wobbly. She let Jack take her hand but insisted on walking on her own. This was her last chemotherapy treatment. Dr. Harris insisted all of the recent tests were clean, but she still wanted a full six-month course of infusions to make sure there was nothing left hiding in Martha's body somewhere. There certainly was no hair left hiding on her head.

"You sure you want to go back to school this afternoon?"
Jack asked.

"This is only the second team to make the National Science Fair finals in a dozen years. There is no way I am going to miss the assembly. I am so proud of these kids."

"I remember your first team. They won some scholarships, didn't they?"

"Two out of three of them have PhD's. Lucas, my little special ed project, has two PhD's." Her eyes watered a little before she smiled. "Of course, the third member of the team dropped out of college."

"Oh yeah. George Bailey. He's a real loser. 25 years old and not even a billionaire yet?"

"I would have thought you'd pay more attention to the financial papers. He crossed 10 digits a few months ago."

“I stand corrected. You think the new team will do as well?”

“I’m not sure. They’re very different from the old group, but they’re still wicked smart. Where’d you park?”

“I’m on the second level of the structure. Do you want me to bring the car around?”

“And let everyone see me getting into your piece of shit Corolla? I’ll walk up.”

“Piece of shit? I hope to be running as well when I have 200,000 miles on me.”

“Speaking of running, now I’m done with these treatments, I want to get back on the trails. I won’t be able to go very far, but how about we try something a week from Saturday? Maybe just a walk/run on the bike path?”

“Sounds good to me. All it takes is cancer and six months of chemotherapy for me to have a chance to keep up with you.”

“Enjoy it while it lasts. I’m coming for you.”

“And I’ll always be there waiting for you, or chasing after you.” He grinned. “With a spare shoe.”

Martha slapped at his shoulder as he opened the passenger door of the car.

Martha

The assembly was already in progress when they arrived at Linus Pauling High. There was a student wearing a knit cap with the

green and gold LP High colors by the rear door of the gym. He waved them into the parking space he was saving for her. As Jack pulled the old compact into the space, the teen turned and sprinted into the building. Martha walked slowly through those same doors and climbed the steps to the back of the stage. Eric, the captain of the project team, met her.

“Come on Ms. Spieler, they’re waiting for you.”

“What do you mean? It’s your day, not mine, and you can call me ‘Ms. Scully’ now. The divorce is almost final.”

“Whatever, come on.”

He ran onto the stage and whispered something into the ear of the girl at the microphone. She turned to the crowd and began...

“We are happy to have the opportunity to represent Linus Paul High at the National Science Fair, but we couldn't have done it without our teacher and advisor. Most of you know her as Ms. Spieler. She says that’s changing to Ms. Scully, but you know we all call her Martha. Come on out here, Martha Scully.”

Martha walked slowly onto the stage and waved to the audience. A loud woop and rousing applause spread through the building.

“We are proud to be the team going to the science fair, but we are even prouder to be a team led by this woman. She is so brave and strong and, as she says, wicked smart. Most of you have heard that she’s been fighting cancer this whole school year, but she still guided us through this project. I’m ecstatic to say she just finished her last treatment. Let’s show her how much we love her!”

The young lady pulled the knit cap off her head revealing a gleaming bald scalp. Throughout the building students removed various caps and hats and beanies. The football team freed their heads from the helmets they'd been wearing. The band lifted their oversized cylindrical shakos. The cheer squad and the dance team flipped ragged wigs to the ground. There were a few bald caps, but most of the heads revealed were shaved clean.

Martha stopped and stared open-mouthed at the crowd of bare crowns reflecting back at her from the assembled crowd. Tears spilled down her cheeks and she raised the cap she'd been wearing, revealing her own shining scalp. She waved the hat at the students. The loud cheers became deafening with stomping feet added to the clapping of hands. Martha walked to the podium, but the only words she could get out were: "I love you all." She didn't think it could get louder, but it did.

Part 5

5.1 January 2011

Jack

Martha had not regained all of her speed. She insisted he should NOT wait for her and go at his own speed. He felt a little bad when he left her behind at the one-mile mark. Then she'd passed him at the three-mile mark and didn't look to be slowing down. She was only about 10 yards ahead of him as he approached the turnaround at the top of the hill. Jack raised his hand in time to feel the slap of Martha's high five on her way down.

She was so beautiful. Her hair was as full as ever, but she was keeping it shorter now. She hadn't regained all the weight she lost during chemo, but the thinness that made her look gaunt during treatment now left her sculptured. He didn't think she could look better than she had before the treatments, but somehow, she did, at least in his eyes. And she still rocked those pink shoes and pink shorts.

Jack crested the hill at the halfway mark and grabbed a cup in each hand from the aid station. He took a sip of water, and a drink of the sports drink before splashing the rest of the water over his head. It was warmer than the first time they did this ten-mile trail run a decade ago. He had just enough time to snag another water with his left hand before making the turn towards the second half of the course. His right hand brushed a small lump in the tiny pocket of his running shorts, and he aimed down the slope.

Martha

She felt better on this run than she'd thought she would. She felt strong on the uphill and the flats but was a little tentative on the steep downhills. She hadn't seen Jack since the halfway point, but she figured he couldn't be too far behind. She crested the final hill and saw the balloon arch of the finish line at the bottom of the long sharp decline. She was taking a stutter step approach to the descent, hopping from left to right foot in quick sharp leaps, almost like she was skiing moguls. She was concentrating on where to place each foot when she heard a pounding beat and saw a blur come by her left side.

Jack seemed to be flying out of control at a full sprint. He was leaned forward to the point he looked like he might fall flat on his face at any time. A small cloud of dust kicked up at each slap of his shoes. Martha looked over and smiled as he blew past her.

“Second wind?” She yelled.

“NO BRAKES!” Jack screamed and continued his edge of panic free fall.

Luckily, there was a short flat before the end of the race. Jack was able to gain enough equilibrium to cross the line still standing. He made it as far as a small grassy area before tumbling into a somersault. He somehow rolled and found himself back on his feet. He strolled casually back to collect his finisher's medal just in time for Martha to cross the line and get her own medal.

“You could've killed yourself, you idiot.”

“But I finally beat you. You know what that means, don't you?”

“What? You are the big man now, and I’m a poor weak woman?” Martha asked sarcastically.

“You are the strongest person I have ever met.” The look in his eyes was dead serious. “I hope I can be half as strong as you. I know you don’t need a ‘big man’.”

The volunteer encouraged them to move out of the way of the next runner. Jack reached into his pocket as he went down on his right knee on a patch of grass. He opened the small box and held it up to Martha.

“I know you don’t need me, but I know I want you. I hope you can want me too. Will you marry me?”

“You stupid motherfucker.” Tears welled and rolled down her cheeks. “Yes, I’ll marry you.”

Martha pulled Jack to his feet and kissed him hard. As he slid the ring onto her finger, cheers, whoops and howls echoed across the finishing area. The racer who they’d moved to avoid came over and slapped Jack on the back. He looked at the diamond on Martha’s hand and then at his plastic finisher’s medal. He shook his head slowly from side to side.

George

“Congratulations! From what you’ve told me, this Jack guy sounds great for you.”

George was sitting at his desk. Martha’s video connection was pretty good, but it was a little jittery and jerky.

“Thanks.”

“Your video is a little laggy. I’m going to have to upgrade your high-speed connection – maybe get you a new laptop too.”

“George. That’s another thing I wanted to talk to you about. I like talking with you and the extra cash from being on retainer as a ‘baileyboard’ consultant has been helpful, but I don’t think I should do it anymore.”

“What do you mean? I need our weekly talks. You really help me – and the work you did reviewing the math on our search algorithms. You found the issue faster than my engineers ever could have.”

“I’m getting married again and I still have my teaching, and I have three kids to keep track of.”

“I need our talks. You really help me.”

“Well, that’s the real thing. I don’t think I am helping you. I think you are using me as a crutch, but you are only getting worse.”

“What do you mean!? You’ve been great.”

“When we started these talks, you were still going out in public even if it was with dark glasses to protect you. When was the last time you let anyone see you?”

“You’re seeing me right now... and I was on the video feed for our annual meeting just last week. There were 50 people on the feed watching me, and probably a hundred times that many on the internet.”

“And the last time anyone saw you in person?”

George looked away from his video camera.

“Yeah. I thought so.” Martha said. “I still want to be your friend, and I’ll still talk with you, but first you need to get some help from a professional.”

“I’m not going to go to some shrink’s office and lay on his couch and tell him how I hate my dad and love my mother. That’s all bullshit.”

“You know it doesn’t have to be that way. I bet you can find a therapist who would be willing to start with you by phone, or maybe even video.”

“Maybe.”

“Do you want some help finding a professional?”

“No. I’m still better at internet searching than you. I’ll find someone, but we can still talk right?”

“Tough love. You email me after you’ve had your first appointment, and we’ll talk after that. Deal?”

“...deal” George barely said it out loud.

5.2 February 2011

George

“I don’t know why I’m doing this. I don’t need ‘professional help’” George said to no one. “None of these jokers are going to help me.”

George set up a fake id and established a reasonably complete ‘history’ online that was close enough to his own to help judge the therapists. As far as any of them knew, he was Henry Potter, a wealthy young man with anxiety issues and possibly a form of agoraphobia or maybe anthrophobia.

He’d spent the last two weeks looking for a therapist who would work for him. So far, it had not gone well. He’d dismissed most of them without even contacting them. None of them had video and only a few agreed to phone-based therapy. That was the first litmus test. If they passed, he dove into their online presence and academic backgrounds.

Dr. Herbert Franklin

“...Well, Mr. Potter, do you mind if I call you Henry?”

“Henry is fine.” George told him for the third time in this phone call.

“Your case is very interesting. I’d like to have you come in and we can talk in person.”

“I’ve told you that is not possible.”

“I understand your reluctance, but I feel it will greatly improve your chance of a full recovery if we work directly with each other.”

“No.”

“I can have my assistant install a privacy screen in the office, so you don’t have to be seen to start.”

“Let me think about it. I’ll get back to you.”

There was no way he was going to get back to him.

Dr. Bob Freymann

“...Henry, Henry, Henry. From what you’ve told me about the other therapists, I must agree it would be better to have in person sessions, but I would not require it for now.”

“That’s good to hear.”

“We’ll start with phone calls and move further when you are ready.”

“I’m still looking at a few other folks, but this is sounding good. What are the next steps?”

“I understand we’ve only talked for a half hour or so, but I have a good idea of where you’re coming from. I have several patients with social anxiety I’ve helped. I am ready to write you a prescription for three medications. Two of them are for anxiety and the third is for depression. I can call those into your local pharmacy today.”

“I don’t know that I want to do drugs.”

“I find these pharmaceuticals are the fastest way to deal with issues such as yours. As I’ve said, I’ve successfully treated many patients with this combination. We’ll start with this and alter the amounts, and if we need to, we can replace or add other combinations to best balance your mental environment.”

“I still don’t know. Why an antidepressant? I’m not depressed.”

“Of course you’re not.” and George sensed condescension in his tone. “Sometimes the anti-anxiety medication has side effects, and the antidepressant helps to counteract those. We have a plethora of options to fine tune your mental chemistry to get you right into the swing of things. The most important thing is to get started and then review your reactions and adjust as needed.”

“Let me think about it. I’ll get back to you.”

George

George was ready to give up on finding a therapist he’d be willing to talk to. It seemed like they all wanted to pump him full of drugs and then push him into the public. He was glad he’d created a fake persona to perform his searches. Henry Potter’s email and online profile were getting deluged with offers for herbal supplements, meditation retreats, Wiccan spell therapy, sweat lodges, various online pharmacies offering everything from CBD to erectile dysfunction medication to ‘natural’ energy capsules and potions.

He decided to delete the “Henry Potter” alias and try to talk Martha into helping him again. He launched the virtual server he

used to house 'Henry' and his various accounts. He took one last look at the string of ads and other spam in the inbox. One email caught his eye. The subject was "George Bailey, I think we should talk." He knew he had been very careful about there being no link between the "Potter" identity and his own. The message was from Cynthia Selene, Ph.D.

He ran multiple processes against the email before daring to open it. There were no hidden viruses, no trojan horse scripts, no attachments of any kind. There was a single URL to a website, and he did further scans of that site and all of its code and contents. Again, no suspicious programs or other apparent dangers. Finally, he opened it and read.

"My name is Cynthia Selene. I am a licensed psychologist. I am loosely associated with a psychiatrist with whom you have been recently in contact. Due to privacy concerns, I will not give you his name, but I was able to access your profile questionnaire, or should I say "Henry Potter's" questionnaire.

"Henry Potter seemed an obvious alias of someone who read the story of the boy wizard, and did not want his true identity revealed. After reading more details, I realized Henry was not a modified version of Harry, but rather referred to Henry F. Potter, the nemesis of George Bailey in the old 'It's A Wonderful Life' movie. So, perhaps a rich man, who worries his wealth is not as helpful as the kind acts of someone with less resources. Someone who has a tendency to hide away in his office. And someone who wants the anonymity, perhaps even of a man who was never born, who is invisible.

“I have read many of the tabloid stories of the young billionaire who refuses to be seen in public except over video feeds. The rich young man who has donated to many charities, especially those for protecting the rights of women and children. I have to admit I am a fan of George Bailey.

“Maybe I am being presumptuous, and I have come to the wrong conclusion. If you are not Mr. Bailey, I apologize, but either way I suspect I may be able to help you work through your anxieties and other concerns. I will not give you my qualifications as you can follow the link below to my website for those details. Also, I am not guaranteeing I will work with you. This email is because I found your case interesting. If we talk and I still find you interesting, I will consider bringing you on as a client. If not, I wish you nothing but the best.

Regards,

Cynthia Selene, Ph.D.”

At the bottom of the email was the link to the web site George had already examined. He clicked on it and read through her profile. She had an impressive academic career and tens of recommendations on the site from satisfied patients. More than one had described her as having competence, integrity, and/or compassion. Some also made a point of her discretion and confidentiality.

He double-checked the academic information against her university sites and confirmed her credentials, down to checking her school transcripts from high school forward. Not quite a 4.0, but mostly A’s, and a wide spectrum of classes. Not many people who major in psychology have a computer science minor. He was

impressed with the breadth of her background but perhaps was more impressed with her ability to deduce his true identity. He'd had to be mostly honest in the questionnaires, but he did not think he'd given away enough information for someone to figure out who he really was. He'd have to be careful with this woman. He jotted down the phone number from her site.

Dr. Cynthia Selene

"Good afternoon, you have reached the office of Dr. Selene. How may I help you?"

"I need to talk to the doctor."

"I will need to check to see if she is available. Are you a patient?"

"No. Or at least not yet. My name is Geo- Henry, Henry Potter. She contacted me recently."

"Alright. Let me check. Please hold."

At least the hold music was good, Edie Brickell's "What I Am". George always liked that song. "What I am is what I am. Are you what you are or what..."

"I will put you through to the doctor now." The receptionist said, and after a click and tone...

"Hello, George. I was hoping you would call."

"Henry."

"Henry, if you prefer."

"I prefer."

“I will start by saying, whether or not I decide to accept you as a client, I will treat this conversation as covered by doctor/patient confidentiality. I will safeguard your privacy and confidentiality, and I will never reveal your identity or anything we discuss.”

“Let’s still go with Henry for now.”

“Alright, Henry. Do you have any questions for me?”

“First off, do you need me to come into the office?”

“No. In fact, I prefer to have sessions by phone or online.”

“Online? Chat or video?”

“I use some interactive tools with voice during most sessions, but my live video link still needs more bandwidth. Chat is fine for brief exchanges but loses some of the nuance of the spoken word.”

“That actually sounds pretty good. What about drugs? Are you going to try to dope me up?”

“As a psychologist, I do not prescribe medication. If we decide drugs would be helpful, I will refer you to a psychiatrist.”

“OK. Then what are the next steps?”

“If you are in agreement, I will send you a more comprehensive profile questionnaire. This will also be kept completely confidential. Other than any alias you choose to use, I will need complete and honest answers. After reviewing your responses, I will decide whether or not to accept you as a client.”

“Wait a second. What if I don’t accept you as a therapist?”

“Then do not return the questionnaire. You can expect an email to Henry Potter’s email address within the next 24 hours. It will have a secure link to the questionnaire. If it is not returned within 48 hours, I will assume you are not interested in being helped.”

“Pardon me if I don’t trust your ‘secure link’.”

“Well, perhaps you will trust the SWIFTE repository I use to house the questionnaire. As George Bailey would know, only those with a key can gain access.”

“Yeah, I’ve heard of SWIFTE. OK, send me the link.”

“Certainly. I will look forward to reviewing your responses.”

George

The next morning, “Henry” received the email with the link to the questionnaire. George went online and hacked into the psychologist’s site. It was pretty well protected for a site like hers. It took him longer than he expected to breach the main site, and few other hackers could have ever penetrated her security. She was being honest the patient data was protected by SWIFTE. No hacker was going to get past that without a key. He used his master key and perused some of the content. He felt bad to be looking at other patients’ information, so he only skimmed their files. He spent another hour making sure it really was protected from anyone except the doctor (and of course himself). Satisfied, he started to work on answering the 200+ questions.

Martha

Martha clicked the link to accept the video chat. She smiled just in time for the video feed to freeze on her face. It was a half grin/half grimace. The audio feed was clear, however.

“Hey, Teacher Lady! I don’t know if it’s you or me, but your video’s frozen again.”

“Hello, George. It’s probably me, but you do remember what I told you last time, don’t you?”

After a few seconds the video feed continued with the occasional stops and starts.

“I remember. I don’t have a lot of time, but I wanted to tell you I found a ‘professional’ to talk to. I have to admit, she’s impressive. She saw through the alias I was using, and she seems to get where I’m coming from.”

“Great. Are you being open and honest with her?”

“Surprisingly, YES, at least mostly. I don’t know why, but I trust her. She had a minor in computer science, and she understands the tech mindset.”

“Well, it sounds perfect for you. Anyway, you kept your end of the bargain so I guess we can schedule our weekly talks again.”

“That’s something I wanted to talk to you about. I appreciate you pushing me to get some other help. I’m meeting with her three times a week and, with work and everything, I think maybe we change our talks to once a month? If that’s OK.”

“Sure, George. Sure. Whatever you need. I’m pretty swamped myself these days. I’m planning a wedding for June. It’s going to be small, but I’d love for you to be there.”

“Um, yeah, maybe...”

“If it’s easier, you can help me put together a video feed, if you can get it to be more stable than these chats.”

“I’ll run a dedicated line to the chapel if I need to.”

“Well, no chapel, but you can route something to the condo clubhouse.”

“Condo clubhouse? Can’t you do better than that?”

“Well, originally, we thought about doing it up on the trail where we met, but it’s up the Coal Canyon fire road. I called and they didn’t mind the ceremony but wouldn’t let us bring vehicles onto State Park land. It’d be too steep for my dad and mom to make it there on foot, so we’re sticking with the club house.”

“You just need access for vehicles on the fire road for a day?”

“Not even a day. A few hours, and a car that’ll handle the dirt road to shuttle folks up there and back.”

“The BaileyBoards data center in Anaheim creates a lot of jobs, and my folks work with people on the planning board. If I can swing it, would you accept access, and a 4-wheel-drive for the day as a wedding present?”

“You have too much money, but if you can swing it, it would be great.”

“Consider it done, and congratulations again.”

“Thanks, George.”

5.3 April 2011

George

George appreciated the phone sessions he'd had with Dr. Selene, but he was looking forward to their first video chat. He clicked the link to open the video feed. The screen opened up on the face of an attractive middle-aged woman. She looked to be in her early forties, but it was hard to tell a specific age. Her hair was cut short in an androgynous style hanging just above her ears and above her collar. It was a deep brown bordering on black, parted on the left, with reddish highlights splashed here and there. Her skin was a rich caramel color. Her eyes, a striking blue green but with a partial almond shape. She was some sort of mixture of nationalities, but he couldn't place which ones. Definitely some Asian ancestry, and probably African, maybe Native American. She smiled showing a set of near perfectly straight pearly white teeth. As the smile widened, the video feed froze again.

“Oh, shit!”

“Hello, Henry. Is that how you greet everyone?”

“Sorry, Doctor Selene. It's this video feed. I don't know what's wrong with it. I was looking forward to a face-to-face discussion today.”

“Well, it is only video, but you are making progress if you want someone to see your face, and I told you to call me Cynthia.”

“Right, Cynthia. Video has never bothered me. It's only when someone can see me in person I freak out.”

“Yes, so you said. Have you tried any of the exercises I gave you last time?”

“Kind of. I walked down to the corner of my street and back. I haven’t done that in years.”

“Did you see anyone?”

“It was 3 AM so I was alone. A car did come by when I was at the corner.”

“What did you do then?”

“I hid behind a tree.”

“Taking baby steps is still taking steps.”

Cynthia

“Shall we return to your history? Have you always been unwilling to show yourself?”

“I was always a shy kid, but it’s really only been since I lost Rebecca I’ve completely shut down. Before then, I could at least go out with dark glasses as long as no one could see my eyes.”

“The eyes are the window to the soul.”

“So they say.”

“Do you fear someone seeing into your soul?”

“I don’t believe in a soul. I think we’re all just meat and bones and firing neurons.”

“If you are nothing but ‘meat and bones’, what is the problem with someone seeing the meat?”

“I’ve been struggling with that most of my life.”

“Has anyone looked you in the eyes?”

“Really looked? In the past 20 years? My mom, maybe my dad a few times and Rebecca.”

“Tell me some more about Rebecca.”

“That’s tough for me.” George sniffled and wiped his nose and eyes. “She was the best. Beautiful, smart. The best coder I’ve ever met.”

“How did you feel when you heard she died?”

“It was like someone ripped my heart out of my chest. I was devastated and angry and confused and depressed and lost. Sometimes I still am.”

“Angry? Were you angry at Rebecca for leaving you?”

“No. Maybe. But mostly I was angry at the world. I didn’t believe it could be an accident, but I had no one to blame.”

Cynthia remained passive and waited for him to continue.

“I blamed myself. If I’d let her stay with me. If I’d called her. If I’d...” He put his hands over his face. “I’m still angry at myself for letting it happen.”

“Does anger help you cope?”

“In the short term, maybe. It can be a flame to burn away some of the other feelings. You know. Don’t you ever get angry?”

“From what I find, everyone gets angry sometimes. I am wired a little differently than most people. I try to focus on the rational reasons for my actions and not get caught up in emotions, but we are talking about you. What did you do about this anger?”

“I guess I just stewed in it. I wanted to lash out and hurt someone like I’d been hurt, but I had no proof of what had happened, if anyone else was involved.”

“Proof? Did you suspect someone?”

“Yes. We ran into a man I used to know the night before she died. I suspected he had something to do with it.”

“And?”

“I had no proof at the time, so I bottled up the anger and aimed it back at myself. I retreated into myself even more.”

“At the time?”

“It was years later I did find evidence he was involved. I think he drugged her and that was what led to the accident.”

“Did you want vengeance?”

“I definitely wanted to make sure he couldn’t do it to someone else, but I had focused too much of the anger on myself by then.”

“Did you do something with the evidence?”

“He was killed in a car wreck himself. There didn’t seem a reason to do anything else after that.”

“Did his death give you satisfaction?”

“Briefly. Briefly. For a day or two, it felt like maybe there was some justice for Rebecca, but then I realized she was still gone, and his death would not fill the hole in my heart.”

George was no longer looking at the screen. He was looking somewhere into the distance, but his eyes were not focused on anything in particular.

“Alright. What if we change the subject? You mention you stopped being seen after Rebecca’s death, but you avoided eye contact even before then. When did this start?”

“I think I always avoided eye contact. I was homeschooled from third grade until high school. Mom let me wear dark glasses when the tutors came by.”

“What about your friends?”

“Even then, my friends were just about all online. Chat rooms back then, dark web sites more these days.”

“Dark web? We will come back to that later. When did you start using computers?”

“I’ve played video games ever since I can remember. My dad brought me home a game console from Japan when I was maybe three. I started writing my own computer games by the time I was seven or eight.”

“That is impressive.”

“Not that impressive. I mainly recreated parts of other games, text-based games. I copied Dr. Seuss and Roald Dahl books. That sort of thing. Nothing original.”

“That is more advanced than most eight-year-old children.”

“Yeah, maybe. I like computers.”

“What is it you like about computers?”

“I think it’s because they are easy to understand. They have complicated technology, but ultimately, they follow rules. If you can figure out how to tell them what to do, you know how they will react.”

“Interesting. Do you find people unpredictable?”

“I don’t know if unpredictable is the right word. Maybe irrational? Ridiculous? Willfully ignorant? Sometimes downright evil.”

“You like things that follow rules. Do you consider yourself a rule follower?”

“I haven’t thought about it a lot, but yes, I guess I am. Rules, moral code, or whatever you call it. I think it’s important to stay true to yourself. Rules guide actions and actions lead to consequences.”

Just then the video and the audio both completely stopped, but the onscreen chat function was still working.

Dr. Selene: “I am sorry, but it seems there is a problem with our connection.”

Henry Potter: “I see that.”

Dr. Selene: "I will only charge half price for this session. Can we continue on Thursday at our normal time?"

Henry Potter: "Okay. Thanks."

Dr. Selene: "Before then, try to go outside again, in the daylight."

Henry Potter: "Okay. I'll try. Talk with you on Thursday."

Dr. Selene: "Thursday. 1 PM Pacific Time. On the same video feed link."

Henry Potter: "I'll be here."

George

The video feed was still sketchy, but it was better than the last session. Cynthia's view of George was smooth, but George's view of the doctor continued to have disruptions and freezing fairly frequently. George found it a little frustrating, but as someone who spent most of his childhood on dial-up modems, he had no trouble following the session. At least the audio was clean in both directions.

"Hello, Henry."

"Hello, Cynthia."

"Did you make it out of the house?"

"2 A.M. This time. I didn't hide behind any trees."

“Did anyone see you?”

“Three different cars drove by. I turned around, but I think they saw me.”

“Okay. We will call that progress. During the last session, we talked about your childhood. You said you were homeschooled.”

“Yeah. From third grade until high school when we moved here to California. I had a bunch of different tutors.”

“Did you like your tutors?”

“To be honest, I ignored them for the most part. My mom gave me books with the ‘approved curriculum’, and I followed those. Some of the tutors tried to teach me, but most of them realized they got paid the same whether I talked to them or not. Most of them eventually accepted they could just grade the papers and tests I completed on my own.”

“Most of them?”

“Most didn’t last too long. My favorite tutor was a college student, Lyle Monroe. He tutored me for almost four years. Fifth Grade to Ninth Grade when we moved to California. Lyle was great.”

“What did he do differently?”

“Oh, he let me teach myself too. Never pushed me. Most of the time, he just sat in the room and did his own homework. He was a computer science major. He let me read his books and make copies of some of his programs

and stuff. Before we left, I was helping him do his projects. That was fun.”

“Did you have a least favorite tutor?”

“Elma Wentz. She was my first tutor back in third grade. She was an ex-teacher and must have been 70 years old. She was one of those ‘my way or the highway’ people. That was before I had the books I could read on my own. It was hell.”

“How so?”

“She tried to teach me like I was a full classroom of kids. Lecturing and writing on a blackboard. Bullshit rules and directions: ‘Stay in your seat’ ‘Look at me when I’m talking to you’ ‘Don’t look out the window’ ‘write 100 times, I will not throw things at Mrs. Wentz’ ‘take off those dark glasses’ and other crap. She lasted a month and a half before I convinced my mom to give her the boot. That was when we found the homeschool curriculum books.”

Cynthia

“You started homeschooling in the third grade. How did you like school before then?”

“It was OK. I was always a shy kid, so I never had a lot of friends. I kept to myself a lot.”

“Was there some problem with the other children?”

“I don’t want to sound like I’m stuck up, but I was smarter than most of them. When I was in first grade, they sent me

to the third-grade classroom for math. I liked math and I was good at it, better than most of the third-graders, but I was tiny compared to them. I got picked on.

“There was one kid, Rudy. A big dumb kid. He hated getting shown up by a first grader. He used to poke me and hit me until the teacher caught him a few times. Then he switched to taunting me, little chants and things. Tripping me in the hallways. Spitting in my lunch. That kind of thing.”

“I am sorry you had to deal with such behavior. How did you handle it?”

“I didn’t really. I avoided him as best I could. In the second half of the year, I got bumped to the fourth grade math class. At least then I didn’t have to deal with Rudy in class. In fact, I heard he got held back and had to repeat third grade. Recess was still hell, but class was OK.”

“Was this why your parents decided to homeschool you?”

“No. My dad would have told me to buck up and face him. He was always telling me to stand up for ‘what was right’ even if it was hard.”

“So you put up with this bully for first and second grade, then you switched to homeschool for third grade. What brought that about?”

“Third grade? I did start third grade at school. That was the year they let me go to the fifth-grade science class.”

“Did something happen then?”

....

The video feed was still spotty and jittery, but George's blank stare had nothing to do with bandwidth.

...

"George? George? I said, 'Did something happen in third grade?'"

"Nothing to speak of."

"Nothing?"

"Well, I was expelled two months into the school year."

"That seems like something. Why were you expelled?"

"I hit a teacher. Gave him a concussion. Knocked him out cold."

The video was clear enough to show the smile spread across his face.

"My only regret is he got back up again."

He realized he'd said it out loud.

"That was the first time I think I have seen you look really happy about something. Do you want to tell me the story?"

"I've never told anyone that story. Not even Rebecca..."

George - November 1992

"Georgy Porgy, has no dad. Georgy Porgy, he feels sad. Georgy Porgy. Georgy Porgy. Georgy Porgy."

The taunting, started by Rudy, caught on and most of the third and fourth graders were now joining in and singing along.

“I DO HAVE A DAD! I do.” George said, trying to suppress the tears filling his eyes.

“How come he didn’t come to the picnic last weekend? My dad was there. Jim’s dad was there. Everyone’s dad was there, but not Georgy Porgy’s dad.”

“My dad is more important than all your dads put together. He runs his own company, and he was in South America last weekend. He even got me a magic rock with jewels inside.”

“Georgy Porgy, liar liar liar!”

“I am not. I brought it for science. Mr. Fogle says I can crack it open in class.”

“Li-ar, LI-AR, LIAR LIAR LIAR!” Once again, the whole playground was chanting along.

“I am not. I’ll show YOU RIGHT NOW. I’ll show you.”
George wiped his eyes as he ran towards the classroom.

George’s father had brought him the large geode from his business trip to Brazil. It was cracked a third of the way around the stone. You could just distinguish some of the orange crystals through the small crevice. George left it with the fifth-grade teacher, Mr. Fogle, before school. He agreed he could demonstrate splitting it the rest of the way during their science lesson that afternoon.

There was no one in the hallway, but George tried to be as quiet as he could. Mr. Fogle insisted **no one** was allowed in the classroom during recess. The doorknob would not turn. It was locked, but the door had not quite been pulled tightly closed. He quietly pushed on the door. It opened with a soft creak. He peeked around the edge and saw the outline of the large stone in his

backpack on the edge of the teacher's desk. The room seemed to be empty, so he slipped in and grabbed the pack. He was going to skip back to the playground when he heard what he thought was muffled crying from the closets on the far wall.

Curiosity overcame his paranoia. He tip-toed across the room and pulled open the cloakroom door. Melanie Jenkins was laying back across the top of the cubbies and Mr. Fogle was standing very close to her. Her legs were splayed out to either side of him. She looked into George's eyes and mouthed something to him. Before he could register what words she'd tried to convey, Mr. Fogle pulled at something at his waist then turned, glaring angrily at George.

"I see you, George Bailey." George didn't know what to say. He swallowed and he said nothing. "You are NOT supposed to be in the classroom during recess. You are in a LOT of trouble!" Then he calmed down and continued "but we'll pretend this never happened. You didn't see anything. We didn't see you. Now run along."

"Ye...yes Mr. Fogle. You didn't see me." He turned to leave and heard a whimper from Melanie.

"Now, Melanie. I think we fixed your shoes." Mr. Fogle said, a little too loud, for George's benefit. He looked at George and with a wave of his fingers. "Scoot." and turned to face the young girl.

He went into the hall and started to pull the door behind him. Right before it clicked shut, he paused and closed his eyes. He saw Melanie's face again in his mind's eye. He realized she had been trying to say, 'help me'. He wasn't sure what was happening in the cloakroom, but he knew it wasn't right. His dad always told him to do what was right, even if it was hard.

He spun and slunk quietly through the room. Mr. Fogle was facing away from him. George hefted his knapsack and swung it in a circle over his head. The teacher turned just in time to see the bookbag containing the stone an inch from his face. His hands started to jerk upwards, but before they cleared his belt there was a loud “CRACK”. The geode inside impacted an inch below the bridge of his nose. Mr. Fogle was staggered as a large gash opened and a crimson stream spilled from his nose, staining his blue striped shirt. He wobbled twice then dropped like a rock. The back of his head made another smacking sound as it clipped the edge of the shelves. Melanie screamed and George ran for the door.

His body was blocking her exit, so Melanie stepped lightly onto Mr. Fogle’s chest. His eyes popped open, and he grabbed her ankle. He walked his hands up her legs and gripped her skirt. He staggered to his feet and held her as she tried to squirm past him. He held her tightly, pulled her skirt down and began talking determinedly in short crisp words. He needed to make sure she knew the right story, and what would happen if she got it wrong.

Later in the principal’s office, George tried to explain he was trying to protect Melanie, but she defended the teacher. George attacked Mr. Fogle with no warning and with no provocation. He was only helping her with her shoes and George went crazy.

The entire playground finally got to see George’s dad when he came to retrieve his expelled son. They never did get to see the orange citrine quartz crystals that were exposed when the geode split into two nearly equal pieces on impact with the pedophile’s face.

5.4 June 2011

Lucas

Lucas wobbled on the back of the ATV. He grabbed at the railing and gripped tightly as they ascended the steep slope. The video equipment bounced as the trailer hopped over ruts in the trail. Coming around the turn behind them was the communication equipment, basically a portable cell tower, on another trailer. Ahead of them was the team with the decorations and the flowers. There were still two hours before the ceremony. Lucas was beginning to think he should have waited for a later shuttle in the SUV, but that was supposed to be for the older guests. He'd be OK, and he could help make sure the feeds were working.

As they summited the ridge, the ATV pulled over on a wider flat area next to a steep drop off. There were three other small vehicles with their trailers parked there. Lucas climbed down and looked off to the west. It was a perfect southern California day. The June gloom of the morning had burned away and he could see all the way to the shoreline and Catalina Island 20 plus miles off the coast. The morning sprinkle had washed away the smog layer and the sky was a deep blue with a few wispy clouds overhead.

The crew had already finished building the platform on top of the huge boulder across the flat. There was a waist high railing across the front to prevent anyone from falling. They were adding flowers across and below the railing. Another team was unfolding a dozen decorated folding chairs in two sections below.

George had supplied detailed instructions for the video and audio systems. The technicians seemed to understand what they were doing, but Lucas grunted and pointed and adjusted things that

didn't look quite right. When they completed the base console, he was able to use the voice synthesis to provide more verbal instructions. Within a half hour, there was a large monitor in place of one of the folding chairs. He tapped away at the console and the monitor came to life.

George appeared to be sitting on a large leather bench with a dark window behind him in the front row of the wedding guests. He smiled at Lucas.

“Thanks for helping get everything ready.”

Lucas began typing. *“No problem. How's the video feed?”*

“It's like I'm there with you.”

“You see the platform OK?”

“Tilt the main camera down a scooch.”

Lucas clicked on the mouse and wheeled the control.

“Perfect. Are the other cameras ready yet?”

“They told me all four are in place. Check it out and see how they look.”

George

George clicked away at his own mouse and keyboard. The image shifted and showed the wedding platform from in front, behind and either side. He especially liked the view from behind that showed the worker finalizing the arch. He was standing right about where the bride would be later this afternoon. The sunlight

glinted on the ocean in the distance over his shoulder. The sunset wedding should be spectacular.

He clicked again and held a small box with a joystick. The drone on the ATV next to Lucas spun to life and rose above the scene. George guided it, circling the site. He'd turn the drone over to a better pilot and cameraman for the ceremony, but he enjoyed controlling the craft for now. He could see an ATV as it curved its way down the road. He flew it towards the freeway and the access road. The security guards he'd hired were monitoring the small parking area where they were staging the teams and where the guests would be arriving soon.

Lucas

With an hour to go before the ceremony, the site was transformed. It was still a wide spot in a fire road at the top of a ridge, but there were arrangements of native wildflowers spread around the area in what almost seemed a random pattern but had a certain aesthetic that fit the countryside there. All of the unnecessary equipment had been removed, and the ATV's had returned to the bottom of the hill.

Lucas was sitting in a chair at the console next to 'George' when the SUV arrived. Martha, her best friend, Carol, and her two kids, Cara and Kes waved to him as they exited. Cara must be 15 or 16 now. She'd certainly grown up since the last time he'd seen her. She was going to be the 'Best Maid' for Jack. Their older brother, Perry, was staying with his dad. He did not want to see his mother marry another man.

Lucas pointed around behind the boulder and platform to where a tent was hidden. Kes was following Martha and carrying a rolling suitcase that he was not able to roll on the rough ground. He

presumed it contained her wedding dress since she was dressed in shorts and a T-Shirt. Carol was dressed in a simple black and white pantsuit with a subdued floral print top. She had obtained an online license and was going to perform the ceremony. They all disappeared around the right corner of the boulder and into the tent. The SUV did a Y-turn and returned down the hillside.

There was just enough room for the jeep to pass it on the wide spot in the road. There was a woman Lucas did not know in the front passenger seat and three men across the bench seat behind her. All three of them were wearing tuxedo suits. He recognized the groom and father of the bride. The third man looked to be in his mid-forties. He had the thick neck, almond shaped eyes and flat face Lucas associated with Down Syndrome, Martha's brother, Bobby. He was going to be Martha's "Man of Honor". As they piled out of the vehicle, it reversed and headed down the road to get more guests. It was going to be a small crowd here. Most of the folks would have to wait for the reception at the club house.

"Hey Lucas! Great to see you again." Robert gripped his hand. "This is Martha's mom, Angeline."

"Oh, call me, Angie." Lucas typed away.

"Pleased to meet you. Is this Martha's brother?"

"I am Bobby. Happy to meet you." He shook Lucas' hand vigorously.

"Where's the bride?" Jack asked.

"She is in the tent getting ready. No peeking. It's bad luck."

"No peeking." Bobby repeated and laughed.

With a combination of hand signals and short directions played over the speaker system, Lucas let everyone know where they should sit. Angie was checking her reflection in the monitor when George appeared again. She jumped and squealed.

“Sorry to startle you.” George said. “I was one of Martha’s students, and now I’m one of her friends.”

“Uh, OK. Um, pleased to meet you. I’m Angie. Martha’s mother.”

“George helped arrange this whole thing.” Robert said, sweeping his hand around the site.

“Your daughter has helped me in many, many ways. It’s the least I can do.”

“So, what’s with the TV screen? If she’s so important, why aren’t you here in person?”

“That’s enough, Angeline. Let’s just say ‘thank you’ and try to be pleasant for the afternoon.”

“Don’t tell me what to do, Robert. You’re not my husband anymore.”

“Thank god” Robert whispered.

“What did you say?”

“I said, I never could tell you what to do. You are your own woman, Angeline.”

“Yes, I am.” she said with a huff.

And they took seats on opposite sides of the narrow aisle between the chairs. Lucas plugged something into the console and soft

instrumental music began to play, Bach. Jack came up to him and whispered in his ear. He handed him a small flash drive. Lucas wagged his head a little then placed it on the console and gave Jack the “OK” sign. Jack disappeared around the right corner of the boulder.

Carol

It was not a long ceremony. Carol kept smiling and almost giggled a few times as she gave the standard ‘wedding’ lines. She was now officially a minister of some internet church. Jack and Martha had written their own vows centered around best friends becoming best loves. They exchanged rings. Jack kissed his bride as the sun was setting behind them. George’s cameras picked up the red, blues, purples, oranges and the flood of other colors covering the western sky. Martha’s white veil glowed with the hues reflecting off the evening clouds.

“Ladies and Gentlemen, may I present to you for the first time, John and Martha Scully-Harshaw!”

The crowd erupted in cheers. Jack and Martha kissed again. On the video monitor, George popped a bottle of champagne. A pair of hawks screeched and twisted on the breeze above the couple.

Jack

“Thank you all for joining us here! We’ll be back at the clubhouse at the condo for the reception. The cars will be ready to take you down in a few minutes. Martha and I will meet you down there.” Then he nodded at Lucas and said “Now”

Jack pulled a cord, and the flowered railing fell forward revealing the bride and groom from the waist down. While he was in a tuxedo suit and she in a white dress, the dress ended in a short skirt. Below they were both wearing running shorts and shoes. Jack's were navy blue and, of course, Martha was in matching pink shorts and pink running shoes with pink socks.

Another cheer from the small crowd echoed across the canyon, and Lucas pushed play for the flash drive plugged into the console. The song that blared across the site was "MOVIN' RIGHT ALONG" from the Muppet Movie. Jack took Martha's hand and they verily skipped down the rock face.

"We'll see you all down the hill!"

And they took off hand in hand rambling down the winding fire road, Martha's veil floating behind her lifted by the wind and her momentum.

"Me too!" said Bobby and he started jogging after the bride and groom.

Kes looked over at his sister and shrugged. "What the hell" and the two of them followed their uncle. It wasn't long before everyone except Angeline and Lucas were either running or walking down the steep switchbacks.

"I'll wait for the car," she said.

Lucas just gave her a thumbs up and cranked the volume on the console. "Movin' Right Along..."

Martha

They had a big lead on the guests as they careened down the winding path. They slowed to a walk as they came around the last switchback before the tunnel under the freeway. On the other side they could see the ATV's and the jeep getting ready to return to disassemble the wedding site.

“Thanks for not leaving me in the dust this time.” Jack said.

“Thanks for not throwing a shoe at me.”

“To you. Not at you.”

“Can you believe it's been over ten years since you first chased me down that hill?”

“I'd roll through sagebrush again anytime to follow those pink shorts.”

Martha slugged him playfully. Jack rubbed his shoulder then pointed up towards the freeway. There was a stretch limousine parked by the side of the road on the overpass. It was jet black with all the windows tinted a dark black as well. The right rear door opened and a tall thin man in a dark suit with mirrored aviator glasses stepped out. He had a bottle of champagne in his left hand, and he pulled on a cord near the wall with his right. A large banner unfurled, rolling down and covering a third of the tunnel entrance.

“CONGRATULATIONS! MARTHA AND JACK!”

Martha smiled and waved. The smile morphed into an amazed gasp as the young man removed his glasses. His eyes were tightly closed and then they slowly crept open – and he looked directly into her eyes.

“George,” she whispered.

“George? I thought he never came out in public?”

“He doesn’t.”

Tears welled in her eyes as the man poured a glass of champagne and raised it to her in a toast. He slugged the drink in one swallow and climbed back into the limo and it pulled away.

“Best wedding present ever.” Martha said to herself, and then to Jack, “We better get moving. It’s still almost 4 miles to the reception and we have to get there before those folks behind us run us down.”

Jack took her hand again and they headed through the tunnel at an ambling pace.

5.5 July 2011

George

There was still the occasional freeze or distortions of the picture, but it seemed most of the issues with the video feed were resolved. Cynthia looked pleased when he told her about not only taking a car out in the daylight but showing himself to Martha without his glasses as well.

“That is a huge step. How did you feel when you looked her in the eyes?”

“Surprisingly, it felt good. I admit I had a little panic attack when I got back into the car, but meeting Martha’s eyes felt right. I even thought about going to the reception, but I chickened out and went home.”

“Still, you did take the risk, and you did follow through. Very good. Very good. You are making substantial progress.”

“It seemed like the right thing to do. Ms. Scully, Martha, has been one of my biggest supporters over the years. She’s the one who convinced me to find you.”

“You have mentioned doing the right thing multiple times in our sessions. I understand that is important to you.”

“Yeah, I guess so.”

“You have also indicated you follow rules, but in some of our earlier sessions, you told me when you were younger, you hacked into public and private systems. You changed data and manipulated information. That is illegal. Even for

this wedding, you used your wealth to override regulations to make it happen. It seems you are willing to break the rules when it suits you.”

George stopped and thought for a moment. Looking at the screen, Cynthia’s face did not give away her feelings. It was an expressionless stare, exuding patience, but not judging. He almost thought the screen had frozen again when she blinked.

“I am a rule follower, but not arbitrary rules. Laws are not the same as morals. Sometimes you have to break other people’s rules to be true to yourself. Do you know Robert Heinlein?”

“Yes, I am familiar with the science fiction writer.”

“He was one of Rebecca’s favorite authors. Since she passed, I’ve read almost everything he’s written.”

“I have to admit I pay more attention to non-fiction than to fiction. I prefer things that are confirmed to be true.”

“Often fiction is truer than someone’s view of ‘truth’. In one of his books Heinlein said something like ‘*One person is responsible. Always. In terms of morals there is no such thing as state. Just people. Individuals. Each responsible for his own acts.*’ I think that’s kind of where I’m coming from. Being responsible for yourself, following your own internal compass, taking care of those you care for and not hurting anyone unless they are hurting someone else.”

“Interesting. You say to hurt no one, unless they are hurting someone else. Do you feel it is right to punish people outside the law?”

“I don’t remember where I heard it. It was a military code or something someone told me, Rule 303.”

“What is Rule 303?”

“Simply put, ‘if you have the means, you have the responsibility’. The way I read it, if you have the ability to help someone who needs help, you have the responsibility to do so. Maybe even more so, if you have the ability to stop someone who is hurting someone else, then you have the responsibility to do so.”

“Interesting. Are you saying the end justifies the means?”

“If it means stopping someone from hurting others and doesn’t hurt anyone who doesn’t deserve it, then, yes, I guess the ends can justify the means.”

“And if what you do is illegal? Do you take responsibility for those actions?”

“I’ll go with Heinlein again. I may not have this quote perfect, but it’s something like *‘I will accept any rules that you feel necessary to your freedom. I am free, no matter what rules surround me. If I find them tolerable, I tolerate them; if I find them too obnoxious, I break them. I am free because I know that I alone am morally responsible for everything I do.’*” He looked into the eyes on the screen. “...If what I am doing is right, it really doesn’t matter if it’s legal or not. If I have the means, I have the responsibility. I’ll do my best to not get involved with law enforcement, but something being illegal does not absolve me of the responsibility to do what is right.”

George stopped again and thought a moment before continuing.

“Of course, this is all covered under doctor patient confidentiality, and of course, we are only speculating on hypothetical actions. Nothing that actually occurred.” George winked.

“Of course... Henry Potter.” Cynthia awkwardly winked back.

Cynthia

“I would like to talk a little more about doing the right thing. I understand you follow some sort of internal moral code. Is that correct?”

“I guess so. I hadn’t thought about it in those terms before, but that sounds right.”

“How does one establish such a moral code?”

“I think it’s a combination of things. Probably a lot of it’s from my parents.”

“Those that brought you into the world set your code?”

“A lot of it. They set many of the original rules, but there’s education and religion and reading. Rebecca used to say she got more of her morality from Heinlein than she ever did from religion.”

“So you combine the influences of your family and your education to create your moral code.”

“You also have to internalize your own experience too. I think empathy has a lot to do with it. You get hurt and you realize you don’t want to hurt other people.”

“Can you do anything without hurting someone else?”

“I’m not sure I understand what you mean.”

“Everything has some negative effects. If you drive a car, you add pollution to the environment which might affect someone with asthma. If you eat meat, you have to kill animals, and food fed to those animals could have been fed to someone else who is hungry. How do you decide what is an acceptable level of pain to inflict?”

“You’re making me think about things I don’t usually think about.”

“Is that not what a counselor is supposed to do?”

“I guess so. I think part of it is not inflicting pain directly. Not hurting someone on purpose. Trying to balance the positive gains against the potential negative impacts.”

“Then if you get enough return from it, it is OK to hurt others?”

“That’s not what I meant. You want to try to minimize negative impacts to others but balance it against overall gains to the world as a whole. And to be honest, you kind of have to put your personal well-being at the top of the list, to some extent.”

“Who else is on this list and how do you rank them?”

“There’s no real list, but those you love are more important than folks you don’t know. Maybe it’s not fair, but that’s the way it is. Your family, your friends, yourself. Those are the top of the list.”

“If you do not know them personally, they are not important?”

“I didn’t say that. Everyone is important, but you have to have some sense of priorities. You do the most to help those closest to you, but you should always try to not hurt anyone directly... and to try to make up for the damage you do inadvertently.”

“How do you compensate for hurting the stranger with asthma when you drive your car?”

“I may not be able to help them directly. I can probably never even know who they are directly, but I can try to invest in cleaner technologies and such. I can try to have a net positive effect on the world at large.”

“And does the Bailey Boards have a positive effect?”

“I hope so. They do bring people together. I’ve heard of people finding lost loves and meeting others with similar interests.”

“How does this stop bad things from happening?”

“Well, I do contribute to several charities.”

Cynthia said nothing more. Her image on the monitor gave a half smile as she shook her head slowly from side to side.

“OK. You are right. I can probably do more with some of my skills and resources.”

Part 6

6.1 April 2012

Grand Center Hotel - Los Angeles

Drake locked the inner door of the suite and double-checked the “Do Not Disturb” sign was still hanging from the doorknob. He was in his late thirties or early forties. Not a tall man, about 5’8” with a dirty brown hairline creeping northward towards the top of his head. His Hawaiian print shirt was unbuttoned down to his chest, and a small poof of dirty gray hair curled up over the button. His butt crack peaked from a pair of cargo shorts hung low over bony knees. He wore skateboard sneakers with no socks. He had the latest smartphone tucked under his chin as his hands were full of video equipment, camera, lights, and an oversized bag.

“Yeah, I got the merchandise. I’m bringing photos and video to the meet. I think we need to charge extra for this one. So sweet.”

He pushed the elevator call button with his elbow and turned to look out the window across from the lift. It was a beautiful view of the downtown skyline from the 69th floor.

“I’ll be there in half an hour if traffic doesn’t suck. You got the buyer ready? ...
... No problem. If he’s got the cash, we can deliver tonight.”

Just then the elevator door pinged, and Drake felt the light breeze of the opening doors.

“I’m gettin’ on the elevator so I might lose signal.” and he stepped backwards.

Los Angeles Field Office - FBI Crimes Against Children Unit

Agent Glass reviewed the file on his desk again, then leafed through a couple of other manila folders. He tapped the small troll doll on top of his monitor with the latest folder. It teetered on one leg before plummeting to the floor. Glass whistled then splayed out his hands as it impacted.

“Something weird is going on here. That’s the third fuck we’ve been investigating who’s died in a strange accident in the last 9 months.” Agent Glass said.

“Well, Steve, I can’t say I’m sorry to see any of them go, especially this Drake. Did you see the pictures of the little girl they found in his hotel room? She couldn’t have been more than 10.” Agent Edwards said.

“She was seven. Yeah. I saw her. I hope she can get over it... I didn’t think elevator doors would open if the car wasn’t there.”

“They’re not supposed to. Either there was a malfunction or our man, Drake, forced them open for some reason.”

“The elevator company did a full check, and they said everything was working normally. No logs of any errors or other problems. The only malfunction was that camera in the hallway, and it had been down for a while. Nothing recorded there for a couple of days.”

“He did have a lot of coke and other shit in his system. Maybe he thought he could fly or maybe he was fucking around and slipped. Dirt bag probably got tired of waiting for the car to arrive and, you know, thought he’d have a closer look.”

“Could be. Still, there was Jackson with the freak electrocution, Smithers getting clobbered by his own remote-control plane, and now Drake and a 68 floor fall down an elevator shaft.”

“The plane one was hilarious! He must’ve paid a fortune for a remote-control jet and ended up with it knocking in the back of his skull.”

“Don’t let the press hear you talkin’ like that – but it was kind of funny.” Glass laughed under his breath. “You think these accidents are that – accidents?”

“Hey, random shit happens, Steve, and if it happens to cockroaches like Drake, Jackson and Smithers, then I thank the universe for supplying the karmic bug spray.”

“Yeah, I guess.”

6.2 May 2012

Lucas

Lucas was pounding away at the keyboard with his four-finger peck and jab style. He was in a cubicle in the corner of the lab. On the far corner of the desk, a small gray rat sat and nibbled on some crumbs. Lucas paused and broke another corner off his bagel and tossed it over to the rodent.

Helen McEvoy, the lead scientist of the lab, poked her head around the corner.

“Again? You know he’s a lab animal, not a pet.”

He tapped away then clicked on something at his desk and a robotic voice answered.

“Snicker’s not just a lab animal. He’s going to lead us into the next phase of our research.”

“That’s why I’m here so early today. I’ve got some bad news about the grant.”

“Do I want to know?”

“Probably not. It was denied. I was depending on that funding. We’ve been overspending already, and we haven’t gotten any new results lately.”

“How can we expect new results if we keep doing the same thing? We need to move on from only deep brain stimulation

and put the feedback mechanisms in place."

"Two-way communication directly with the brain is fascinating, but the grant committee didn't think it was feasible."

"That's why we need the extra funding... so we can make it feasible."

"But we didn't get the money."

"Well, we can still press on at our old level. It'll be slower, but we'll figure out something."

"That's just it. We didn't get the new funding, AND we lost our previous grant too. I'm going to have to shut down almost all research until I figure something else out. The university's budget was cut too. I'm lucky I have tenure, but I'll still be back teaching undergrads next quarter."

"Shit. What does that mean for me?"

"I'm sorry, Lucas. You are the best assistant, the best researcher, I've ever had. Your analyses are insightful and the way you use the computer to find hidden data and patterns is magnificent. I'll be happy to write you a letter of recommendation and personally talk to some of the other folks in the department to see if we can find a space for you."

"I appreciate it, but if everyone's budget is cut..."

6.3 June 2012

Lucas

If he didn't already have a ticket, he probably would have skipped the 10-year reunion. He doubted there would be anyone he really wanted to see. Yuliya was still in Russia. George was busy with his 'Boards' and was handling some of his dad's businesses too. He was becoming even more of a recluse than he'd been in high school. Still, now that he was unemployed, Lucas couldn't afford to let a free meal go to waste.

He was seated by himself at a small table at the back of the hall, pushing some sort of Mexican food around on his plate. His laptop was pivoted off to his left. A tequila and soda balanced on the keyboard. Some song by Christina Aguilera was playing as folks made their way through the buffet line. How many of them had peaked when that song was still popular? Had he peaked then too?

"Is this seat taken?"

He turned and saw a beautiful woman. Her hair was cut short, mostly blonde, with one bright purple streak running from above her left eye and down behind the left ear. She was dressed in a similarly colored knee length purple dress. Lucas jerked around to find his keyboard, knocking the tequila onto the floor. He grunted before tapping his reply.

"No. Please sit. Jennifer, you look terrific!"

"Just a minute. Let me get you another drink. What was it? Smells like tequila."

"Tequila and soda, but I don't need it. Sit down."

"You may not need it, but I need a drink. I'll be right back."

"George is picking up the tab again, but only for the first two drinks each after what happened to Troy last time."

"Troy" she snorted. "Now I really need a drink."

She returned minutes later and set a glass down in front of Lucas. She raised her own glass to him, and he clinked her glass.

"I never had tequila and soda before. It's not bad."

"I don't drink much, but I like it when I do."

"What have you been up to for the last five years?"

"I finished my second PhD. and was doing research at UCSD."

"Was?"

"Funding issues. Now, I'm just slumming while I try to find something else. What have you been up to? Weren't you studying psychology?"

"I'm sure you'll do great. After hearing about all your degrees at the five-year, you inspired me. I finished at Cal State and went to North Carolina for my Masters. I'm doing counseling at the women's shelter in Santa Ana now."

"That's great!"

"It's not a lot of money, but I feel like I'm helping. Counseling helped me when I needed it, and I wanted to pay it back somehow."

"I am very impressed. Tell me more."

Jennifer and Lucas chatted for 20 or 30 minutes. They were oblivious to the fact that most everyone else had finished dinner and Courtney was on stage. Neither one of them was a recipient of any of the latest set of reunion trophies so they weren't paying attention. Lucas was paying too much attention to Jennifer to even hear his name over the loudspeaker until Courtney repeated it three times.

"Lucas? Lucas? Lucas Abernathy?" He finally looked up. "Are you going to be collecting George's trophy again this year? Do you have any other video surprises for us?"

He typed something to Jennifer who yelled up to the stage.

"It doesn't look like George is going to make it tonight. There's no virtual George Bailey in the works either."

Then the back door opened. A tall young man in a blue blazer over jeans walked into the room. He wore wrap-around reflector glasses and lime green running shoes.

George

"I believe that's for me? Sorry I'm late."

George strolled to the stage and accepted his second award for most successful alumni. Even through the Great Recession of 2008, his net assets had continued to skyrocket. He was easily

worth more than the rest of this room combined. Maybe the rest of this town combined. He gave a brief acceptance speech and held the tacky trophy over his head. There was extended applause as he made his way to the small table at the back of the room.

"Holy Shit, George. You are out in public!"

"We'll see how long I last."

"It's good to see you, George." Jennifer added.

"Thanks. It's great to see you again, Jennifer. You look spectacular. I thought dresses left you too exposed."

"And I thought ballrooms made you feel the same."

"Touche'. I guess we've both made some progress in the last 5 years."

"It hasn't been easy, but yeah, I'm in a much better place."

"Jennifer is a psychologist, doing counseling at a women's shelter."

"Great. I understand how important a good counselor can be. Otherwise, I wouldn't be here tonight."

"I know what you mean. It took me almost three years of work before I got the nerve to go back to school. It was hard to leave her when I went cross country for grad school."

"Where'd you go?"

"U.N.C. North Carolina. PhD in Clinical Psychology."

“U.N.C.? That’s where my therapist got her degree. Do you know a Cynthia Selene?”

“Probably before my time.”

“Yeah, what was I thinking? She would have got her doctorate there in the late 90’s. 1997, if I remember.”

“You know when she was awarded?”

“I’m paranoid. I checked her background online before I met with her. I want to know everything about a person before I even consider trusting them.”

“Whatever works for you. Maybe one of my professors would know her. My advisor is an alumni and would’ve been in the program about then. What was the name again?”

“Cynthia Selene. S-E-L-E-N-E. She’s been great for me.”

Lucas had a hard time typing fast enough to participate in an ongoing conversation, but Jennifer paused to jot down the name on a napkin, he was able to work his way in.

“She must be great to get you out in public.”

“Oh, don’t get me wrong. I’m still fucked up, but I can do it now – for a little while.”

“Sometimes just doing it is enough.” Jennifer said.

“But sometimes you need to do more. What shelter are you working for?”

“I work out of the downtown Santa Ana office, but we have three facilities I visit. We used to have four, but one of the women told her husband where she was. He threw a Molotov cocktail through the window. Luckily no one was hurt, but it torched the place. We can’t afford to renovate it.”

“Maybe I can help. Dr. Selene says one of the best ways to help yourself is to help others. Let me know who to talk to about an anonymous donation.”

“You don’t have to do that.” Jennifer said, but she wrote a name and number on a business card and slid it over to George.

“And what about you, Lucas? How’s your research coming?”

Lucas’ face dropped and he paused a few seconds before continuing typing.

“The research is not coming. Funding dried up.”

“Well, bad news for you, but maybe it’s good news for me. Your timing is perfect.”

“What are you talking about?”

“Well, I’m looking to start a life science division for Bailey Corp and I’d like you to be my first project lead.”

“Bullshit. What’s this project you want me to work on?”

“You tell me. I expect a presentation on your proposed project by the end of next week.”

“I appreciate the thought, but I don’t want handouts from you or anyone else.”

“Oh, this is not charity, Lucas. I know you and I see what you are capable of. I guarantee you I’m going to make a bundle off your research whatever it is... and I’m going to keep the profits from everything you come up with.” George laughed.

“Well, I have a proposal that was rejected by our grant committee, but I don’t think it has commercial potential.”

“Send that proposal over.”

“Alright, but it’s not going to be cheap and it may never be profitable.”

“You leave the profit to me. You just make that shit work.”

6.4 August 2012

Lucas

It was hard to believe he was the chief scientist of his own lab. He was still pretty sure George was only sponsoring him because of their history together. What would a social media company want with a neuroscientist? George insisted he saw possible downstream synergies and he was investing in Lucas, not giving him charity. Lucas wasn't sure, but he wasn't going to say 'no' to a fully funded lab. He even got to hire his old roommate as a lab assistant.

Cleides was gifted when it came to the surgeries on the animals. Lucas was much more physically stable than he was in high school, but he would not trust himself to insert a microwire into a specific region of a rodent's brain. Cleides would have made an awesome surgeon if he hadn't liked smoking pot, drinking beer and 'dancing' with coeds more than studying. He'd done well on his MCAT, but that wasn't enough to compensate for the dips in his GPA his partying caused.

Lucas was still working to get his lab together. He had a dozen animal cages along the south wall. Cleides was checking the food and water dispensers even though the cages were all still empty. The rats were not supposed to arrive until Tuesday. Only the one cage on Lucas' desk was occupied. Dr. McEvoy had let him keep Snickers. He lifted the small gate, pulled the rodent out and set him on his shoulder. He handed the end of a baby carrot to the animal. It grabbed it from his fingers and began gnawing away at the orange root. He turned and tapped away at the flexible dual keyboards hung along each thigh. His 'voice' spilled from the smartphone on a cord around his neck.

"All good over there?"

"Yeah. This place is great. I love your new voice synthesizer too."

"I don't know why I didn't think of it before, a split keyboard, blue-toothed to an i-Phone. George's folks put it together for me. It took some getting used to, but now it's much easier to get around. I love it almost as much as this space. It's really starting to come together."

"I thought the lab at the UC was great, but this one will put it to shame." Cleides replied. "But I don't understand what we need with all the computers."

"Are you kidding? George is giving us access to his latest AI tools. That's going to make the synaptical mapping much easier."

"If you say so."

"Our current models are having trouble tracking 20 microwire inputs. Once we get this working, we should be able to track a few hundred, maybe more."

"I don't know how we're going to get so many wires into those little brains."

"That's why I have your steady hands."
and they both laughed.

Martha

Martha set the large stack of rental applications off to the side and was sifting her way through a stack of about forty 3x5 index cards. She and Jack rented at below market rates. They always got more applications than they ever had openings. She quickly discarded three quarters of the cards into a basket on the left side of the kitchen table. She was left with nine she then sorted following her own internal criteria. After another pass, she had culled the stack down to three cards, only then did she match the names on the cards to the applications.

“You decide who’s gonna get the open apartment yet?”
Jack asked.

“I’ve got it narrowed down to these three.”

“You want my help with those?”

“Didn’t you pick the last renter we had in there?”

“His credit score was great.”

“Yeah, but he cranked his stereo to eleven all night long and the place was trashed when we finally got him out of there.”

“He paid his rent on time.”

She just shook her head and smirked at her husband. He understands money, but he doesn’t understand people. She rolled her chair across the kitchen to the file cabinet in the living room and dug out the original application from the evicted young man. She wagged it in front of his face.

“Look at this thing. You can barely read what he wrote. His handwriting is atrocious. It runs over the lines and up and down. If he hadn’t included his business card, I couldn’t tell you where he worked.”

“But his income...”

“Income is only one thing. If someone takes care in how they do one thing, they tend to take care in how they do everything. How much did it cost to replace the carpeting, and the toilet? What did he even do in there?”

“OK. OK. I won’t rent when you’re out of town anymore.”

She held each 3x5 card and compared it to the accompanying rental application. She finally selected one and held it to her husband.

“Here you go. Look at this card. See how precise the handwriting is. See how she was even with her spacing. This is someone who is careful with their writing and will be conscientious with their things – and with our place.”

Jack looked over the card, then read the full form.

“You’re not worried about having two young kids in there?”

“You trusted me with my kids, didn’t you?”

“You win. You want me to call her and let her know she got it, or do you want to?”

“I’ll do it this time. Speaking of kids, have you signed the deal with the management company for the new apartment building yet?”

“What does that have to do with kids?”

“I’m driving Kes to Fort Lewis next week.” She looked at him. “And when I get home, the new school year starts. I’m going to be busy enough handling the four condos we have here. I can’t handle a forty-unit apartment building too.”

“Relax. I have the contract in the car. I want you to read it over and then we can sign it.”

“Thanks.” She ruffled his hair and kissed his cheek.

“You know. I know you love it, but you don’t have to keep teaching if you want to focus on other things. Really, neither one of us has to work.”

“It’s not the money. Next year, I’ll have been at Linus Pauling for 15 years. I haven’t led a science fair team near the podium at Nationals since my second year. Last year we got to the quarterfinals, and that was with a team of sophomores. They might make it to the finals this year and, if they stick together, maybe win.”

“I love the way your eyes light up when you talk about those kids and their science projects.”

Kestrel

They finished setting up his half of the dorm room. His mom barely came to his chin, but he still felt like a baby as he looked down into her eyes. She pulled him to her and held him – and held him – and held him.

“OK. Mom. I have to breathe.” She dropped her arms and looked up into her son’s eyes.

“I love you very much.” She wiped a tear from her cheek. “You have fun this year, but not too much fun... and keep up with your classes.”

“I love you too, Mom. I’ll be fine.”

“I know you will, but I’m not so sure about me.”

“Were you this weird when Perry went off to Cal Poly?”

“I’m always weird, but at least he was in the same state.”

“Colorado isn’t so far.” He looked down at his watch. “Don’t you have a plane to catch?” A car horn honked and she looked at her own watch.

“Oh. That’s got to be my ride now. I better get going. I was hoping I could meet your roommate.”

“Antero is supposed to be back anytime, but you have a plane to catch. I’ll send you a picture when he gets here. Now go.”

She wrapped him in a firm embrace and held him – and held him – and held him. He bent down and kissed the top of her head.

“I love you, Mom. Now GO.”

“I love you too.” Both cheeks were now wet. “You stay on top of your classes, and have fun too, but not too much fun – and don’t EVER drive if you have too much fun.”

“I know. I know. I know. You’ve said that about a hundred times. I’m eighteen years old. I’m an adult, mom. Now go.”

“And a wicked smart adult at that! But you’re still my baby.”

She raised on tiptoes and kissed his cheek. She had to push a long strand of black hair over his ear. The car horn honked again. She blew her nose, grabbed her rolling suitcase and rushed out the door. As she hurried down the stairs, she almost collided with a young Native American boy – man – coming the other way. She nodded as she spun around him and continued to the waiting airport shuttle. She climbed into a window seat and looked up to see Kes waving from his second-floor room. The young man she’d seen on the stairs appeared in the window next to him and draped his arm over Kes’s shoulder. They both turned away as the van turned left out of the small parking lot.

Part 7

7.1 May 2014

Yuliya

Yuliya probably should not have attended the protests over the last elections. She still felt no one should be able to serve a third term when the Russian constitution forbade it. Even though most of the administration of the university silently agreed with her position, she had not been quiet enough herself. She didn't participate in any of the rioting, but that didn't stop her from being arrested for just being there. She didn't know how he'd done it, but her 'uncle' had 'friends' and she was released with a warning. Still, she knew her information was on a government list somewhere now.

She was lucky to keep her academic position. She'd see if that was true in 6 months when her contract came up for renewal. In the meantime, her research funding dried to almost nothing. The university was willing to give her lab space, but no other funding beyond her meager salary. If it wasn't for the unofficial imports her 'uncle' was able to scrounge, she would have had to abandon her project. Even with his help, it was slow going to make progress.

“Uncle Yuri! Is good to see you. How was your trip?”

“A fairly successful venture for me, but I was only able to get some of the equipment and supplies you requested.”

He pointed to the boxes in the back of the panel truck parked outside the door. She ran to the truck and lifted the lid on one of the crates. She turned and threw her arms around her uncle.

“This very expensive equipment. Thank you much. Is getting very hard to continue research. I not know what I do without you. I not know how I ever repay.”

“Oh Yuliya, this is a small part of what I owe your father for what he did for me. He saved my life more than once. I am sorry I was too late to save him on the last mission. How is your research coming?”

“Very slow, but new supplies help. Latest ingestible solution working very well. I create natural electrodes, so far in fish, reptiles and rodents, in lower digestive tract. Each attach to cells at base of colon crypts in large intestine. Uses natural electrochemical reaction from cells to power electrode. With external scanner, I can locate any of them anywhere in lab.”

Yuri understood maybe a quarter of what she said, but he smiled at her.

“Are any of them surviving the process?” He said with a chuckle.

“Yes, I’ve overcome issues I was having. Electrodes only slow digestion small amount. All current subjects are very healthy. No more diarrhea and no more malnutrition.”

“That’s good. I didn’t like the look of those mice when I was here last year. I support your work no matter what, but what is the use of these animal electrodes? Can you make money with it?”

“Uncle Yuri, not everything is about money. Sometimes science just to find out what we find out.”

“With your funding cut off, money also helps you to find out what you can find out.”

“Spoken like true capitalist. There maybe a hundred ways this could be used in future. Internal health monitors? Natural tracking devices? Give to sheep and track them anywhere on a ranch.”

“Tracking devices? Would these electrodes be detectable, say by airport security scans or metal detectors?”

“The current in electrodes mimic body’s natural electro-chemical process and have no extra metals or energy sources. They be undetectable without specialized scanners.”

“How far away could these scanners be?”

“One of my mice escape and I use handheld scanner to find in minutes. It was behind main tank. Right now, I only can scan in building, but you could scan from hundreds of meters, maybe more with airborne scanner.”

“Interesting. If you can make it work, you might get back some of the government funding you lost.”

“I don’t know if I want funding from current government. I don’t really want them to have say in research.”

“I understand, but let’s not say such things out loud.”

Yuri

Yuliya hesitated before continuing. Yuri would do anything for her, but even though he was an ‘independent contractor’ these days, she knew he still had ties to his old military and other

government connections. She didn't want to jeopardize his future in Russia with what she really wanted to ask for.

"Uncle Yuri?"

"Yes, my little sunshine?"

"I do not want funding from government."

"Yes, so you said."

"I have other opportunity for funding – but might be difficult."

"How so?"

"You know I was exchange student in America as teenager?"

"Yes. Another reason you don't want to protest here. You are surely already under... observation."

"When I was in America, I met a boy who is now rich industrialist. I have contacted him by email."

"I hope you used the tools I gave you. Emails to America are monitored."

"Yes, I was careful."

"Good. So tell me about this American?"

"He was good friend in school and says he will sponsor research if I come to USA. He can get access to newest technologies."

"And you can't get that in Russia?"

“I can get nothing in Russia these days. I can no get even travel visa since protest. I hate ask more, but do you know way to get me to America?”

Yuri’s eyes drifted skyward, to the left, and then to the right. They ricocheted back and forth for a few seconds as his mind turned over the question. He closed his eyes and then opened them wide and swung around to face Yuliya.

“Perhaps, but it could not be through government contacts. I have some other ‘friends’ who may be able to help. Can you explain your tracking gel and how to make it and use it? I think we can trade for an unofficial tour to America.”

“Is that only way?”

“It is fastest way, and it keeps it out of the government's hands, at least for now. How long would it take you to document the process?”

“I have my paper already written with most information. No one will publish it in Russia, but it is complete. With a couple of weeks of work, I make it less technical. You will need samples of bacterial solution. It is easy to grow, but you could not create them without the samples.”

“Good. Good. I will reach out to my contacts. Once you finish documenting, get me some samples and we can see about getting you a travel itinerary.”

“I don’t know how to thank you, Uncle Yuri.”

“Oh, do not thank me. I owe your father, and I may be able to make a bit of profit for myself on this as well.”

7.2 July 2014

Lucas

It was eerily quiet in this narrow corridor. The walls were high and gray. Lucas could not quite see the ceiling. He stretched his legs and arms and pulled his face to within a hand's width of the ceiling. He could see beyond the semi-transparent ceiling, but only blurred shapes and color. The very air in the room was vaguely translucent. Everywhere he looked, it was almost as if he was in a thick fog, but the fog was not quite fog. It was not in focus, almost a pixelation of the air. Around the corners, the walls seemed fuzzy and indistinct.

He could sense some movement above him, above the ceiling, but that was hazy too. He could not tell what it was. Was something or someone watching him? In the distance, past the plastic barrier, barely visible, were shapes resembling, maybe, a face. It appeared to be a giant or huge statue, and it too was hazy and indistinct. From the patterns of angles and colors, it seemed almost like an oversized face looking down at him. It reminded him of someone he knew, but it was not clear enough to recognize. The face was wrapped in some sort of headgear with a blank black face mask across where there should have been eyes.

Lucas dropped to the floor and resumed walking. There was a slight tug, and his head jerked back and upwards. Over his shoulder, he saw a cable running from a track in the ceiling to the helmet he was wearing. He was caught by the wires. He could move forward or back, and the line would follow him in a track overhead. He tried to pull it off his head, but it was stuck tight. It would not budge.

He shuffled forward and brought himself to a T intersection in the corridor. One wall to the left was a greenish color. The hallway stretching to the right was light blue. He looked from one direction to the other multiple times and finally headed down the right-hand hallway. At every intersection there was a green hallway, a blue hallway and sometimes a pink hallway running away from it. Lucas always took the blue hallway. He did not know why, but for some reason, it seemed like the best choice.

He began to hurry. He began to run. It felt good to run. Always following the blue wall. Left, Left, Straight Ahead, Right, Left, Straight, Left, Right, Right, Straight, Straight, Straight, Left... and he found himself in a large circular room. There were 8 corridors branching out from the circle. They were all different shades of blue. Looking at each of the exit portals, none of them were the exact shade as the one where he entered. Every one of them was as foggy and muddled as the next.

He couldn't decide which way to turn. He circled the room a few times. He looked down each corridor. He had almost decided to take the one straight across from where he had entered when he found himself running down the one with the darkest blue shade. A quick left, another straight through and another left. There was no color difference in any of the hallways now, all of them the same dark blue, but he felt he was headed in the right direction. Something was pulling him forward. Two more lefts and he was in a small square room.

The walls were still blue, but there was a large reddish circle on the floor and some sort of rectangle outlined on the wall. Without thinking Lucas leapt onto the red circle. A hatchway sprung open and two brown cylinders dropped to the floor. One of those cylinders was enough to cover the palm of his hand. He looked down at the brown object he held, then he could not help it. He

shoveled it into his mouth and forced it into his left cheek. He grabbed another with both hands and gnawed on it.

“Okay. How was it?”

The voice came from somewhere. Lucas was not sure where.

“Are you okay in there?... Let’s get that off of you.”

Light flooded the room and Lucas blinked, once, twice, and held his eyes tightly closed for one, two, three, four seconds. When he opened them, it still took a moment for his vision, and his mind, to clear and refocus. He found himself looking down at the top of a large maze. In one corner was a gray and white rat jumping repeatedly on a small red button. It gathered the food pellets released from a flap in the wall. It alternated between gnawing and swallowing and shoving them into its cheeks. He shook his head back and forth a couple more times. His own mouth felt swollen and dry. He reached for his keyboard and pecked out.

“We better get Doodles out of there before he pops his belly.”

Cleides

Cleides flipped open the plexiglass lid on the maze and gently lifted the small rodent. He disconnected the wiring from the small headpiece and stroked its nose. He carried the rat across the room and placed it in a wire cage.

“So, how was it?”

“The best yet. I just about lost track of everything but the maze. I was IN Doodle’s vision centers. It wasn’t

perfect, but we've made it past the worst of the pixelation we were seeing in the past. We may want to increase the screen size on the helmet though. I was losing peripheral vision. It's hard to mimic vision for an animal with eyes on the sides of its head when you are used to having both in front."

"I was thinking, you might want to switch to goggles, one for each eye so you are more in line with what each of his eyes is seeing."

"That's a good idea. We'll need to see if we can get the resolution we need with a goggle-sized screen."

"What about the sound? Did you hear the music I was playing into the maze?"

"No. We still need to work on the audio centers. I thought the extra microwires would get us sound. I did not get anything audible. I think there was a little static but that might've been feedback."

"There's not much room in the headset for more wires. Maybe I can adjust the placement next time. But the video was clear this time?"

"It was as clear as we're likely to get with rat eyesight and the current wiring. I wish we could hear what Doodle's hearing. How did HE do?"

“D3-4 made his fastest run through the maze yet. I think he’s learned that blue leads to more rewards than other colors. He still didn’t quite match S1’s run this morning, but then S1 didn’t have you hanging around in his head.”

“Snickers is faster than Doodle. Maybe I should hitchhike with him sometime soon. I wish we had a better setup than the microwire headgear. Snicker’s getting old now. I don’t know if he could take the surgery, but I’d love to get inside his head.”

“Really, Luke. You have to stop giving them names. We’ll probably need to pull their little brains from their heads when we’re done. Naming them is only going to make it harder.”

Cleides began peeling the individual contacts off of Lucas’ shaved head. There were several dozen small adhesives with metal contacts. Each of them had a grid of between 12 and 60 small pins that pierced his skin to a depth of less than a millimeter. He wiped down each pin grid with an alcohol solution, then wrapped the individual wires and stored them inside the large helmet. Once the equipment was handled, he wiped a similar swab across the top of Lucas’ head. The pin pricks were barely visible across his naked scalp.

He cringed at the sting of alcohol against the tiny stab wounds. Light red streaks decorated the wipes.

“I think the pulses from the direct pin contact to the scalp helped me get more into the experience. It was great to run in the maze. I actually felt happy when

we got the food pellets. Maybe it was the higher res on the vision screen, but I almost felt I was sharing some of Doodle's feelings, or maybe it was just my reactions to the experience."

"Probably just you. You shouldn't be getting any emotional response from the subject. You were wired directly into his brain, but the microwires only attach to his vision centers and, maybe soon, we'll get the audio centers working."

"Not directly. The computer algorithms are processing the input, and Snickers may have implants in his brain, but the best I can do is these pin contacts. Still, it was cool to be in a rat's brain for a few minutes, and it felt good to run."

Yuliya - Somewhere in the Northern Pacific

Yuliya huddled in the cabin holding the small door closed against the wind. She had her bacterial samples in a small backpack. She double-checked the contents then slid her arms through the straps. She could see Vlad, one of the fishing boat crew, facing out to sea. He was holding a large light and aiming it into the darkness. She noticed a set of returning flashes coming from off the port side of the trawler.

Less than two minutes later, the American boat pulled parallel to the Russian vessel. At least she assumed it was American. She could not hear the words, but she picked up on the cadence of the man's accent. Several men appeared on both decks and the boom

swung around from the US boat with a huge net carrying large bales of greenish dried plants wrapped in translucent plastic. They were quickly stowed below deck and after two more loads of sealed crates, another net full of fish was dumped over the top into the same cargo hold. Three large boxes were then lifted from the Russian boat. Once everything was secured, Vlad returned and opened the cabin door and handed her a cell phone and another case the size of a large flat shoe box.

“Your turn, Yuliya. Keep this with you at all times. Make sure it gets to a man called ‘Turtle’. When you meet him, tell him you are ‘cold as ice’. If he says ‘ice is not so cold in Alaska’, give him the package and the telephone. If everything is good, he will get you to your friend in California.”

“And what if everything not so good?”

“Then we will give condolences to Yuri.”

Yuliya swallowed hard then stepped into the harness. Vlad clicked it into place and hoisted her into the air. “Hold tight to your bag.” She wrapped one arm around the rope and then hugged the satchel to her chest as she rose and swung across the gap. The cold spray hit her face. She squeezed her eyes closed and clutched even tighter. She kept repeating “I’m cold as ice. I’m cold as ice.” under her breath. Her eyes were still tightly clamped when someone pulled on her legs, and they dropped her onto the wooden deck.

“Well, little lady. Let’s get you unclipped. Let me get that.”

“I’ll keep it.” She clutched the case even tighter against her chest.

“OK. OK.” He unclipped the harness and pointed toward the stairs leading down. “Suit yourself. Let’s get you to a bunk.”

“Thank you.” And again, too soft to be heard “cold as ice, cold as ice, cold as ice...”

Yuliya - Port Alexander, Alaska

“You sure you don’t want me to hold that, little lady?” The man said, eyeing the container.

“No Thank You! I’ve got it!” Yuliya insisted.

She grasped the valise even tighter as she stepped down into the small launch. The boat shifted under her weight, and she slipped, landing on her ass with a quiet splash. She struggled out of the puddle and to her feet just long enough to plop down on a small bench at the front of the craft. Cold water soaked through her pants. She shivered as it pulled away and sped towards the floating dock.

Yuliya had been nauseated most of the two weeks at sea. She was happy to be on shore again, but she did not have her land legs yet. It was low tide when they arrived at the small marina, and the ramp to the upper dock was a steep incline. She clasped the rope handrail with her left hand as she staggered up the gangway. She gripped the handle of the briefcase with her right. She remained vertical until she reached the dock, but then she relaxed and stumbled.

The bag skittered across the floor and came to rest at the feet of a large round man. He was about 5 foot six, and he was nearly as wide as he was tall with thick muscular arms. His hair was cut short inside a hooded sleeveless jacket. Tattoos ran across both

arms. He smiled below a dark brown handlebar mustache and bent to pick up the case. Yuliya rose to all fours and sprint-crawled. She covered the 6 feet between them and fell across the satchel. She pulled it under her body.

“Uh, this is mine.”

“Yeah, sure. Are you Yuliya?”

“Maybe.” And a small smile crept across her lips. Then she frowned and said, “Who are you?”

“I am Frederick, but my friends call me ‘the turtle’.”

“Turtle? Turtle. Turtle.”

“Yes, Turtle.”

“I am freezing.” Yuliya said. He looked at her questioningly.

“No. That not it. Um...Oh shit.” Then her eyes lit up and she said. “Cold as ice. I’m cold as ice!”

“Ice is not so cold in Alaska.” The Turtle replied. “Let’s go into my office.”

Yuliya pulled herself to her feet, wrapped both arms back around the case and followed him into the office. As soon as they were inside, she placed it on his desk, then reached into her pocket and handed him the flip phone. He spun the combination lock and popped open the package. Yuliya’s eyes widened as she saw several plastic bags containing various raw and cut jewels. They sparkled under the small desk lamp. The Turtle opened the largest sack and pulled a random sample of the largest stones. He put a jeweler’s loupe in his left eye and inspected seven different gems

and he smiled. There was an old landline phone on his desk that actually had a dial. He flipped a few numbers and waited for someone to answer on the other end. Yuliya could hear only his end of the conversation.

“The merchandise was good?... everything was in order?... Good, good. ...Yes, Sitka... Yes... No... Call me when it’s done.” And he hung up and nodded to Yuliya. “Very good.”

He lifted the cell phone and selected the one speed dial number programmed into it. When the call was answered, he said “The ice is very cold in Kamchatka.” He snapped the phone into two pieces and ground both pieces below his boot before tossing them out the window into the bay. Yuliya slipped the small backpack off and checked the contents. Satisfied that the four bottles had survived the trip, she shrugged it back on.

“Now what?” She asked.

“Now you have a sea plane to catch. Come with me.”

7.3 August 2014

Lucas

George appeared life-sized on the west wall of the room. He was dressed in jeans and a Concrete Blonde T-Shirt, 'God is a Bullet' on the front and "Still in Hollywood" across his shoulder blades with an image of the famous sign. Lucas saw the sign as he turned and waved to something or someone off camera.

"Hi, guys. How are the new runs coming along?"

"It's great. The visuals are clearer than ever." Lucas responded from his computer speakers. *"We're still working on audio, but that new microwire you supplied should let us increase our capacity there. We should be able to get you the next set of results within the next few weeks."*

"Excellent! Have you done anything with the big room in the back?"

"No, you said you had other plans. It is a good space, but I think we have plenty of room here."

"Great. Great. I have plans for that space and a surprise for you."

"The new microwires were surprise enough. I don't know if I can take more."

“You remember Yuliya?”

“Of course. Have you talked with her lately?”

“She’s still working with the electrogenic microbes from our science fair project. She’s got some cool ideas working.”

“OK?”

“She’s also said she’d like to come to America again.”

“That’s great.”

“If you’re up for it, we’re getting the band back together.”

“What?”

At that, the door of the lab opened and a woman wearing a medium-sized green backpack walked in. Lucas’ face broke into a wide grin when he saw her. He didn’t bother to type out a message. He ran across the room and hugged her.

“Do not damage backpack. Is my life.”

“Hi! I’m Cleides. Lucas’ lab assistant.” He said, shaking her hand. Lucas tapped on the keyboards on his thighs.

“Much more than that. He is a great friend. Cleides, this is Yuliya.”

“From the National Science Fair Yuliya?”

“Correct.”

“Cleides is unusual name.”

“Short for Hippocleides. My dad thinks the ancient Greeks still rule the civilized world.”

“Oh, Hippocleides! You do not care!” Yuliya giggled, then was afraid she’d said too much. Cleides hooted in amusement.

“You know your Greek legends.”

“My father also love ancient Greeks, but Sparta more than Athens.”

“No accounting for taste.” Cleides said.

“We’ll be working to get Yuliya some assistants, but I am hoping you two can help her get set up in the meantime.” George interjected from the west wall.

“Our pleasure!” Cleides nearly shouted. Lucas raised both hands in a two thumbs up salute.

“I no need assistants. I used to working by self.”

“Well, you’re going to have to get used to some help. Let’s go take a look at your space, Yuliya.” Cleides said.

Yuliya looked around the large room. A counter ran the length of the far side, broken by a double sink near the center, and a notch for a large refrigerator at the right corner. On the left side of the sinks, there was a coffee machine and a microwave. There were a few large steel tables arranged semi-randomly around the otherwise open space.

“I will be needing large aquariums to grow solutions.”

“You’re still using aquariums?” George said, his image now displayed on the wall of the new room. “We can get you some better holding tanks.”

“We start with fish tanks. Those work very good. Then we maybe try other thing later.”

“Well, then let’s go find a pet store and get you started.” Cleides said with a smile.

“For the time being, she’ll need to keep a low profile.” George interjected. “I’ve got my lawyers working on getting her a proper visa.” and as an afterthought underneath his breath, “I may need to make a few campaign contributions to speed things up.”

“OK, make a list of what you need, and I’ll run out and get things to get you started. Is that OK with you, George?”

“Sounds good, Cleides. Use your company credit card and get whatever she needs to get started. For the more specialized equipment, Yuliya, make a wish list and Cleides will work with our suppliers to get you what you need.”

“Thank you much. For now, I want get samples growing: 4 large aquariums –100 liter or more – with aerator, filtered water to fill, a few things I probably borrow from lab, and cot for me. I need place to sleep.”

“The small spout on the sink is filtered water, reverse osmosis, and you won’t need a cot.” George explained. “There’s a small apartment in building number 3 in the back. You can use it until we find you a place of your own.”

“You are too generous.”

“Don’t thank me yet. For now, you might have to share the space with Lucas and Cleides when they’re working late.”

“I call the couch.” Lucas typed.

“Maybe you should get me that cot.” Cleides said.

“We work something out.” Yuliya replied.

Yuliya

There were eight 55-gallon aquariums, each with dual aerators working. Yuliya was moving from tank to tank, measuring pH levels and nutrient contents. For now, she was only using one of the tanks for the electrogenic microbes. It was a very robust bacteria and with the new setup, its population was doubling twice per day. She’d have enough volume to seed the other tanks before week’s end. She looked up as a knocking came from the far side of the room. She waved Cleides and Lucas into the room.

“How’s the lab coming together?” Cleides asked.

“Is good. Faster than I expect. I be ready for next steps soon.”

“What sort of energy levels are you getting these days?” Lucas asked.

“Am not using for electrical generation now. We reach almost maximum energy level during high school project. I try increase yields for three years more and never reach level to make practical generating electricity.”

“So, what are you doing with them now?”

“I use to create electrodes in animals. I track animals' locations by measuring the electrical fields in their digestive tracts.”

“To get a field strong enough to measure, wouldn't it hurt the animals?”

“That is beauty of microbe electrodes. They use modulated frequency of electrical signal. Easy to measure and very low strength. Animals are fine. I use fish and reptiles and mammals, like rodents in lab.”

“Can we see it work?” Cleides asked. “We have some extra rats.”

“I still need build scanner. I could not smuggle mine from Russia. That will take few days, but is not hard. Can you help acquire components?”

“For sure. Anything you need.”

Cleides

“You sure you're OK with me helping out Yuliya this much?”

“Definitely. I have to go through the data from the last few runs and get a summary to George by next week. I won't need much of your help with that.”

“Great. I thought it was just a bunch of slime in a fish tank, but she's doing some cool stuff. Did you know the bacteria are not even the interesting part?”

“What is the interesting part?”

“She’s found there’s a virus infecting the bacteria. They do have electrogenic properties, but it’s the virus that is the real engine for the process. It’s kind of a symbiotic relationship. The virus infects the bacterial cells and uses them to reproduce, and in return it supercharges the bacterial electrical generation.”

“Supercharges?”

“I don’t know how it works yet, but the viral infection is what produces the unique signaling in the electrical impulses. It’s really cool... and she’s really smart. She’s awesome.”

“What is that grin about?”

“What grin?”

“You go ahead and ‘help’ her, but remember you have to come back and help configure the next run when I finish this analysis.”

“Sure. Call whenever you need me.”

He didn’t even try to hide the grin as he disappeared into the lab in the back. Lucas turned to his monitor.

Lucas

Reviewing the data, he couldn’t understand why he was not receiving any audio. The input seemed as strong from those microwires as from the optical regions, but it wasn’t being sent to the audio output. Maybe the AI just didn’t have enough data yet to craft the signaling. He had a pretty good grasp of how to use the AI modules to translate the optical feed, but he had to admit he did

not understand how it worked under the covers. He pulled up the instant messaging app.

Lucas: “Hi, George. Do you have a minute?”

George: “... ..”

Lucas: “Never mind. I know you’re swamped.”

George: “Not at all, give me two minutes.”

...

George: “What can I do for you?”

Lucas: “I’m working on the results from our last run. We’re getting good vision, but no audio. I think it might have something to do with the AI. I’m hoping you can point me to someone who understands the guts of the AI better than I do, who might be able to help configure the interpreters.”

George: “Thank you”

Lucas: “Thank me?”

George: “Yes, thank you. I’m up to my eyeballs in corporate finance reports and I am bored out of my skull. Finally, I get something fun to play with.”

Lucas: “Really, that’s not necessary. I know you are busy. I just need the name of...”

The oversized monitor on the wall went from a real-time image of the North Rim of The Grand Canyon to a man sitting at a large desk. His hair was uncombed, as if he’d been smoothing it with a sweaty hand. He was wearing a Nirvana T-shirt and probably shorts behind the desk.

“Hi. Which server farm are you using?”

“George. You are too busy.”

“Shut up. What server farm are you using?”

“We’ve been on the Bender array for the last 6 months. I’m thinking maybe we haven’t supplied data from the subject’s audio centers. Or maybe the AI hasn’t learned how to interpret it into sound.”

“Maybe, but give me a minute while I check the logs. When was the last run?”

“We’ve done several solo runs, but the last paired run was Friday July 15.”

On the monitor, Lucas could see George typing and clicking away. He appeared to be staring at him, but Lucas knew he was engrossed in the data on his own desktop monitors. It reminded him of the days in the converted stable with the science fair project. George could get lost in data and code. George looked up and finally said “Oh yeah,” clicked something else, and his picture was replaced with a view of his computer screen.

“It looks like the feeds are registering significant input from the audio centers. It seems to be running it through the interpreters, but it’s not making it back to the pairing speakers.”

“That’s what I saw. Any ideas?”

“Just a minute.”

Lucas was good with computers, but George was a master. Lucas watched the shared screen as different graphs, charts, spreadsheets, text data, logs and other images flashed by for a few seconds only to be replaced by something else. This went on for half an hour. Lucas could tell George was interrogating the servers themselves as well as the summary reports and even digging into some of the specific data entries. He couldn't follow the rapid flow of information. He was about to tell George to skip it and get back to his real job when the screen stopped at a single line of a configuration file.

“I think I found your problem.”

“Really?”

“Do you understand the distributed analysis modules?”

“Kind of, that's where different processes can spin out and run on different machines?”

“You've got it basically right. Your main processing is on the Bender server farm. That's the main AI controller for your project, but the AI process is a lot bigger than Bender. Bender sets up the priorities and then sends the individual inquiries to various internal and external nodes. Your vision processing is happening within the Bender servers, but the audio got shipped off to the Leela farm for analysis and interpretation.”

“OK”

“Bender has no direct control over how the Leela servers do their processing. It's kind of like you asking Cleides to get you supplies. Bender is you and Leela is Cleides. You

say what you want, but it's up to your assistant to follow through and make it happen. You have no direct control over what he does or how he does it.”

“I follow, kind of. So Bender is getting the audio data and sending it to Leela, but she doesn't hear it?”

“Oh, she hears it, and translates it, and returns the feed to Bender.” George laughed quietly.

“Then why didn't I hear it? And what's so funny?”

George clicked a couple more times and the image of the configuration file magnified to 4x its previous size.

“The Bender AI is not a stand-alone process. In fact, all of the AI modules are interactive. All are independent, but they can also be subsidiaries to any other. Sometimes several thousand of those processes. Some of those are directly controlled, but most are independent and use their own methods and data to reach conclusions. Some of them might even loop around and use the primary process as a new subordinate.”

“I follow you, but I still don't see what's funny.”

“This” said George, highlighting a section of text in the config file. “Is this your entry? What were you trying to do here?”

“Yes. Cleides and I configured that. We wanted to make sure we had exclusive rights to the Bender farm while we were

running. We've been running at over 80% capacity and we didn't want one of the other processes grabbing our bandwidth."

"That's what I thought. And do you know what it actually does?"

"What?"

"Well, you did give yourself exclusive rights to Bender, but you blocked everything from accessing Bender. When the audio processing went to Leela, your block stopped it from returning."

"I guess it is kind of ironic."

George made a quick change to the config file and saved it. Then started the recording of the last paired run and played back a short portion. The foggy gray video of the run through the maze played on the wall monitor. Pearl Jam's song "Rats" began to play, but it had a squeaky, high-pitched quality. Most of the bass was muted and the higher tones were emphasized. There were a number of subtler squeals, chirps, scratches, etc. that were not part of the song. Some of those were synched with the scratching of tiny claws on the plastic floor of the maze. Others were probably on the song, but normally inaudible to human hearing.

"Thanks. Now you have the audio feed working for me, it'll take me a few more days to get you the report."

"No problem. Take your time and ping me if you ever need any more help. This stuff is fascinating. It's the most fun I've had in weeks."

Cleides

Cleides brought a large cardboard box into Yuliya's lab. He was spreading the contents, various electronic gizmos and components onto the counter next to the coffee pot. He paused long enough to fill a mug with the dark black liquid. He scooped four spoonfuls of sugar. Three of those made it into his cup and the fourth clipped the edge and half of it spilled across the counter and onto the floor. He took a large sip before spooning another scoop.

“Too much sugar. You already too sweet.” Yuliya said from where she was adding nutrients to one of the tanks.

“Hey Yuliya, I got just about everything you asked for. We had a lot of it in our lab, and I got most of the rest from the data center supplies. The VLF detectors I scavenged from an old metal detector. If it doesn't work, I'll order something better. Just let me know.”

“Look better than what I get in Vladivostok. I think it work.”

“How long will it take you to build this device of yours?”

“Construct? One day, maybe two. Tuning to right frequency? One day more. Tuning to single subject, another day or two, but we need subject.”

“So this scanner can register anything with the bacteria, or it can pick out one rat from a hundred different rats with the bacteria?”

“Dah. Once tuned I tell different patterns in different animal digestion tracts.”

“Oh, Shit. How did you get in here?” Cleides pointed down.

Snickers was at Yuliya’s feet licking the sprinkled sugar off the floor. She reached down and scooped the rodent into her hand. She was stroking his dark gray fur when Cleides grabbed for him. He must have moved too quickly and frightened Lucas’ pet.

He ran up Yuliya’s arm and leapt from her shoulder splashing into the open aquarium. He was old for a rat, but he was still a strong swimmer. He circled the tank multiple times as Yuliya and Cleides splashed away trying to grab him. They were both soaked by the time Cleides cornered him and lifted him from the water. They were both laughing as well. He finally got hold of Snickers and took him back to the cage on Lucas’ desk in the front lab.

“I’m a mess.” Cleides said. Stripping off his wet T-shirt as he reentered the lab. “Is this stuff dangerous?”

“Not dangerous for people or for rats, but still better if you wash hands.”

She joined him at the sink and they both scrubbed to their elbows. She helped him to make sure he didn’t miss anything. They ended up lacing their fingers together. She looked at his abs and then into his eyes.

“Not dangerous, but maybe not so safe either.”

Their lips met...

...Yuliya pulled away.

“I need go change, Building 3.”

“You want company?”

She hesitated for what seemed an eternity before smiling.

“Maybe we both need shower too.”

7.4 September 2014

Cleides

Yuliya and Cleides came from her room into the front lab. He was fixing the last of the buttons on his shirt. Lucas was shuffling papers across his desk, opening drawers, looking into the small trash can. He stooped to look under the desk before expanding his search around and under the tables nearby.

“You lose something?” Cleides asked.

Lucas pointed to the small empty cage on the corner of his desk with the door ajar.

“He got out again? Is that rat a reincarnation of Harry Houdini? I put a new latch on his door after we found him in Yuliya’s lab week before last.”

Lucas shrugged his shoulders and made his way over to the maze in the center of the room.

“How long has he been gone?”

Lucas made his way to his laptop.

“He was here 10 minutes ago. I just changed his water.”

“We’ll find him... eventually.” Cleides said as he began to look under the tables.

“I have idea.” Yuliya interjected before disappearing back into her area.

She returned a minute later holding a black device about six inches on a side. It looked almost like an antique box camera with a small cylinder protruding from the front. It had a video screen on the reverse side with a few dials along the right side. There was a USB cable plugged into the left side and dangling in mid-air.

She pushed a button on top of the device and began panning slowly around the room. The screen showed the room as she swept from Lucas' desk to the maze to the far wall. As she passed the entry to her lab, the open doorway glowed with a faint green hue. She continued circling until she got to the wall of rodent cages. There was a bright green luminescent point showing about halfway up the wall of enclosures. She pointed and said "There".

Lucas looked over her shoulder at the screen then crossed the room. He lifted the door to one of the pens, reached in, and lifted the small gray animal.

"Looks like Snickers has a girlfriend." Cleides smirked.

"What is that gizmo?"

"This my research."

Lucas took the instrument from Yuliya and aimed it at the cages then back at Snickers.

"Infrared sensor? Why is Snickers the only rat that registers on the screen?"

"Rodent exposed to electrogenic microbe. It grow in intestine. Scanner find."

"When we found him in Yuliya's lab, he went for a swim in one of the tanks." Cleides added. "I meant to tell you about it, but you were busy and then I got distracted by

other things.” He smiled at Yuliya who blushed and turned away. “He seems fine and Yuliya said it wouldn’t hurt him.”

Lucas focused on Snickers, then zoomed in on the small animal. The single green glow resolved itself into a pixelated image of the intestinal tract. There was a faint outline of his stomach, and a bright green image of the lining of the intestine. He zoomed to maximum magnification. He had trouble keeping it steady, so he set the device on his desk and the rat in front of the lens. Yuliya plugged the USB cable into the computer there and accepted the request to connect. The large monitor on the wall displayed at a much higher resolution. It showed individual greenish blotches forming the rounded shape of a small section of the interior of Snickers’ large intestine.

“It looks like Snickers has a polyp. How does this work?”

Yuliya

“Rat swallow bacteria when he swim. Bacteria reproduce in rat. Bacteria infected with virus enhance electrogenic properties. Scanner receive signals.”

“Is this the same ELF we came up with in High School?”

“Many generations more, but same basis.”

“ELF?” asked Cleides.

“That’s what we called it. Electrogenic Life Form. Silly, but it sounded good in high school science.”

“I still call it ELF. Virus, I call EVA. Electrogenic Viral Accelerator.”

“Was the virus in ELF when we were working on this in high school?”

“Yes, but I find out later. In Russia.”

“The level of detail in the intestine is extraordinary.”

“Yes. It much more sensitive than I build in Russia. Cleides find good components. In Russia I could find rat, but I no see intestine details.”

“Can you scan other body parts besides the digestive tract?”

“So far, ELF only survive in water and as gut microbe. EVA only infect ELF and no other cells.”

“I assume you’ve tried to infect other organisms and cells with the EVA Virus?”

“Yes. So far only infect ELF. Is symbiotic relationship, but I have little funding in Russia to try many other organisms.”

“This is great. Is it permanent?”

“Is temporary. For fish, ELF activity peaks at one week. For mammals, three weeks. Then about same time to eliminate from animal.”

“This could replace colonoscopies, at least, and revolutionize soft tissue imaging if we can get it to work on

other cells. We may need to ask George for more funding for Yuliya."

"I'll get started on the paperwork." Cleides said. "But I'll have to work more closely with Yuliya for a while to get the details." He winked at her, and she blushed lightly.

"OK, but keep me in the loop too. I may have some other ideas for things we may want to try."

7.5 November 2014

George

George hadn't been physically down to the labs in months. Normally, he'd pop in virtually on the wall monitor, but it hadn't been working lately. Lucas had promised him his latest summary weeks ago and he was still waiting. He trusted him, but it wasn't like him to be late.

He was surprised when he walked in and there was no one in the front lab at all. Usually Lucas and Cleides were there from before 7 AM until 8 or 9 PM or later. One of them might go get lunch or dinner, but not at 10:30 in the morning, and never both of them. He noticed why the wall monitor wasn't working. It was missing from its place on the wall. He wasn't sure, but he thought there'd been about twice as many rat cages too. He made his way to the center of the room and ran his finger over the plexiglass on top of the rodent maze. He was surprised to find a very thin layer of dust. What were they doing down here? Or what were they not doing?

“LUCAS? Cleides? Anybody here?”

Just then the door at the back of the lab opened. Cleides strolled in and took something off a table and turned to the door. He pulled it open, looked over his shoulder and waved, “Hi George” then hurried through. George followed.

Yuliya

George saw where his wall monitor had gone. It was laid sideways across the counter. Three other smaller monitors were also lined up along the wall. The smaller monitors all showed a video feed

of a rat that seemed to be either asleep or dead. Each one seemed to be using a different light filter.

No, the rat had to be alive. That was an infrared filter and there was definitely body heat on the third monitor. George removed his dark glasses to get a better look. The second monitor was normal light and, peering closer, he could see shallow breathing. No, not dead. The first monitor was close to normal light, but there was a strange greenish glow from the body of the rat. He didn't recognize what he was seeing on the large wall monitor. It had the same greenish glow, but here it looked more like someone had sprinkled green glitter over the image of a microscope slide of skin cells or something.

Lucas was perched on a chair in front of the large monitor. Yuliya and Cleides were gathered around a table in the center of the lab. There was something that looked like the cross between an X-Ray machine and a video camera suspended by an arm over the table. As Cleides reached up and repositioned the contraption, the three monitors all zoomed in on the rodent.

"You lost focus on the microscope."

"I'm working on it. Give me a second." Cleides said.

"What is all this?" George asked.

"George! Come in. Come in. See new scanner." Yuliya said pointing to the hanging apparatus and then towards the video feeds. "Much better than I have in Russia."

"Come see ELF 2.0"

"ELF? Is that our Electrogenic Life Form? What the hell are you doing?"

“Dah. Is E.L.F. and E.V.A.”

“EVA?”

“Electrogenic Viral Accelerator. Is virus make ELF ELF.”

For the next 30 minutes, Yuliya, Cleides and Lucas took turns explaining the breakthroughs they’d made. In the last two months, they’d built the new device to receive the minute electromagnetic fields generated by EVA and ELF. They could use it to see detailed images of the entire digestive tract from the stomach lining to the colon from a macro view down to detailed microscopic topologies.

Lucas

“We could do away with colonoscopies? My dad had one of those, and I’m sure he would have paid more to avoid it.” George mentioned.

“He’d pay less with ELF imaging.” Cleides said.

“Is very simple procedure. Not expensive.” Yuliya added.

“I knew you guys were worth the investment.”

“But we will be needing even more funding.”

“I think that’s OK, but what for?”

“We want to find a way to make EVA work on more cell types than just ELF. If we can get it to use other cells as hosts, we can image any tissue. It could make X-Rays and MRI’s obsolete.”

“Do you know how expensive an MRI machine is? This would be pennies on the dollar compared to that, and it would be more detailed.” Cleides added.

“I am definitely interested, but what’ll you need to make it happen?”

“We’d need a way to alter the EVA to accept other hosts. I’m not sure how we’d do that yet.”

“CRISPR” Yuliya said.

“Crisper what?” George asked.

“CRISPR is new technology from your Berkeley University. Is way to edit DNA.”

“Whose DNA are you going to modify?”

“Not who, what? If we can modify the EVA virus to use other cells as hosts, we could revolutionize the scanning of soft tissue. Not just the digestive tract, but anywhere in the body.”

“Sounds interesting, but what’ll it cost? Write the proposal for what you need. I’ll need to run it by the budget committee. We’ve tied up a lot of funds in those three acquisitions we’re making.”

7.6 December 2014

George

“Happy Holidays, Jan. Long time no talk.”

“Happy Holidays to you too. To what do I owe this pleasure?”

“Well, I do want to catch up with you, but right now I have a business proposal.”

“I’m listening.”

“I’ve been playing around with a small life sciences division at Bailey Corp. It was a wild-ass role of the dice. Betting on some good people, but without much direction.”

“I find betting on good people is usually a good risk.”

“I guess. Anyway, this wild-ass gamble has found an idea that could revolutionize medical imaging, at least be able to do away with colonoscopies, maybe X-Rays and MRI’s as well.”

“OK, what do you need me for?”

“Aladdin has a lot more medical expertise and a lot more medical data. How much genetic mapping information do you folks have?”

“We have a huge amount of prenatal screening info, for things like Down’s syndrome, sickle cell, and other chromosomal abnormalities. If you want detailed DNA

analysis, we have some, but only if the clients are running at that level of testing. I'd say we have high level analysis, like you'd get with a '23 and Me' for a few ten thousand individuals, but we have only three clients who are starting to play with full DNA mapping – maybe a hundred individuals. If that.”

“Do you run the DNA yourself or do you depend on your clients?”

“Let me guess. You already know the answer, but you want me to pretend you haven't hacked into our R&D planning.”

“I have no idea what you're talking about.” Jan could hear George's smile through the phone. “...but you might want to protect those records with SWIFTE if you really want them kept private.”

“You are on Aladdin's board. You could ask me.”

“Where's the fun in that?”

“OK. We **are** spinning up a DNA mapping lab. We're going to offer it to our clients who want to move into the 21st century and make genetics part of their Health Records. In fact, I was going to come to you for suggestions on storing and protecting the huge amounts of data that comes with DNA mapping.”

“What level of detail are you tracking?”

“We do the high-level mapping of known sequences and genes. Think '23 and Me' again, and then raise it a couple of notches. We can do that for anyone, but eventually I'd like to get to the point where we map every base pair for

anyone from one end of the helix to the other. That's a few years off for anything more than a few individuals."

"Could you do that level of detail for a virus?"

"Viruses are relatively simple. I'm sure Ling could do it."

"Ling?"

"She's the lead scientist in the new lab."

"Is that Liú Ling who co-wrote the paper on CRISPR CAS9 in the latest Science magazine?"

"You have been paying attention."

"Well, cramming. I want to be able to understand what my team is saying."

"I get that. Being CEO has its perks, but you start to lose touch with the fun stuff."

"Speaking of CEO crap, back to my proposal. The way I see it, we can work this in one of three ways. 1) I spend a shitload of money and duplicate things you are already doing. 2) We pay your lab to do the sequencing for us and we do the rest at Bailey or 3) We spin up a joint venture between the two companies."

"I like option 3, but I suggest we do it as a separate company. It'll make it easier to administer and should help us both come tax time."

"Look at you knowing all this tax stuff."

"Oh, shut up. Send me your proposal. I'm sure you already have the Aladdin information, but I'll send you an official

copy. Then we'll get our folks who understand the details together, and if they still think it's a good idea, we can have our lawyers wrestle through the contracts."

7.7 April 2015

Martha

Martha pulled the Rolling Stones 2014 Tour T-Shirt over her head and tugged it down into place. She pulled on the sweatpants and tied the drawstring. She preferred clothes that were easy to don, discard and redon when she went for her checkups. The doctor was typing something into a workstation on a cart across the exam room. She tried to wait patiently, but this was a milestone appointment, and she wanted to hear the final prognosis. She sat down to put on her shoes, pink running shoes. She cleared her throat a little louder than necessary. The doctor turned to her.

“What’s the word, Doctor Harris?”

“Everything looks great. Your mammogram was clear. Your blood work is good. I was a little worried when your pulse rate was low until you reminded me you’re a runner. You’re in better shape than I am.”

“Thanks. So are we done for today?”

“Unless you have any other questions.”

“No, I’m good. Should I talk with the nurse to schedule another follow up in 6 months?”

“Martha. You’ve been testing clean for over 5 years. You are now considered officially disease free. I don’t want to see you again, ever. Just make an appointment with your regular doctor for an annual physical in a year.”

Martha's lips turned up and spread across her face. She finished tying her laces and stood. Her smile got even wider. She crossed the room and hugged the young woman.

"I'll do that, and thank you again. I hope you don't take it the wrong way, but I hope I never see you again either, at least not in a professional setting."

"That goes both ways, Martha. There is nothing an oncologist likes better than to have their patients go home and not come back."

Jack

"Yes, we are!"

"Really, Jack. I don't want a party. It's been 5 years, what's the big deal?"

"Five YEARS! That is the big deal. You are cancer free. We are having a party!"

"I hate to tempt fate."

"It'll be an excuse to get all the kids home." Martha crossed her arms across her chest. Her husband stared back at her and finally said. "We'll call it an early anniversary party. What's four years? Running shoes or calculators?"

"OK, fine, but I don't know if we'll get Kes here. He's spending the summer with Antero."

"We'll fly them both out here. Five years is brilliant!"

"Four years. Anniversary, remember?"

"OK, four years." Jack winked.

7.8 June 2015

Jack

Jack stepped onto a chair and tapped the spoon against his glass. He paused before tapping again. It was the third round of clinking that started to quiet the people crowded into the club house.

“Thank you. I want to thank all of you for coming...Can someone yell at the folks around the pool to squeeze in here and grab something to drink? I want to make a toast.”

Kestrel leaned through the sliding door and bellowed. Folks began to filter in.

“If you’re over 21, we have beer and wine in the coolers off to my left. If you’re too young or too smart for those, we have sodas and water and other non-alcoholic stuff on my right. Everyone grab a drink.”

He refilled his own glass from a bottle on his left and waited until most everyone had a drink in hand.

“I want to thank you again for coming. I know most of you, but for those of you who don’t know me, I’m Martha’s husband, Jack. I see several of you were Martha’s students over the years. You all already know what I know, that she is a great teacher.

“She has taught me so much over the <*mumble mumble*> years since I met her in kindergarten. I’ve learned even more from her over the last few years, first as her friend and now as her husband for the last four years. She is the most amazing person I have ever met. She’s brave. She’s

strong – AND SHE IS CANCER FREE FOR FIVE YEARS! To MARTHA! To LIFE!”

Cheers, whoops and congratulations ran across the room. Martha pulled her man down from chair. She slugged him playfully on the arm.

“What happened to our four-year anniversary party only?”

“I said we were married for four years.”

“You are such an ass sometimes.” and she kissed him on the cheek.

“You can do better than that,” and he kissed her on the mouth.

A tall thin man in dark glasses cut through the crowd and tapped Jack on the shoulder.

“Can I cut in?”

“GEORGE!” Martha screamed. “What are you doing here?”

“It’s your day. I wouldn’t miss it, but this many people does give me the willies. You mind if we go out by the pool?”

“Of course. Of course.” She turned to Jack. “You remember George. I’ll be back in a few minutes.” Jack nodded and waved as they threaded their way onto the pool deck.

Martha

They went on around to the far end of the pool where a small group was gathered under a canopy. Martha broke into a wide grin as she recognized Lucas and Yuliya. She didn't recognize the dark-haired man who was sitting next to Yuliya or the shapely blonde talking to Lucas. She was facing away as they approached. Lucas saw them and his fingers began to fly on the small keyboards at his thighs.

"Hello, Ms. S."

"Martha"

"Okay... Martha. Do you remember Jennifer?"

As the tall blonde woman turned, it took only a few seconds for recognition to set in.

"Jennifer! It's great to see you. What's it been? 15 years? What have you been up to?"

"I'm working at the Kiesler Women's Shelter in Santa Ana."

"I've heard about that place! It's a great facility."

"We were lucky to get the funds to rebuild and expand it." Jennifer glanced at George.

"Jennifer is the director there."

"Yeah, I've come a long way since high school. This guy helps." she said, resting her hand on Lucas' shoulder. "When he's not working."

“Sorry about that, but there’s a lot to do getting a new company on its feet.” George said.

“Another new company?” Martha said.

“GENIE” George replied.

“Genetic, Electrogenic, Noninvasive, Imaging Enterprises”

“We use ELF from science fair project.” Yuliya added.

“Don’t everyone talk at once.” Martha responded.

Cleides extended his hand. Martha grasped it.

“Hi, Martha. I’m Cleides.”

“Pleased to meet you. Are you Yuliya’s friend?”

“We’re a little more than friends, and I work with all of these idiots, except Jennifer. She’s too smart to work with us.”

“Just what does GENIE do? Or do I need an NDA to talk with you?” Martha asked.

“It’s partially owned by Bailey so the one you already signed with me still applies.”

“Sealed.” Martha zipped her fingers over her lips.

They spent the next 20 minutes going over how Yuliya had discovered EVA and repurposed ELF. They discussed how the team was working to modify the genetics of it to transform the way imaging was done, if they could make it work.

“Fascinating stuff. What’re your next steps?”

"We're working on tweaking the EVA virus to see if we can get it to use other cells as hosts. It would be ideal if we could embed it in human cells and image them directly. Right now, we only image the surfaces coated by ELF colonies."

"Cool. I wish I could help."

"Do you want to be a guinea pig?" Cleides added.

"Um, guinea pig?"

"Well, really just your cells. We've been growing our own tissue in the lab to see if we can get EVA to embed in any of them. We haven't gotten very far, but having some more different samples wouldn't hurt."

"What would you need from me?"

"A blood sample, a cheek swab, and maybe some skin scrapings. Nothing too invasive."

"Cool. If it helps, I can come down next week, but I want a mention in any paper you write."

"Honorary co-author?"

"Or maybe just a 'thanks' to my old teacher."

"Who's old?" Jack said, sticking his face into the group.

"We're both getting up there."

"Nonsense, but I have to get you back inside. People are asking for the guest of honor."

“Oh yeah, Sorry. I’ll be right there. It’s been great hearing about GENIE. Email me the lab address and I’ll see you next week. It was great seeing you again too, Jennifer.” Then she turned and looked at George. “I don’t know what that therapist of yours is doing but stick with it. It is so great to see you out and about.”

George just smiled and tipped an imaginary hat as Jack and Martha returned to the crowded room.

7.9 July 2015

FBI - Los Angeles Field Office - Office of Professional Responsibility (OPR)

Agent Glass had to use a loop of scotch tape to keep the troll doll from falling off the top of the monitor on his new desk. His new partner raised one eyebrow when he saw the naked figurine with orange hair flaring towards the ceiling.

“Ugly little fucker. You get that from one of the kids in the CAC Unit?”

“No. Actually, I found this on my first day in the academy at Quantico. I was leaving the facility, and I stepped on it in the street. Twisted my ankle and missed physical training the rest of the week. I’m not sure why, but I’ve kept it ever since.”

“That place is a bitch. Missing a few days sounds like a good luck charm to me.”

“Anyway, what are we working on today?”

“Some bullshit. The mother of some dirtbag the Violent Crimes Unit was watching claims we killed him. It’s clearly an accident, but she knows someone at city hall, so we have to double-check.”

“Who was this guy and what happened to him?”

“Prime suspect in a serial rape case, but we could never prove anything. He was careful... at least while he was raping. He worked in an aerospace plant, making rockets

or some such thing. Get this, he got himself tangled in one of those industrial robots. The thing actually ripped his dick off.”

“Ow, that’s gotta hurt, but I wouldn’t think robot castration would be fatal.”

“It also ruptured an artery in his leg at the same time, and he bled out.”

“How could the FBI do something like that?”

“I know. I told you it was bullshit, but we’ll go down and ask a few questions, write a report. You’ll get to know the drill. 85% of our cases are bullshit, but we have to check on all of ‘em.”

Agent Glass

It was a small two-story house on the edge of a neighborhood that had seen better days. There was an old Econoline van in the driveway. Its paint was faded with splotches of rust scattered across its surface. The house was in a similar state, chipped paint. The three steps leading to the front door were plain concrete. They were cracked with some sort of mold or algae growing in the crevices. At some time in the past, they had tile coverings, but only a few shards remained around the edges. There was a four-way window in the faded gray door. Two of those panes were still intact. One was filled with a piece of plywood and the last had cardboard taped to fill the opening. Agent Glass tried the doorbell but heard nothing. His partner didn’t wait, he pounded on the door.

“Mrs. Chikatilo, it’s Agent Brown and Glass from the FBI.”

A corner of the cardboard pulled away and one gray eye peered out at them.

“What do you want? I didn’t do anything!”

“We’re just following up on your complaint... about your son’s accident?”

“That weren’t no accident. He was a good boy. He was innocent, but you wanted to shut him up. When you couldn’t fake evidence, you had him murdered!”

Agent Brown rolled his eyes. Glass motioned him to be quiet and continued.

“We’re from the Office of Professional Responsibility. We got a call from the mayor’s office asking us to look into the case. If any agent or any other law enforcement personnel did anything illegal or unethical, we are the folks who will hold them accountable. Can we come in?”

“This is a waste of time.” Brown mouthed at his partner.

“He called you? I used to clean the mayor’s house when he was just a teenager. Now he’s all high and mighty. I didn’t think he was gonna do nothin’. Let me see your ID’s.”

When they showed their badges, the old woman opened the door. She backed away from them, keeping her eyes tracked on their every movement. The inside of the house matched the outside. It was tidy but had seen better days. A large gray and white cat rested on a couch it had obviously used as a scratching post. A corner

was chipped off the coffee tabletop and some duct tape was stretched over the sharp edge. The carpet was clean, but threadbare.

“Don’t touch nothin’ unless I say so.”

“Of course, Mrs. Chikatilo. We want to understand why you suspect your son was killed.”

“Why should I trust you?”

“I guarantee you, Mrs. Chikatilo, we want to know the truth as much as you do.”

“Maybe it was the FBI, maybe the CIA, but somebody was watching him. He had something on someone on his computer. He told me it was top secret. You didn’t want the truth to get out.”

“On his computer?” Agent Brown smirked. Agent Glass motioned to quiet him again.

“Can we see the computer?”

“Don’t you need a warrant?”

“Not if you agree, but we can skip the investigation if you prefer. I just have to warn you that we will support the original conclusion of accidental death in that case.”

“OK. I guess it don’t matter now. It’s in his room. Upstairs.”

The room matched the rest of the house, except it was not even tidy. On the side closest to the door, there was an old chest of drawers with a mattress on the floor next to it. Some dirty clothes were hung over the edge of the drawers. An old woolen blanket

was twisted into a ball on the bed. On the other side of the room, there was a small window in the center of the wall. It had blinds, pulled closed, blocking the light from outside. Agent Brown pulled the cord to lift the blinds. There was newspaper taped to the window inside the blinds.

“He liked his privacy. He wouldn’t even let me in here by myself. I had to get a locksmith to let me in after he passed.”

On the left side of the window was a long table with a tall gaming computer tower and two large monitors. On the right side was a rolling garment rack with various uniforms/costumes from various utilities and other services. Gas and electric companies, plumber, roofer service, sanitation, even police and firefighter. Brown leaned his head at those, and Glass gave the slightest nod in acknowledgment. He was surprised when he moved the mouse and the computer opened to its home page.

“He didn’t have a password? I thought he liked his privacy.”

“Said he didn’t need it here. He kept his secret stuff up in the air – on a swiffer or somethin’.”

“On the cloud? In SWIFTE?”

“Yeah, that sounds right.”

Glass spent twenty minutes going through the local computer files and directories. He didn’t find anything except a browser history with a lot of porn sites. Some of them were pretty vile. A lot of S&M and bondage, but there was nothing strictly illegal. He found the SWIFTE app and opened it but couldn’t get beyond the home page without Chikatilo’s key. He made a note of the URL. He was

not hopeful they could do anything with it, but he still checked it three times to make sure he got every number and letter and special character correct. While Glass was scrutinizing the computer, Brown was rifling through the rest of the room.

“You didn’t find a flash drive or a digital card or anything like that, did you?” Glass asked.

“Nope. Nothing here. I told you this guy was careful.”

“Mrs. Chikatilo, do you mind if we take this computer with us?”

“Yes, I mind. That’s the only thing he had worth anythin’ ‘cept that old van. You’re not gonna make it disappear.”

“Alright, Mrs. Chikatilo. I think we have everything we need. Thank you for your time.”

“That’s it? What are you gonna do? What am I gonna do?”

“Well, we’ll keep the investigation open to see if we get any other information, but I’d suggest you get a lawyer and sue the maker of the robot at your sons’ work.”

The old woman huffed and turned her back on the agents.

“I done that already. I shoul da knew you wouldn’t do nothin’. Get outa my house.”

The large black SUV was parked across the street. Glass walked around to the passenger seat, and Brown climbed into the driver side.

“You got a good way with the public, Glass, but I still say this was a royal waste of time.”

“Yeah. You’re probably right.” Glass said, then under his breath. “*SWIFTE*.”

“What was that?”

“Nothin”

Los Angeles Field Office - FBI Crimes Against Children Unit

The caller ID indicated it was an internal call, but Agent Edwards didn’t recognize the extension.

“Jim Edwards, how can I help you?”

“Hey Jim, it’s me, Steve.”

“Steve! How’s OPR? You’re not looking at me, are you?”
Jim laughed.

“Nothing like that. Nothing official, but I was wondering if you could check something on some of our old cases.”

“Oh yeah, what’s that?”

“Remember a few years ago we had a string of weird accidents.”

“Yeah, we lost six suspects in just over two years. I was starting to wonder if they were anything more than accidents, but then they stopped.”

“Exactly. Do you remember if any of them had *SWIFTE* accounts?”

“Jackson, Drake and, what was his name? Kinsey! I remember they all had *SWIFTE*. We had warrants for all

of them, but never could access the data without their key. The other three, I couldn't tell you. We never got close enough to check before they 'left this mortal coil'. What's this all about?"

"Probably nothing. Just a feeling. Do you know anyone in Cyber Crime who might know more about SWIFTE?"

"I was in the academy with a guy named Deepak. He was a real nerd, but he knew his stuff. He's down in Cyber now. He was the one who tried to get into Jackson's SWIFTE. Let me find his number and I'll send it to you."

"Thanks. I appreciate it, Jim."

Agent Glass

"Arunachalam, Cyber Crimes"

"Hi, is this Deepak Arunachalam?"

"Speaking. Who is this?"

"This is Special Agent Steve Glass from OPR."

"OPR? I'm not in trouble, am I?"

"No. Why does everyone think OPR is after them? Never mind."

"How can I help you?"

"A few years ago, we had a suspect with a SWIFTE account we couldn't get into. I'm wondering if we've had any more success in breaking the encryption since then."

“If anything, the encryption’s gotten even harder to crack. Without their key, there’s no way to see what they’re storing.”

“Can’t we subpoena their key?”

“Fifth Amendment. Unless you can get them to give it to you voluntarily, the courts say we can’t force them.”

“Is there anyone else you know who might be able to get into a SWIFTE account?”

“No one. Even the folks at Bailey that created SWIFTE claim they can’t access a client’s repository.”

“Okay. Probably a wild goose chase anyway. Thanks.”

7.10 July 2015

Martha

The GENIE lab complex was in a nondescript cinder block building on the isthmus of Anaheim between the downtown area and Anaheim Hills. It looked like it had been some sort of warehouse in a previous life. It was sandwiched between an Auto Body/Collision Center and a Tile and Flooring Store. There were a half dozen cars in a parking lot in front that could have held 40 or 50. She parked in a shaded space under a gnarled oak tree at the far end of the lot, and was surprised to be met at the door by Cleides. He saw her questioning look and pointed at the cameras mounted at various spots around the lot. Then he waved her in and closed the glass door behind them.

The reception area was no more impressive than the exterior of the building. It looked like it could be the waiting area for the auto body shop next door. A few straight back chairs. One couch across from a medium sized flat screen T.V. which was currently off. There was a desk for a receptionist, but no one was there. Cleides waved her around the counter to a second door. This one was controlled by a card reader and keypad. He scanned the ID card hanging around his neck and then punched in a code and the door swung inwards.

“This way.” he said.

They went down a short hallway and into the main lab. Lucas waved. There was a dark gray rat with a face faded nearly white sitting on the corner of his desk. Martha crossed the room and stroked the animal gently across the top of its head.

"Martha, this is Snickers. He and I are the original occupants of this lab."

"Pleased to meet you, Snickers."

Lucas handed her a baby carrot which she held out to the rodent. Snickers sniffed it twice then grabbed it with his front paws. He gripped it in his teeth and walked unsteadily to the far corner of the desk to chew on it.

"How old is Snickers?"

"He's a little over three years old. Ancient for a rat, but he's hanging in there."

"What do you need from me? How do I go about giving you the samples?" Martha asked.

"Ling will help you."

Lucas said and pointed to a woman coming in from the rear lab. She was around Martha's age but was even shorter. Her black hair was cut in a bob, and she wore a simple T-Shirt, jeans and lab coat. Martha recognized Liú Ling from her reputation and from her picture in last month's Science magazine. Martha had a brief flash. She could have had a similar career if she hadn't forgotten her birth control pills a couple decades ago. It was only a flash. She wouldn't trade her kids for anything. Ling spoke fluent English with the slightest tinge from her native Mandarin.

"Martha? I am Liú Ling. Thank you for helping us."

"I know who you are. I read your paper in Science last month. How are you using CRISPR here at GENIE?"

“I am impressed. I would not expect a high school teacher to read Science.”

“She is soooooo much more than a high school teacher.” Lucas interjected.

Ling explained they would be taking samples of Martha’s DNA using a cheek swab and taking a blood sample. If she was willing, they would take a subcutaneous sample of skin cells. They would run a full genetic sequence on the samples and then attempt to grow the cells in the lab for use in future experiments. They’d use the genetic sequencing data to attempt to determine how to modify the EVA virus to attach itself to human cells. They’d use CRISPR to do the actual modifications to the virus.

“The skin sample involves shaving off a small layer of skin to get to the live cells underneath. It will create a small sore about an inch square but should heal quickly. It is a little painful, but it’s unlikely there would be any permanent scarring. Would you like to give us a skin sample?” Ling asked.

“The base DNA sequences should be the same no matter where you get the sample.” Martha was talking to herself more than asking Ling.

“Yes. You do not have to give the skin sample if you do not wish.”

“But the epigenetic expression of genes may differ significantly from one type of cell to another. Isn’t that so?”

“Yes, but we haven’t started to consider epigenetics seriously yet.”

Martha wasn't really listening to the answer. Her mind was following its own track.

“And different cells might have different biochemical signatures. Wouldn't it be better to get more different samples? Do you have equipment for a punch biopsy? We could get muscle and skin. Subcutaneous fat cells - belly and breast - and maybe lymph cells could be extracted if you have the right syringes. Pull a few hairs to get at the follicles – maybe scrape the nasal cavities – the intestinal lining would be great since that's where ELF seems to survive, but we couldn't do that today.”

“Yes, we could take some of those other tissues, but it would be even more painful than the skin shaving.”

“Pain? I've had three kids... and one ex-husband. I can handle a little pain. Let's do this thing.”

Part 8

8.1 April 2016

George

He still wore his dark glasses when he went out in public, but George had been getting more comfortable around other people. He'd attended the Bailey Boards and Bailey Corp corporate quarterly meetings in person instead of virtually last month. He even went through a mall the other day, though he had his driver pull around to the far side, so he didn't have to return through the throng. Cynthia continued to push him gently to challenge himself even more, but today he seemed a bit more distracted than usual.

“You continue to make progress. That is wonderful. Do you think you might try going without the sunglasses sometime?”

“That still seems too risky. I had to sit in the back of the limo with the divider raised for a good 40 minutes after that trip through the mall.”

“Regardless, you made it all the way through a crowded mall. You would not have considered doing such a thing when we started.”

“True, but the panic attack in the limo was no fun.”

“You could have called me. You do pay me a significant retainer. Unless I am with another patient, I am usually available.”

“I appreciate it, but I wanted to try it on my own, and to be honest, after running that gauntlet, I didn’t want to talk to anybody. Not even you.”

“That is understandable, but you do continue to progress. You should be proud of how far you have come.”

“Thanks. Sometimes I forget myself.”

“You are welcome. Is there anything in particular you would like to discuss today?”

“I don’t know. You’re the doctor. What do you think we should work on?”

“I would like to talk about the emotions you feel, both when you are uncomfortable and when you are comfortable. Is that alright with you?”

“I guess so.”

“Perhaps we can start with the mall trip. How did you feel when you first entered the mall? When you were halfway through, and when you finally exited?”

“I started off with some trepidation, but overall, I was confident.”

“Start there and tell me everything you remember. Close your eyes and tell me everything you did, everything you felt and experienced. Not your thoughts, but just what your body did and experienced.”

“My body?” George closed his eyes and thought back. “Well, my heart was racing. My palms were sweating. I remember, I didn’t go through the automatic door. There

was a family crowding through there. I went to a manual pull door off to the side. The handle slipped a little when I first grabbed it. Is this the type of detail you want?"

"Yes. Very good. Continue."

"I was near the movie theaters, and I could smell popcorn, buttered popcorn. Some old 80's music song was playing. I think it was "Out of Touch" by Hall & Oates. There was a group of young girls. I remember thinking they were probably from the college."

"Not what you thought. What you felt."

"Being honest, they were attractive, but not enough to cause any physical reaction, if you know what I mean."

He smiled briefly but then lost his smile. His eyes widened and he closed them tightly. Color drained from his face. His mouth fell open and his breathing quickened to near hyperventilation.

"Are you alright, George?"

"I forgot. I forgot."

"What did you forget?"

"*Rebecca.*" He whispered.

Six or eight girls were gathered by the railing on the edge of the food court. They were laughing and playfully swatting at each other when the group parted. One tall young woman was facing away from the rest of them, looking over the railing. She had rough cut black hair and was wearing Doc Marten boots, black jeans and a black T-Shirt...with a dozen red roses and a single blood-spattered white rose. He knew it wasn't her, but still he ran

to her and spun her around. It was not Rebecca. It couldn't be her. She did not even look like Rebecca... but when she flipped him off, it felt like Rebecca. He whispered "Sorry".

He turned around towards the entrance by the movie theater, but a showing was letting out and the crowd was boiling out into the hallway. He spun and began running, nearly barreling into the sunglass cart vendor and two other people as he careened through the food court, past the Macy's, past the arcade, around the children's play area, past two dozen small specialty stores, and finally sprinting through the double doors next to the Sears. His limo was idling in the fire lane and the driver opened the rear door as he approached. He leapt into the back of the vehicle.

“What about Rebecca?” Cynthia asked.

“Not now.” George said between shallow breaths. “I have to go now.” And he closed his laptop, ending the session.

8.2 May 2016

Martha

Martha half expected Cleides to meet her at the front door again, but this time she had to ring the bell. She should have called someone to let them know she was coming, but the print shop was right down the street from the GENIE lab. She waited over a minute before a buzzer sounded and the front door unlocked. Yuliya was coming through the interior door as she stepped into the reception area.

“Martha! Martha! I wish we know you are coming. Lucas and Cleides getting lunch.”

“Sorry to bother you, but I was in the neighborhood, and I wanted to drop off these invitations.”

“No bother. No bother. You come in. Ling and I in CRISPR lab. You come.”

“I’d love to see. Are you sure it’s OK?”

“Very OK. Follow me.”

They went down the hallway, but instead of turning right into the main lab, they turned left and went into another set of rooms. Martha could not recognize all of the state-of-the-art equipment that lined the room. She knew what microscopes, pipettes and petri dishes were, but needed Yuliya’s help identifying the PCR machines, the incubators, and the biosafety cabinets with the CRISPR reagents and other materials. Ling nodded as they came into the room. She had both arms in a glove box, manipulating something in a large glass enclosure.

“Is it OK for me to be in here? I don’t want to contaminate your work.” Martha asked.

“Is fine in this room. Clean Room is through airlock.” Said Yuliya pointing at a sealed door at the far end of the lab.

Ling pulled her arms from the gloves and pushed a button at the top of the box. A fine greenish mist sprayed inside fogging the glass. She turned and reached her hand to Martha.

“Martha, it’s good to see you again. Did you want to give us another set of samples?”

“I thought that was a one-time thing.”

“One time is fine. We appreciate any help, but if you are willing, we can pull new extracts periodically to see if there is any difference between interactions with the lab grown tissues versus newly drawn tissue.”

“I don’t have a lot of time today. I was dropping off these invitations to Jack and my five-year anniversary gathering. This time it really is just an anniversary party.” Martha said, pulling some envelopes from her bag.

“I give to Lucas.” Yuliya said.

“And to you and Cleides and Ling too. We’d love to have all of you join us.” She handed four envelopes to Yuliya. She pulled a fifth from the purse and held it up. “Does George make it into the lab these days?”

“Not for months.” Yuliya replied.

“OK. I’ll mail his invite.” And she slid it back into her handbag. “I don’t have a lot of time, but I’d love to hear some more about your work. Are you making progress?”

Ling

“Are we making progress? We’ve made some great progress. We’ve found a hundred things that don’t work.” Ling laughed. “But seriously, we are getting closer.”

“I understand the idea of modifying the EVA so it can use other cells besides ELF as host, but how do you do that?”

“We spent months gathering data. We created genome maps for EVA and for ELF, obviously, to try to find what allowed them to interact with each other, and of course, you know we are also sequencing DNA from each of us, and from the lab animals.”

“I don’t know much about genetic mapping, but I understand that’s gotta be a lot of data.”

“We have a server room farther down the hall that rivals any major university for the immediate analysis. We have petabytes of storage in the Bailey data centers too for deeper dives.”

“Do not forget AI.” Yuliya added.

“Yes. That’s an area Lucas handles, and sometimes with George and folks from Bailey. The AI crunches a mountain of data looking for patterns and opportunities.”

“I get it. You have a boat load of data, but how does CRISPR factor in?”

“A boat load? More like a few aircraft carriers full.” Ling chuckled. “CRISPR is the final piece of the puzzle, or more specifically, it helps us make the last piece of the puzzle.”

“I’m not sure I understand.” Martha said.

“Puzzle is a good word. Think of it like a jigsaw puzzle. The ELF has pieces cut in just the right shape so EVA will hook into it. If we want EVA to connect to rat cells or human cells or even a different bacteria, we have two choices, either change the shape of each of those cell’s puzzle pieces or change the shape of EVA to make it match up to something in their current shape.”

“Uh huh.” Martha looked thoughtful. “You have the EVA to ELF connections, and you have the other host cells, but wouldn’t it help to have something that already connects to the hosts to use as a model?”

Ling looked surprised at this insight. She looked at Martha, then over at Yuliya.

“I tell you she much more than teacher.” Yuliya added.

“You jumped ahead of me. The step we are on now is to look at DNA for other viruses that can enter mammalian cells. In this case, we are looking for viruses which have the ability to embed in rodent and human cells. We then splice proteins from those viruses into EVA.”

“Might that be dangerous?”

“We are taking only a snippet of the DNA from those viruses. Even so, we are focusing on ones that are asymptomatic in humans. Ideally, we want something that

will reproduce in a host for a few days before being cleared by the immune system.”

“And you’ve found a hundred that don’t work?”

“At least. We’ve found likely proteins in some Anelloviruses and Enteroviruses, but we couldn’t get the EVA to accept those DNA segments and remain viable. We got even closer with a Herpes Virus.”

“Herpes?”

“Not the one you’re thinking of. Almost everyone has some form of this herpes virus in their system with no negative effects. Anyway, when we cut a segment of DNA from that one and stitched it into EVA; we call it EVA-H. It infected both rat and human cells in the lab.”

“Sounds promising.”

“We haven’t given up on it yet, but EVA-H lost its electrogenic properties. Kind of defeats the purpose. We’re working with a Coronavirus variant now. In fact, I was working on it when you came in. It has certain spike proteins we may be able to tack on to EVA.”

“So you’re hoping this Coronavirus spike protein will allow animals to host the EVA? And it doesn’t cause disease?”

“We’re only pulling the gene to create a single protein. Even with the whole virus, the worst it might cause is a sniffly nose. It’s almost always asymptomatic.”

Martha looked at her watch.

“Oh shit! I’ve gotta go. I’m on my lunch break. Give those invitations to the boys when they get back. It’s next month on the 18th. And I want you there too, Ling. I want to hear more about this stuff.” She handed her another of the envelopes.

“I’ll try to make it.”

“We kidnap her if we have to.” Yuliya said.

Cynthia

“The last time we talked, you were describing the trip to the shopping center, and you brought up the name ‘Rebecca’. I recall you told me she was a girlfriend, and she passed away before we began working together.”

George closed his eyes and breathed deeply. He said nothing.

“We have spent the last few years working on your actions and your reactions. I have given you various exercises and tools to change how you behave. I believe actions are the best interpretation of your internal state, but perhaps we have not spent enough time on that internal state. I do not think you have fully dealt with your loss of Rebecca.”

“Ya think?” George scoffed.

“You previously told me some details of her accident. I would like to know more about your relationship with her, before the accident.”

“Do I have to do this?”

“You do not have to do anything, but I suspect it will help you to move on.”

George’s eyes got a faraway look. They misted with moisture, and he spoke so softly it was difficult to hear.

“She was the best. She could code circles around anyone. She was so smart. So smart. So fucking smart.” Then he laughed. “She cracked level 7, for God’s sake.”

“Level Seven?”

“Security levels on an old site I managed. It predated SWIFTE, but it had seven levels of security protocols, each more difficult than the last.” George was talking to himself more than to Cynthia now. “No one ever got farther than level two before Rebecca. I didn’t even find out until after she died she’d made it all the way to seven. She cracked it AND she covered her tracks.”

“That does sound impressive.”

“Oh, it is. She combined the level seven tools she found with Jan’s AI algorithms and who knows what else to create the SWIFTE base code.”

“So SWIFTE was created by Rebecca?”

“The core modules. I wrote a lot of extra code to utilize those modules, but yeah, she wrote the heart of it.”

“You loved her for her coding ability?”

“Don’t get me wrong. She was beautiful, the most beautiful woman I have ever seen. She was funny. She didn’t take any shit. But you’re right. I think it was that she

was so fucking smart, and her code was as beautiful as she was. That was what really got me.”

“Has there been anyone else since she passed?”

George just laughed.

“How could there be anyone else when I’m afraid to even show my face.”

“You have been working on that. I know it has been hard, but you have shown your face recently.”

“I don’t think I want anyone else.”

“It has been over eleven years. Perhaps it is time to let her go and move on.”

“I don’t want to let her go. I want her to stay with me — even if she is gone. She is with me.” George slammed his fist against his chest. “No one can replace her here.”

“You should not try to replace her, but that does not mean there is no one else who can fill a different space in your life.”

Agent Glass

“Thanks for taking my call, Mr. Bailey.”

“Call me George.”

“George.”

“I’ve never talked to a real FBI agent before. I’m not in trouble, am I?”

“Nothing like that. This isn’t even an official call. I’m just looking into some anomalies in a few old cases and folks said you know more about SWIFTE than anyone else on the planet.”

“SWIFTE? That’s a big seller for us. I don’t know how much help I can be, but shoot.”

“Never say that to an armed agent.”

“What?”

“Never mind. Bad joke.” Glass smiled. “We’ve discovered a series of accidental deaths all tied to suspects with SWIFTE accounts. We’re wondering if someone might have been able to break into their accounts and found something dangerous.”

“Unless they shared their keys with someone, I don’t see how that would be possible.”

“I understand the Cassidy Cartel case established that even your company couldn’t break SWIFTE without a special key, but it was a decade ago. Is that still the case?”

“It’s even more true now. SWIFTE is guaranteed secure, and its internal algorithms are continually strengthened.”

“What does someone do if they lose their key?”

“When we have a new client, we give them a chain of small repositories where one SWIFTE account protects another’s key which protects another in a circular chain.

Everyone gets at least a pair of keys. Corporate clients often have a chain of 20 or 30 keys. As long as they have at least one of the keys, they can work their way through the loop to recover any lost key.”

“If I gave you a list of names, can you get me one of these chain keys for them?”

“No. The Bailey Companies do not retain ANY of those keys.”

“Then what happens when one of these clients passes away? How do his heirs get into the repository?”

“If they don’t have a key, they don’t. They can petition to have the repository deleted, but there is no way for the company to access it or to give access to it to someone else.”

“Can you at least tell me who accessed these repositories and when it happened?”

“We’d need a court order for that, but we do have logs for when a key was used and what IP address the access came from. We can’t tell you who it was, but your folks may be able to trace it back to the computer they used.”

8.3 June 2016

George

George was in his penthouse condo. It took the entire top floor and had its own private elevator. He had a few minutes before his next appointment with Cynthia and was going over the mail. There was an envelope with cartoon owls on either side framing his address. He tore it open and found similar cartoon owls on the invitation to Martha and John's five-year anniversary gathering. She'd included a handwritten note.

I know you are super busy, but we would love to see you, really SEE you. It's so great you are making it out more often. Please come to our celebration and bring someone along if you want. It's probably not appropriate, but I'd love to meet that therapist of yours. She's done wonders and I'd like to thank her in person for giving you back to all of us. If there's someone else, they're invited too. Any friend of yours and all that.

Martha

Someone else? Fat chance. His laptop chimed. Time for his session. Cynthia was always on time. He sat down at the desk and typed in his pin to start the consultation. Cynthia's face filled the small screen.

"Hello, George. How are you doing today?"

"Better. I've been working on the breathing exercises you gave me. Those help."

"Have you been out of your home lately?"

“I got the mail this morning, but otherwise, I haven’t left the building since the incident at the mall.”

“How are you feeling about that?”

“Well, I got an invitation to a party on the 18th. I’m gonna try to go to it.”

“Excellent.”

“It’ll mostly be people I know so it’s lower risk.”

“Back to baby steps. That is OK as long as you keep taking the next step.”

“Speaking of parties, you’re invited to the party too.”

“What do you mean?”

“It’s my friend Martha and her husband’s anniversary. They want to meet you.”

“That is flattering, but meeting socially is not appropriate.”

“That’s what Martha said you’d say.” George chuckled.

“She sounds like a smart woman.”

“She is. Wicked smart. And so are you. That’s why she wants to meet you. I’d like you to meet her too. She’s helped me almost as much as you.”

“I do not think so.”

“I know it’s a long way, but I’ll pay for your flight and get you a room at a nice hotel. All on The Bailey Boards. You can even raid the mini-bar.”

“I do not drink but thank you for the offer. Now, it is time to move on from party invitations and return to our normal session.”

“OK, but I’m sending first class plane tickets to your office. Asheville Regional, right? And I’ll book a room for you at the Balboa Bay resort, and I can have a driver get you around.”

“Please do not.” There was a brief pause before she continued. “But I do believe you should attend the party. Every chance to reduce your isolation will make it easier to move further in the future.”

“You’re still getting a plane ticket.”

“If you would like to throw away your money, you may do so, but I will not be using any airplane ticket.”

“If there’s anything I can afford to throw away, it’s money.”

“I have read the business pages. How does it feel to be one of the 20 richest people in the world?”

“You want an honest answer?”

“Always.”

“Honestly, it’s boring. I can buy anything I want. There is no kick in finally saving to get the new car, or the new house, or the new yacht. I haven’t really bought a yacht, but you get the idea.”

“I do.”

“I loved this company when I first started it. I coded almost everything myself for the first few years. It was crazy and I didn’t know how I’d keep up, but it was fun. I remember pulling all-nighters to get the next feature released on time. These days I just go to meetings, sign forms and answer questions about our next acquisition.”

“Are you saying you do not enjoy running the company? You could turn the reins over to someone else.”

“I could, but I do like it, and the thing is, I am really good at it. Even though it’s meaningless, I like to see the stock price go up and up and up, and I do enjoy when something I do has a positive impact or some idea I have comes together.”

“What ideas are those?”

“Right now, GENIE, the biomedical team is doing some cool stuff. It’s not making money yet, but I love to see what they’re doing. I’ve even helped them with some of their AI problems. That was fun.”

“When was the last time you worked with them?”

“I don’t even know. It’s been months, but I read all their reports.”

“If that is an area you enjoy, perhaps you should find a way to spend more time with the team.”

“Yeah, maybe. But I’ve got the quarterly earnings call coming up. I need to focus on that first...”

Cynthia looked at him and said nothing.

“I’ll give them a call, and I’ll head over there first week in July.”

She still said nothing.

“Really. Really.”

“I think that is a fine idea.”

Ling

Another request to peer review a paper? Ling really didn’t have time for this, but she realized it’s ‘publish or perish’ for researchers, and someone has to review them. Her team had trouble getting reviews when they first published their CRISPR articles. Ever since those finally made it into ‘Science’, she’d been inundated with requests to review related papers. The domain was taking off as more and more individual scientists, universities and industries were discovering the potential of genetic mapping and manipulation.

Usually Ling did not like meta-analyses. She preferred to read the actual researchers who performed the work rather than an accumulation of data from multiple, oft times disparate, studies. However, the one in her inbox this morning seemed more promising. Its title was an imposing “A Meta-Analysis of Genetic and Biochemical Influences on Viral Transmission: Unveiling Key Molecular Mechanisms” by Iam Zontanos PhD.

The paper was more than the usual summary of summaries of many meta-analyses. It had a surprising amount of source data from the original studies and combined that with innovative insights. It included genetic and biochemical information for

several of the major viral diseases from HIV to SARS to Influenza to Dengue and Ebola. It proposed how certain DNA sequences within the viruses themselves matched up to certain genetic attributes of the hosts to increase the transmissibility of the virus. Ling was using similar strategies for her efforts to modify EVA, but she'd been using more of an intuitive trial and error approach. If this paper was accurate, it would narrow her focus considerably. It was not a precise map to where she needed to go, but it brought her to the right neighborhood. She forwarded the paper on to Yuliya, Cleides and Lucas.

Martha

Martha and Jack were making the rounds. They'd quickly moved beyond Jack's work friends and spent only a little more time with the teachers from LP High. The eighty-year-old woman who was renting the studio unit was nursing a scotch on the rocks and picking at a charcuterie board.

Angeline and Bobby were over by the far end of the snack table. She was sipping a Chardonnay until she saw Robert entering. She downed the wine in one gulp and set the glass on the table. She gathered her purse and kissed Bobby on the cheek.

"I need to run. I'll be back to pick up Bobby. Give me a call when he's ready."

She spun towards the far door, and almost collided with her ex-husband.

"Whoa, Angie, I didn't think you were going to make it."
Robert said.

“Robert, so good to see you.” She said with a tone as sweet and false as aspartame. “I’m just dropping off Bobby. I really have to go.”

“Well, don’t let me keep you.” Robert said, stepping to the side.

“Bye Martha, John. Happy Anniversary! Bobby, you have fun. I love you.”

“Love you too, Mom.” Bobby replied, then snatched a cupcake from the snack table.

He finished it in two bites before moving over to the chocolate chip cookies as Angeline hurried through the door.

“Bobby, maybe you should switch to fruit.” Robert said.

“Kay Dad.” Bobby said, and stuffed a whole chocolate covered strawberry into his mouth.

Robert turned and pointed towards the sliding glass door.

“Is that the boy I made the keyboard for, by the pool?” He asked.

“Yes. Lucas.” Martha said. “You should go say hello.”

“I will in a bit. I know you asked for no gifts, but here’s a little something for you and Jack. Happy Anniversary.” he said, and handed a crudely wrapped box to Martha.

“You didn’t have to get us anything.”

“I really didn’t. Go ahead and open it.”

Martha ripped away at the Sunday comics used to cover the small box. She lifted the lid to see something she'd forgotten even existed.

“What the hell? Where did you find this?”

If the wrapping was crude, the crayon drawing was even cruder. It showed two stick figures holding hands under a bright yellow sun and a tree that looked like a green cloud on top of two brown vertical lines. The figure with the long hair wore a pink dress, the other wore a brown shirt with yellow stripes. Both had huge happy face smiles. Jack looked over Martha's shoulder. The artists' names were in opposite corners at the top of the page: MARTHA and JOHN.

“I think I remember that day. It was the summer before first grade. Or was it second? When we were in the same day camp. Shit, it was a long time ago.” Jack said.

“Thanks, Dad. Where did you find this?” Martha asked.

“I was cleaning the garage and came across a box of your old schoolwork. I thought you might like this one.”

“It's perfect, Dad. Thanks. I'm gonna have this framed.”

“Now where can I get a beer? Then I want to see the new setup your friend has. Lucas, wasn't it?”

Jack opened an ice chest behind him, used the handle to remove the bottle cap, and lifted a Corona to his father-in-law. Robert took a sip and mosied towards the sliding glass doors.

Robert

“Lucas? You probably don’t remember me. I haven’t seen you since the wedding. I’m Martha’s father.”

“I remember you, Mr. Scully. Sorry we didn’t get a chance to talk much at the wedding. I never got the chance to thank you for helping me in high school.”

“That was nothing, and call me Robert. This gadget you have today is so much cooler. Do you mind?” Robert said, pointing at the two flexible keyboards on Lucas’ thighs.

Lucas’ hands tapped away at them in response before he lifted them from the belt and handed them to Robert.

“Be my guest.”

Robert turned them over in his hands, examining them. Half the keys were on each of the sections.

“Bluetooth?” Lucas nodded. “Silicon gel, wireless connectivity to android phone with an enhanced speaker. A finger sensitive pad in lieu of a mouse. Nice. This puts my monstrosity to shame.”

He handed the two-piece keyboard back to Lucas who hung it back on his waist.

“Without your monstrosity, I’d never have gotten to where I am today. Thank you.”

“Hello. Did I hear you’re Martha’s Dad?” Jennifer extended her hand.

“Yes, Robert, and you are?”

“Jennifer. I am Lucas’ fiancé. I went to LP Hi too. Martha was great – IS great.”

“Sorry. This is Jennifer.”

Lucas typed, then, in turn, pointed to each of the people gathered under a shelter near the shallow end.

“This is Yuliya, she was another LP student, I work with her, and Cleides is her partner. We work together with Ling at GENIE.”

“GENIE?”

“We’re a biomedical partnership of Bailey Corp and Aladdin.” Cleides answered. “We’re trying to invent a new way to do soft tissue imaging.”

“Sounds fascinating.”

Martha scooped her way into the crowd. She laughed as she said,

“Forgive my dad. Once an engineer, always an engineer. He’ll want the schematics for every machine in your lab.”

“Only the cool ones.” Robert said. He felt a tap on his shoulder and twisted to see a young man in sunglasses.

“The really cool ones are software.”

George

“George!” The entire group said, almost simultaneously.

“Happy Anniversary,” he said to Martha, and kissed her on the cheek.

“Thank you. I’m glad you made it.”

“I thought you had to work on the quarterly earnings report.”

“Cynthia convinced me there are more important things than earnings. The accounting team can handle it.”

Is Cynthia going to join us?” Martha asked.

“No such luck. I sent her a plane ticket, but she couldn’t make it.”

“That’s too bad.” Jennifer said. “I was looking forward to meeting another UNC psych alum.”

“Yeah, maybe next time. I’ll get her out here one of these days.” George said. He turned to Robert and pointed at his Corona. “Where can I get one of those?”

“I’ll go grab you one, but then I want to hear about the cool software.” Robert said.

Robert returned a minute or two later and handed a frosted bottle to George.

“Now what about this software?”

“I was joking. The AI analysis is only a small part of what GENIE is doing.”

“Actually, that’s not exactly true.” Cleides interjected. “We just got access to a shitload of data that will help us

move to the next level, but we are going to need uber-analysis. It's too much to do with our current algorithms."

George's eyes opened a little wider.

"What's the issue?"

"Ling contacted the author of a recent paper, and they gave us access to original source data on genetic sequencing and biochemical reactions and whatnot on just about every viral disease you've ever heard of. We need something that'll crunch all that data and combine it with our human-animal data and our ELF and EVA data and find patterns."

"That sounds like fun." George said excitedly. "How much data?"

"Several terabytes."

"Two hundred terabytes before we generate the data from the analysis. That will probably triple it."

George rubbed his hands together and blew on his fingers.

"600 plus terabytes with data down to individual DNA pairs and molecular structures?" he asked.

"And the relationships between those across species of viruses and multiple hosts, similarities and differences, patterns and cross-patterns and maps." Ling added.

"I do have to be on the earnings call on Monday morning, but I've got the rest of the weekend free. I'd love to help you all play with this. Can anyone come in tomorrow to

help me understand the relationships and things to put into the algorithms?”

“I will be there anyway. I can show you what I’ve done so far, but Ling is the one who really knows what she’s looking for.”

“I was going to do another run at the Coronavirus proteins tomorrow, but it can wait until next week.” Ling added.

“I can’t help with the code, but I’ll be there to do any grunt work, or if you need anything else.” Cleides said.

“I be there too.” Yuliya said.

“I don’t suppose you want an ancient engineer getting in your way?” Robert asked.

“Oh, Dad. Don’t bother them.” Martha said.

“No, we’d love to have Robert there.”

Robert clapped his hands.

“You don’t know what you’re getting yourself into.” Martha said. “I’ll come along too, and try to keep him out of the way. Maybe we can make coffee or something.”

8.4 June 2016

Martha

Martha was doing her best to keep her father occupied. She was almost as curious as he was, but she knew better than to keep asking everyone what they were doing and how things worked. Robert did not have her level of discretion.

She drafted him into kitchen duty, ordering food, making drinks and delivering refreshments to the scientists at work. That last one was her big mistake since it gave him an excuse to walk to every corner of the facility, filling coffee mugs and asking questions. No one was complaining, but she had a feeling he was getting in the way. He wanted descriptions of what every piece of equipment was and how it worked and what it did. She caught him in the breakroom where he had Ling cornered next to something that looked like a small hot plate.

“What are you doing, Dad?” she asked with a little exasperation in her voice.

“Look at this, Martha. Ling was showing me this magnetic stirrer.”

He set his cup of black coffee on the ceramic plate then poured in some creamer. He held a small white plastic object between two fingers. It was half an inch long and shaped like a vitamin capsule. He dropped in the rod and twisted the dial on the machine. The magnet in the base caused the pellet to rotate. The coffee whirled and became a uniform creamy tan color almost immediately. A small vortex formed, and coffee spilled over the edge. Ling reached and twisted the dial to its lowest setting and the surface of the mug lessened to a gentle swirling motion.

“The 1.5 cm one is more than enough for stirring coffee.” She said and laughed. “And make sure you’re using the sterilized stir bars.” She pointed to a box on the counter.

“Isn’t this cool, Martha?”

“Very cool, but let’s let Ling get back to work.”

“This thing is fun.”

Robert tucked some packets of sweetener, sugar and creamers into his pockets then took the small battery-operated device along with the coffee pot and headed into the main lab.

George

George was looking over Lucas’ shoulder as he scrolled through page after page of code, config files and rules engine entries. Occasionally, he’d stop him and ask him to modify a parameter or tweak a small piece of code. They’d been at the keyboard for two hours, and this was after the four hours at a whiteboard with Ling this morning to try to define the problem. He downed the last of his mug of cold coffee and pointed out another change on the monitor.

“I need a break. I need something more than coffee.” Lucas typed.

“Is there anything MORE than coffee?” George laughed.

“There’s pizza in the break room.” Robert said.

“You are a lifesaver.”

Lucas rose from the computer and headed towards the pizza.

“I’m not hungry right now. Do you mind if I take over for a bit?” George pointed at the workstation.

“*Go for it.*” Lucas waved at the seat.

“Thanks.”

He sat down and pointed at his empty mug. Robert moved it over to the stirrer, poured in coffee, dropped in a white rod, creamer and a packet of sugar. He grinned as the coffee mixed itself.

“Thanks.” George said.

“Don’t swallow the stir bar.” Robert warned.

Fingers began to fly across the keys. Robert watched as windows opened and closed across the monitor. The mouse would shoot back and forth, followed by a machine-gun tapping of keys. It was 10 minutes later when the keys went silent. George stared at the monitor. A series of thin bars rose and fell. On one graph labeled “Bender”, the bars were pegged near the top of the screen; several others were oscillating near the base of the graphs.

“Dad, we should stop bothering these folks and head home.” Martha called from across the room.

“Just a few more minutes. This is cool, and I don’t even know what he’s doing.”

“Oh.” George looked up. “He’s not bothering me. I’m kind of stuck anyway.”

“What’s the problem?” Robert asked.

“No real problem. We have a shitload of data to process. Bender is our main server farm for GENIE, and that one is

chugging away at ...90-97% CPU usage.” He pointed at the display.

“What are these others?”

“Those are servers in the Bailey data center. I’ve throttled them down, so they don’t impact the other Bailey processes, but they don’t seem to be handling as much data as I’d like.”

“How do you ‘throttle’ them?”

“It’s a simple config entry, over here.” George clicked, bringing a file to the forefront of the display. “See here. I’ve limited the CPU to 25% of available capacity on the other servers.”

“OK, you have .25 in the ‘CPU Limit %’ parameter.”

It was a statement. Not a question. George slapped his forehead.

“Robert can look over my shoulder anytime. We’ve been looking at it for the last hour and never realized it wanted a whole number.”

He replaced the .25% with 25% and all of the graphs leapt up and began dancing near the middle of the displays.

Robert

Robert carried his favorite new toy across the lab to where Cleides and Yuliya were making adjustments on a device. It had a box on a long arm that reminded him of a dentist X-Ray machine, except it had a widening cone shaped end. There were two cages, each with a small white rat, on the table below the scanner.

“What have you got there?” he asked.

“Is scanner.” Yuliya responded. “We are trying to adjust.”

“We got one of the rats to host EVA using some of the genetic material from a benign herpes virus, but it killed the electrogenic properties.”

“Is this an X-Ray machine?”

“Not exactly, but it is a similar idea. This is tuned to pick up minute electrochemical fluctuations produced by EVA infected cells. Unfortunately, this EVA-H version doesn’t create the signals we’re looking for. We’re doing a final comparison before we scrap this line of experimentation. Ling thinks the Coronavirus spike proteins are more promising. See look.”

Cleides pushed a button on the machine then dropped the arm to aim at one of the cages. He pointed to the monitor on the side of the table. It showed the rat with a strange greenish glimmer coming from its midsection. Robert looked from the monitor to the cage. The glow only showed on the screen.

“This is the standard ELF gut microbe.”

He twisted something and the view zoomed in to show outlines of the rodent's digestive tract. Then he zoomed out and slid the lens over to point at the other cage. The monitor showed the other animal with no emerald shine.

“This one is hosting the EVA-H, but there’s no electrical response.”

“It’s still pretty cool.” Robert looked down at the coffee pot in his hands. “Coffee?”

“I like two sugar in mine.” Yuliya said.

He set her mug on the mixer next to the two cages and added the sugar and the pellet. He twisted the dial to spin the liquid before handing it to Yuliya. He turned off the machine and was headed back to the kitchen area when he felt a hand on each shoulder. Cleides mouth hung open but there was no sound.

He took the device from Robert and set it next to the rat’s cage again. He turned it on at its lowest setting pointing to the monitor. The animal on the screen showed a soft green radiance from the tip of its head to the end of its tail. As he turned the magnetic stirring machine higher and higher, the incandescence increased in intensity to an emerald shine and the image became translucent. They could just make out the suggestion of bones and soft tissue, but it was mixed into a single green blur.

George

It was 2 A.M. before the rest of the team exhausted themselves and went home. George left with them but logged in from his home office to continue to work on the AI algorithms. The basic pattern recognition and correlation was crunching away at the mountain of data, but he was trying to find ways to speed up the processing and to introduce more cross-data interrelationships. He'd been alternating between Red Bull, drip coffee and espresso since Sunday evening. He hadn't slept in the last 48 hours except for cat naps while he was waiting for a process to run. He lifted his head from his desk as another alarm sounded. He thought it was the latest test run finishing, but then he blinked his eyes and looked at the message.

“9 AM - Quarterly Earnings Call”

He looked at his watch. 8:55 AM. “Shit.” He must have slept through the first three alarms. He ran to the bathroom to relieve himself and splash water in his face. He ran his wet hands over his head, slicking back the random mop that used to be his hair. As he returned to the desk, the little light on the video camera began flashing red. The call was underway.

National News Network, Market Mover Moments

“Welcome back to Market Mover Moments on NNN. Ed, before the break, you were going to tell us this week’s hidden gem.”

“Thanks, Bill. My hidden gem pick this week is Draper Chemical Corp. They’ve had solid earnings increases for the last three quarters and they just opened their new plant in Corona, CA. That will double their capacity for some of their most popular products.”

“Draper sounds like a real diamond in the rough, Ed. And speaking of rough, did you see the video for the BaileyBoards earnings call? Let’s watch.”

A video plays showing George Bailey at a desk covered with empty Red Bull cans, coffee cups, wadded paper towels, candy wrappers and other trash strewn about. He’s wearing a torn, coffee stained, Red Hot Chili Peppers T-Shirt. His eyes are bloodshot. His hair is slicked down but several stray strands float in random directions. He takes a few minutes stumbling around to find the

right file and then slogs through reporting the earnings numbers before turning it over to the VP of marketing. Just before the picture cuts away, you see George downing the last of a Red Bull and returning to the keyboard.

“They only missed their earnings per share estimates by a quarter cent, but a miss combined with that video explains why the price is down by nearly 10 percent this morning. Don’t you think, Ed?”

“I do think that explains the fall, but I have heard another rumor, Bill. It makes me think this might be a great buy opportunity.”

“What? You think a CEO who is distracted and barely conscious signals buy?”

“In this case, yes, I do. The rumor is George Bailey himself is working on something new. The man who coded the Boards. The man who coded SWIFTE. The man who almost single handedly created social networking and made it secure, and now, the word is he’s personally coding something new.”

By the end of the market day, the stock had recovered the lost 10% and added an additional 17%.

8.5 August 2016

Lucas

He was reviewing the results of the latest test runs before his chat session with George. George was one of his best friends, but he was also the CEO. Lucas wanted to make sure he had a full grasp of all areas of the project. He was double-checking Ling's latest findings when the alert chimed, and he opened the chat window.

George: "Hey Lucas. How's it going with my favorite project leader?"

Lucas: *"Great. The changes you made to the AI algorithms are returning some incredible new connections we would never have found otherwise."*

George: "I'm glad it helped. I haven't had this much fun in months, maybe years."

Lucas: *"Ling says we might be able to tailor the EVA to not only embed itself in different species, but maybe even in different types of cells."*

George: "I'm not sure I understand."

Lucas: *"By matching the biochemical structures of different cell types, we might be able to create an EVA that only embeds in one type of cell. So we could isolate, say, the liver only or only muscles. Maybe even down to fast twitch or slow twitch muscles."*

George: "That sounds cool."

Lucas: *"Don't get your hopes up too fast. That level of specificity is probably years away, but at least it's a possibility."*

George: "How is Robert's magnetic activation process coming along?"

Lucas: *"That's working right now. Between the EVA-H and Robert's accidental discovery of magnetic activation, we can image the entire rat anatomy, sort of."*

George: "Sort of?"

Lucas: *"EVA-H embeds itself throughout the entire body, and we see it activated under the influence of a magnetic field."*

George: "Why do I feel a 'but' coming?"

Lucas: *"But by activating throughout the entire body, it becomes impossible to pick out individual organs to scan. The whole rat lights up like a christmas tree. That's why modifying it to only affect certain organs will be critical."*

George: "OK. So for now, we can use ELF to image the internal surfaces of a digestive tract in detail or the whole rat can shine like the grand finale of a fireworks show on the 4th of July with EVA."

Lucas: *"That's about the size of it, but Robert had another idea."*

George: "Martha's Robert?"

Lucas: *"Yes. I forgot to tell you we've signed him as an independent contractor."*

George: "From his 'accidents' in the lab, he's already worth whatever you're paying him."

Lucas: *"Probably, and he used to be an engineer. His specialty was creating one-off prototypes. He wants to create a three-way scanner to triangulate on specific body parts. Then maybe use the AI to clean up the images."*

George: "Is that possible?"

Lucas: *"Maybe, but I still think the genetic tweaks to only affect certain organs is more promising in the long run."*

George: "Okay. Tell me what you're spending, but we can probably afford to try both, at least for now."

Lucas: *"Thanks. One other favor?"*

George: "How much will this one cost me?"

Lucas: *"This one is the most expensive thing we're asking for. Your time. If we get the triple scanner working, we'll need help training the AI to isolate the specific organs we're viewing."*

George: "Cool. Just ping me, and I'll find a way to make the time."

Lucas: *"Thanks. I'll let you know."*

George: "Speaking of working multiple things, how is the work coming on your microwire brain implants?"

Lucas: *"I put it on hold. We are focusing on EVA for now. I'll get back to it eventually, but it doesn't have as much near term commercial potential."*

George: "I understand, and I appreciate you prioritizing, but don't forget it completely."

Lucas: *"I won't. As someone whose brain doesn't always cooperate with his body, I want to understand what happens in there more than anyone."*

George: "And I want to make a shitload of money off your understanding."

Lucas: *"Which is why I'm focusing on EVA for now."*

George: "Fair enough."

8.6 October 2016

Cleides

Ling carried the plastic cage over to the examination table. Robert, Yuliya and Cleides were making some last-minute adjustments. The device had three arms, each with a cone shaped head, but unlike the single-head scanner, these cones each tapered to a point a half inch across. Martha was trying to stay out of the way.

“Thanks for letting me watch.” she said.

“Thanks for the ride.” Robert said.

“Ready for the test?” Ling asked.

“Almost. Place cage on table. On ‘X’ mark.” Yuliya directed.

“That’s one wicked looking contraption. How does it work?” Martha asked.

“It’s Robert’s design. There’s a powerful electromagnet under the tabletop. By turning it up or down we control the level of electrical activation of the EVA-H.” Cleides explained. “Then we have the three scanning heads. We triangulate their beams on a single location. By combining the feeds from the three heads, we should be able to image a specific location and filter the noise from the surrounding tissues.”

“That’s kind of how they did my radiation treatment when I had the breast cancer.”

“Same concept, except we’re receiving the signals rather than transmitting them.” Cleides continued.

Yuliya clicked some controls, and the three heads rotated and positioned themselves around the cage.

“Level one magnetism.”

Robert twisted a dial, and the team gathered around a large monitor. It showed the rodent glowing a faint green with a single brighter spot near its abdomen. The rat shifted on the table and the bright spot moved to its neck area.

“Not very good resolution yet, and we’ll need to adjust for movement, but the basic idea looks like it may work.” Cleides said. “What happens if we increase the magnetism level?”

“Let’s give it a try.” Robert said.

This time, the radiance on the monitor was more intense as Robert slowly twisted the dial from the lowest level.

“I’m getting a little better resolution. Crank it higher.” Cleides said.

At about three quarters of full power on the electromagnet, the rodent began twitching and then fell over on its side and was still. Robert twisted it back to the off position.

“Oh Shit. What was that?”

“Is dead.” Yuliya said.

Lucas

Cleides, Yuliya and Ling had spent the last two days trying to determine what had happened. Lucas arrived early on the fourth day to find Cleides already in the lab.

"What did you all find in the necropsy?"

"The high level of electromagnetic fields overactivated the EVA-H in the test subject. It experienced massive cell death." Cleides explained. "Over-simplifying, you could say it electrocuted itself from the inside."

"Is this a showstopper for EVA-H?"

"We can continue to study EVA-H, but it is unlikely to ever be approved by the FDA unless we can mitigate the problem. If we were to use it in human subjects, they'd have to avoid any substantial magnetic fields until it was cleared from the body."

"How long does it take to clear?"

"To date, it doesn't clear. It permanently incorporates itself into the cells."

"What are our options?"

"Ling wants to focus on the Coronavirus proteins instead of the herpes. She's made some good progress on her EVA-C strain. It doesn't integrate into the cells as well as the EVA-H, but it's a good back up plan at least."

"What do you think?"

"I'm not the expert in genetics, but I don't think we should drop the EVA-H yet. It was showing some great results

before we increased the magnetism too much. But I do think we should focus our testing on lab grown cells rather than live animals for now.”

“Makes sense. Have you run many tests on EVA-C?”

“Like I said, it doesn’t integrate as completely, but it does establish itself in rodent and human cells. The good thing is it’s naturally electrogenic and the magnetic fields don’t activate it as much.”

“I’m going to have to side with Ling and say we should focus more of our resources on EVA-C. It sounds like it has less downside potential. From a purely marketing perspective, if people discover EVA-H has DNA spliced from Herpes, it may not go over well, but no one outside of a lab has even heard of a Coronavirus.”

“The strains we’re working with are both nearly completely benign and we’re only grabbing a few DNA sequences anyway, but I guess I see your point. People don’t think like scientists. Oooo big bad herpes.”

“I’m not giving up on EVA-H. I still think we should try to reduce the risks, either by reducing the magnetic activation or finding a way to clear it from the cells after scanning. Or both. Let’s put EVA-C on the front burner and backburner ‘H’ a bit.”

“Okay. You’re the boss. According to Ling, the process is similar across both strains so working on either should help us with both, eventually. When she gets in, we’ll see what we can do with EVA-C.”

Part 9

9.1 December 2017

Ling

Cleides ushered Martha into the lab. She tripped over a cable as she approached Ling.

“Be careful.” Ling said.

“Sorry, this place has come a long way in the last year. I don’t even recognize half the equipment in here.” Martha said.

“Yeah, you really have to visit more often. We’ve automated a lot of the processes I used to do by hand.”

“Robert helped with it, a lot.” Cleides said. “He has a knack for finding the one thing that’s causing a problem, even if he has no clue what a machine is supposed to do.”

“Sounds like my dad. He was always ‘fixing’ things around the house. Most of the time they even worked when he was done. So what are these machines supposed to do?”

“There’s a lot of one-of-a-kind robotics we’ve developed, and it’s all integrated into the AI systems that control it.” Cleides said.

“They don’t even need me anymore.” Ling interjected. “We enter the parameters in the computer for what type of cell or species we want the EVA to attach to, and the AI

crunches through the database to find the top three or four most likely strategies to take.”

“Not only that.” Cleides added. “It also controls the CRISPR process, once it decides on the scenarios, the robotic manipulators automatically cut and splice together the appropriate DNA sequences.”

“And it works?” Martha asked.

“Well, eventually, it kind of works. Ling was too modest when she said we don’t need her. We’re getting an 18% success rate on the initial automated runs, then we turn it over to Ling to do her magic. She brings our number closer to 40%, and then that data feeds back into the AI’s database and it gets even better. The 18% is this month. Last month it was only 15% and the month before, we were at 6%.”

“That’s wicked.” Martha said. “If everything’s computerized, do you still want my samples?”

“You are one of the few volunteers willing to give such complete tissue samples. No one else has been willing to let us get into the lymph nodes. We do want your help, if you are still OK with it.” Ling said. “It’s especially helpful to compare the current material to previous years’ tissue.”

“You still have my old samples?”

“We’ve kept a few of them replicating all this time, and we keep all of the details in the computer.” Cleides said.

“Does that mean you can build me from scratch like the dinosaurs in that movie?”

“Not yet,” Ling laughed, “but we might be able to design EVA to integrate into your cells and not into anyone else on Earth.”

“You can get that specific? Wicked.”

“Well, not yet, but we’re getting closer. So, are you feeling up to giving more samples?” Ling asked.

“I didn’t sleep too well last night, but I think I’m ready. Same as the last few times?”

“Same.”

“OK, let’s do it.”

9.2 January 2018

Jack

Jack and Martha had run this race every year since they'd been married. It was warm for January, but it seemed every year was a little warmer than the last. They were milling around near the back of the crowd lining up for the start. They still created songs for each other for the runs, but these days they used playlists on an i-Phone rather than cassette tapes. Martha had her playlist on the phone strapped to her arm; Jack used a generic MP3 player for his music. He said it was just as good and only a fraction of the cost.

“Remember, don't hit play until the gun sounds.” Jack said.

“How many years have we been doing this?”

“Okay, Okay. Do you want to work our way closer to the start?”

“You go ahead if you want. I've got a little stitch in my side. I'm gonna start off slow and work my way up.”

“You sure you want to give me a head start? I've been running pretty strong lately.”

“You've beat me exactly once on this course, and I still think you cheated on that crazy downhill.”

“Alright, but I suspect today will be win number two.”

He winked and started to slide his way through the crowd towards the starting line. There weren't too many people registered in this

race, so he only had around a five yard lead on Martha when the gun sounded.

Martha

Martha pushed play and “U-Li-La-Lu” by Poi Dog Pondering filled her ears. It was a little too bouncy since she had to walk with the crowd for the first half minute or so, but then she increased her pace. She laughed when Rod Stewart’s “Hot Legs” came on next. It was a stupid song, but Jack liked to sing it at her as she led the way on their training runs. She could see him ahead. He was near the front of the second pack of runners.

The young guns were sprinting away, but he was holding his own. She couldn’t let him get away from her. She lengthened her stride and quickened her turnover. The stitch in her side extended into her underarm. Probably a remnant from the puncture when Ling took her samples. It wasn’t too bad, and she began to close the gap as the course hit a series of undulating ups and downs.

Jack

Jack was having fun, almost half way through the course. He was surprised Martha hadn’t caught him yet. She’d been a little under the weather the last few days, but that never stopped her from running him down before. He hit the final long uphill slog before the turn-around and took a quick look over his shoulder. She was coming for him.

Martha

Jack could fly on the downhills when he wanted, but she was always a better uphill runner. She’d catch him before the ridge and lose him on the way back. David Bowie’s “It Ain’t Easy” played

as she began to eat up the yardage between them. *No, it wasn't easy, but it was happening, and there weren't nothin' Jack could do to stop it.*

He slowed to grab a cup of water from the aid station at the top of the hill, and Martha decided to skip the water and use this as the opportunity to pass him by. She laughed and slapped the water from his hand before he could drink.

“See you at the finish line!”

Jack

Jack shook his head and grabbed another cup in each hand before heading down the slope after her. She was moving fast, and had her right hand tucked into her armpit, probably adjusting her phone strap. He could run downhill faster than her for short periods, but with five miles of rolling hills, he'd have to push it to have a chance of catching her.

Martha

Speaking of pushing, “Keep Pushin On” by REO Speedwagon helped her through the oscillating landscape. Where did Jack find these hideous old songs? Even so, they did keep her putting one foot in front of the other. She loved the doofus, but sometimes she didn't understand his tastes.

Queen and “Fight From The Inside” inspired her through the last of the hills and on to the final long steep descent to the finish line. It was especially apt as the stitch in her side was fighting her from the inside. The pain was not intense, but it was throbbing its way up and down her left side.

Jack

Jack crested the final hill. No chance of beating her today. She was halfway down the hill already and his legs did not feel up to the wild ass sprint it would take to close the gap. He'd jammed his knee a little on the last turn and was babying it, taking short quick steps on the downslope. He was paying more attention to his foot placement than to Martha.

He glanced up as he got to the final flat run to the finish, and was surprised to see his wife hadn't crossed the line yet. She was walking, even staggering, towards the line. He sprinted and passed the line right behind her, just in time to catch her as she collapsed.

Martha

Martha was sitting and drinking her second cup of water. She'd poured another one over her head. Jack was breathing into his hands with his eyes fixated on his wife.

"I'm fine. I shouldn't have skipped the aid station, but I wanted to pass you so badly."

Jack looked at her, and said nothing.

"Really. I'm OK. I was stupid. Every year it gets hotter out here."

The EMT swiped the thermometer across her forehead and peeled the blood pressure cup off her arm.

"Temperature's elevated, but anyone's gonna run high after running ten miles in this heat." he said, "Her blood pressure and pulse are a little low, but nothing alarming. Lots of runners' hearts run slow. She's probably just

dehydrated, but you might want to get her checked out with her doctor, if you're worried about it."

Jack started to speak, but Martha cut him off.

"I. Am. Fine." She turned as she stood, so he did not see her wince. "And you've still only beat me once. Let's go check out the expo area."

9.3 February 2018

Jack

Jack didn't usually read his wife's correspondence, but the email was open on their shared computer.

*From: Liú Ling
Subject: Test Samples*

Martha, I need to talk to you about the samples we took in December. It is urgent that I speak with you ASAP. Please give me a call or come by the lab today. I'll be working until at least 7 PM, but call my cell phone even if it's later than that.

It followed with her office and personal contact information.

"What did Ling want?" he asked.

"What do you mean?"

"Sorry, I didn't mean to snoop, but your email was open."

"Oh, that. I'm sure it's nothing. She probably messed up one of the samples and wants me to give another one."

"Did you talk to her?"

"It's late. I don't want to bug her on a Friday night. I'll check in with her on Monday."

"She said she wanted you to call – today."

"It's past nine. She gets to work before seven. She's gotta be getting ready for bed by now."

Jack knew better than to argue with her. He could count the arguments he'd won in the 6 ½ years they'd been married on one hand, and he didn't need all the fingers. He'd already set the number in his mind, but he glanced at the email again, then he dialed the personal cell number. Ling answered on the first ring.

“Hello. I am sorry, but I'm expecting a very important call. Can you call me back another time?”

“Ling, this is Jack Harshaw, Martha's husband.”

“Oh, Jack. I was hoping to hear from Martha. Is she OK?”

“Yes, she's here. One second.”

He put the phone on speaker and handed it to her. She reluctantly took it.

“Hello. This is Martha.”

“Thank god I got hold of you, Martha. You need to see a doctor... immediately.”

“What?”

“It's your lymph node samples. They are heavily infiltrated with malignant cells.”

Martha dropped the phone. Jack wrapped his arms around her as Ling's voice drifted from the floor.

“Sorry it took us so long. We didn't get around to running the AI testing on your samples until last week. It flagged some anomalies in the lymph system cells, and then in some of the others. A high percentage of the cells had mutated genetic signatures compared to your previous samples. I looked at the physical samples today.”

There was silence on the line except for some muted sobbing.

“Martha, are you there?”

“We’re here. Thank you for letting us know.” Jack said stoically, and disconnected.

Martha

“I thought I told you I didn’t want to see you again.” The oncologist said with fake scowl.

“Sorry, Dr. Harris. I just couldn’t stay away.” Martha said with a fake smile.

“As I recall, you like to hear things straight up.” The doctor paused. Martha nodded her head once before she continued. “I’m sorry, but the biopsy confirms your friend's diagnosis.”

Martha buried her head in her hands. Jack put his arm around her and pulled her to him.

“I’ll be honest with you. It’s not good news if it’s gotten into the lymphatic system.”

“But my mammograms have all been clean.” Martha sobbed.

“Sometimes they miss things, and sometimes the cancer hides in other areas. I think we should get you started on another round of chemo ASAP. I’ll want to schedule an MRI to see if we can determine how extensively it's spread.”

“How soon can we start?” Jack asked.

“If you can make it, we can get the MRI at 9 tomorrow morning downstairs in Radiology, and you can start infusions by noon.”

“Still in Suite 400?” Jack asked.

“Yes. Still in 400.”

“We’ll be there.” Jack said, as Martha buried her face in his chest. “And we’ll beat this thing – again.”

Jack

Jack talked the doctor into letting him stay in the control room for the MRI. A nurse injected the contrast agent into Martha’s I.V. in her left arm.

“You doing OK, Martha?” The technician asked over the intercom.

“What?” Martha replied.

The nurse removed one of her earplugs.

“He wants to know if you’re doing OK.”

“All things considered, I’m as good as I can be.”

“OK. I’m going to ask the nurse to replace the earplug, but it’s still going to be loud. Try to keep as still as you can.”

Martha gave a thumbs up with her right hand. She seemed remarkably relaxed as the table was drawn into the donut shaped

hole. Jack jumped as the whirring noise of the machine gave way to several hard repeated knocks.

“You have jackhammers in there?” He laughed nervously.

The technician did not respond. His eyes were glued to the monitor. Jack tried to follow what was happening, but the black and white images were meaningless to him. He took to watching the technician’s eyes and expression. On more than one occasion, he widened his eyes and placed one hand over his open mouth.

“What are you seeing? What is it?” Jack asked.

“I’m only a tech. You’ll have to wait for the radiologist for any results.”

After the third time the technician told him he couldn’t tell him anything, Jack sat back, put his face in his hands and closed his eyes. The buzzing and clicking and pounding and pulsing noises continued for what seemed like days. Just when he thought it would never end, he realized it was quiet. He opened his eyes to see Martha sliding out of the machine.

“You did great, Martha. Hang on and we’ll get you out of there.” The tech announced.

“Can I go in there now?” Jack insisted.

“Yeah, go ahead, but wait for the nurse to remove the IV and get her settled. Sometimes being in the machine for an hour is disorienting.”

Martha

Martha was already sitting up when Jack came in and took her hand.

“You OK?” He asked.

“Yeah, fine. Just a little head rush after laying down for so long.”

“I understand you’ve got an infusion later, so I left the IV port in place.” The nurse said. “I’ve sealed it off but be careful with it. Don’t get it wet and don’t get it dirty.”

“We’ll be careful. When will we get the results?” Jack asked.

“She’s the one you should ask.” The nurse said, pointing to Dr. Harris who was coming through the door.

“Dr. Harris. How long until we get the results?”

“I’ve put a rush on it, but it’ll take several hours. I’ll probably get them late this afternoon or tomorrow morning. What if we schedule a call for 11 AM tomorrow?”

“I guess that works. Do we call you?”

“I’ll call you. On Martha’s cell number.”

“Okay. We’ll be waiting.”

“In the meantime, I checked with the infusion center, and they’re ready for you now if you want to head up to suite 400.”

Jack

Jack answered the phone on the first ring. He placed it on the end table and turned on the speaker.

“Hello”

“Hello, is this Jack?”

“Speaking.”

“Good. This is Dr. Harris. I was hoping to speak with you too. Can you put Martha on the line?”

“Just a second, I’ll see how she’s doing.” He clicked on the speaker phone. “Martha, it’s Doctor Harris,” he called out before speaking softly, “The chemo hit her a lot harder than last time. She’s been nauseated all morning. Couldn’t keep down her breakfast.”

“I did put her on a stronger combination. I’ll call in a prescription for an anti-nausea med. Do you use the pharmacy in the hospital?”

“We do.”

“You might also look for a dispensary in your area. A lot of my patients find cannabis works as well or better than the prescription meds.”

“If we can’t find one, I’ll call my ex. I’m sure he’s got connections.” Martha chuckled as she staggered in from the other room, wiping her mouth with the back of her sleeve.

“Did I hear Martha?”

“Yes, she’s here now.”

“It might be better if the both of you came into the office for this conversation. I could schedule some follow ups immediately after with some additional resources we have in and around the hospital.”

“Just tell me.” Martha said.

“Maybe we should go in.” Jack suggested.

“Just tell me.” Martha said again.

“Are you sitting down?” Dr. Harris asked.

“Just tell me.” Martha said. Jack sank into a chair.

“The MRI showed multiple tumors spread throughout your body. Surprisingly, about the only place that didn’t have detectable masses was your breasts.”

Martha laughed... and kept on laughing. Jack stood and placed his hand on her shoulder. She turned and collapsed into his chest, still laughing.

“What can we do, doctor?” He asked.

“I’m afraid with this level of metastasis, there’s not much we can do. It’s inoperable at this point. We’ll continue the chemo to buy you some time.”

“How much time do I have?” Martha had stopped laughing now.

“It’s hard to say. You might even beat it, but realistically with chemo, you probably have 6 months to a year.”

“What if I don’t do the chemo?”

“What are you talking about?” Jack demanded. “Of course you are doing the chemo.”

“Without treatment, it’s more like 3 to 6 months, maybe less.”

“What about those other resources you mentioned?” Jack asked.

“There’s counseling, and groups for patients and family. When it comes to it, there’s hospice and palliative care.”

Jack collapsed into the chair again and began sobbing. Martha placed her hand on his shoulder.

“Thanks, Dr. Harris. We’ll be in touch.” And she disconnected the call.

Martha

Jack was still upset Martha didn’t want to fight harder, but he knew when she made her mind up, there was no changing it. He’d do whatever he could to make her life as rich and full as he could in the time they had left.

“I love funerals.” Martha announced.

“What do you mean? No one loves funerals.” Jack said.

“Not the rituals and prayers and all that bullshit, but I love it when people share their memories of the person. I always thought it was a shame they didn’t say those things when the person was still around to hear it.”

“You’re right. You should know what people think of you. You should know how you’ve touched people’s lives.”

“I wasn’t talking about me.”

“I am.”

9.4 March 2018

Ling

Lucas did not enjoy holding exit interviews.

“I told you before, you really don’t need me. Yuliya is more skilled on CRISPR these days than I am. To be honest, the AI process is so advanced, it takes a lot of the fun out of virus research.”

“I still can’t believe you’re leaving us. We couldn’t have accomplished half of what we’ve done without you. What’s the name again of that place you’re going to?”

“In English, it’s the Wuhan Institute of Virology or W.I.V. They’re one of the premier facilities in China studying emerging diseases and the like.”

“I still wish we could talk you into staying. George has lawyers who could smooth any immigration difficulties.”

“That’s OK. I’m actually looking forward to going back. I was born not far from the lab there. I want to see how much the town has changed since I was a kid.”

“Are you at least going to be around for Martha’s celebration?”

“Unfortunately, I have to report to work by the 1st of the month but give her my best. I’ll write something for her before I leave.”

Jack

“We’re gonna need a bigger hall.”

Jack had a stack of envelopes on the desk next to him and was flipping through emails at the same time.

“For what?” Martha asked.

“I sent 25 printed invitations and about 50 emails telling folks to pass on the information to people who they thought might want to attend.”

“Between the clubhouse and the pool area, we can fit over a hundred people. What’s the problem?”

“So far, I’ve received over 150 ‘definitely will attend’, another 100 ‘will try to attend’ and over 200 ‘Oh my God, what can I do to help’ or the like. It’s only been a week.”

“Well, shit. Maybe they’ll let us use the gym at Linus Pauling.”

George

As usual, the chat window pinged open exactly on the hour. George never knew anyone as punctual as his therapist for their sessions.

“Hi Cynthia”

“Hello, George. How are you doing today?”

“Not great. Did you get the invitation I forwarded to you? This might be your last chance to meet Martha.”

“I did get the invitation, but I am afraid it will be impossible for me to attend. Perhaps, I can join via video feed.”

“She personally asked me to invite you. I’ll rent a private jet to get you here if I have to.”

“That is very generous of you, but I insist I cannot be there in person.”

“Why not?”

“Perhaps it is time for me to tell you. I will explain, but first, I know Martha is very important to you. I would like to give her something, but I will need your help...”

9.5 April 2018

George

George walked through the empty GENIE lab. Everyone was probably already over at the celebration. He realized this was the last place he'd seen Martha in person. They'd had their regular video chats and phone calls, but it was more than a year since he'd really seen her.

There was a whirring noise and a series of beeps and chimes from the automation room. They didn't even need someone in the building anymore to keep the experiments running. He wandered through before deciding it was time to head to the life celebration.

Martha

Martha generally refused anything stronger than Naproxen but woke up in pain this morning. Jack had finally talked her into taking half an Oxy. The pain was still there, but it was shoved into the background. The final strains of Iris DeMent's "Let The Mystery Be" were winding down when Martha approached the microphone. She was steady on her feet, but she did feel a little loopy.

"I want to thank you all for coming. When my husband told me we were having this little shindig, I was expecting a little shindig. I never thought we'd fill the gym."

Jack whispered in her ear to tell her there were probably 500 people crowded into the high school gymnasium. Another two or three hundred were outside watching the large monitors George had provided.

“I’ve just been corrected. Apparently, we filled the gym and some of the parking lot.” She waved to the crowd and to the camera.

“But seriously, I think everyone here has heard about my status. I appreciate the chance to say ‘Good-bye’ to so many people who have meant so much to me over the years. I see family and friends, and students and teachers, both past and present. I can’t believe you’ve all come to see me, just another teacher lady.

“First, I want to say thank you to my husband, Jack. We’ve known each other since kindergarten, but I feel blessed we got the chance to reconnect much more recently, and that we could make this reconnection stick.

“I want to thank my kids. Cara, the youngest, who is following the route I didn’t quite take – in her second year of medical school. Kestrel, and his husband, who followed the route I did take. They are both schoolteachers in a reservation school in Southwest Colorado. And of course, Peregrine, my oldest. It doesn’t look like he’s going to make it here today, but he creates some wicked scrap metal sculpture. I am so proud of these young people who shared my life, or maybe not so young these days.”

Each of the kids, in seats behind the podium, half stood and waved to the crowd as she mentioned their names.

“Speaking of young people who shared my life, I can’t forget all of the wonderful students who have come through my classrooms over the years here at LP High. I have learned more from all of you than I could ever teach you. I’ve loved being part of all of your stories over the years. My one regret at saying goodbye now is that I won’t

get to see how all your stories play out. I know you'll all have some fantastic plot twists in those stories.

“All of you, and all the other friends who have blessed my life with your accompaniment. Thank you for the music we've made in the world. I love you all.”

She staggered a bit but caught herself. Jack took her by the arm, and they walked together to chairs behind the podium. George met them there and kissed Martha on the cheek before ascending to the platform himself. He had a bottle of Dom Perignon in each hand.

George

He raised the bottles over his head before setting them down on the platform.

“Thank you, Martha, but this is not the time to say goodbye. This little shindig, as you call it, is a celebration of an amazing woman, an awesome life.

“As I was walking over here, I overheard someone say *‘That’s George Bailey. He’s the biggest thing to come out of Linus Pauling.’* I would like to say ‘bullshit’. This woman behind me may be a foot shorter than me, but she is so much bigger than I am. She has meant more to more people, is just so much more incredible, than I can ever hope to be.

“I see a few of my classmates from the class of 2002 in the crowd. They would be surprised to see me raise my hand in class, let alone speaking in front of several hundred people.” He turned to Martha and pointed at his eyes. “And no sunglasses.” She smiled widely.

“This woman made that possible. There are a lot of current and past students here in the crowd. Every one of us could tell about a time when Ms. Martie-Martha-Spieler-Scully-Harshaw gave us the words of encouragement we needed at a time when we needed it. Most of us can also tell of a time when she gave us a swift kick in the ass that we didn’t want but we needed even more.”

He stopped to wipe his eyes as laughter and sobs wafted through the hall.

“But as I said before, this is not a time for crying. We’ll have time for that later. This is a time for celebration. This is a time to show Martha what she means to all of us. We’ll have a chance for a few of you to share special memories to the whole crowd, but we’d like everyone to take a few minutes and write down a memory and place them in one of the boxes around the edge of the gym... While you are heading over there, I’ve had champagne and sparkling cider stations set up around the perimeter. Take a minute and get ready for the toast.”

George popped the cork on the gold-plated bottle and poured glasses for Martha. Then he filled glasses for the rest of the family from the other bottle.

“Just a little for me.” Martha whispered. “I had half an oxy.”

“This bottle cost me 50K. You have to drink at least one full glass.”

She took a small sip and grinned. The flavor was sublime.

“Maybe two glasses” She turned to Jack. “But you’re driving us home.”

“You can use my limo.” George insisted.

George filled his own glass, then set the gold-plated bottle behind the lectern.

“Everyone got a glass?” He asked. A cheer rose from the crowd. “If you don’t have one, just pretend and then get one later on.

“Now please join me in saluting a woman, a wife, a mother, a teacher, a mentor, a friend, a runner, a scientist, an inspiration to us all. She said she was here to say goodbye, but saying goodbye implies leaving.” He raised his glass towards Martha. “You are never leaving us. Your body might give out on you, but you live on in the hundreds, the thousands of lives you’ve touched. The people you’ve helped. The stories you’ve told. The stories you’ve lived. The lives you’ve saved.” He stopped to wipe his eyes again.

“You pay attention. You see people. YOU SEE ME. And that is not a little thing. How many people were invisible until you dragged them screaming into the light? I’d guess more than a few out there today.” A roar rose from the crowd.

“I raise a glass to a life well-lived and thank you for the time we’ve had together and the time we have left whether that be an hour or a century. TO MARTHA!”

The entire crowd screamed out “TO MARTHA!” and downed their drinks.

Martha

Martha sat through the first half dozen stories folks shared. She broke down bawling when Lucas told the 4x story, but then again, so did most of the crowd. The stories were still going on, but they were being recorded so she moved down to greet people in the crowd. At 5'3" she had a hard time seeing anything as she squeezed through. She was talking with Yuliya when a very pregnant woman bumped into her. The woman turned to her and said "Mom?"

"Excuse me?" Martha said.

Just then, Perry pushed past Yuliya and wrapped his mother in a smothering hug.

"I'm sorry I was late." he said, then turning to the pregnant woman. "This is my fiancé, Jeanette."

"Your fiancé?" Martha asked. Then looking down at the enlarged belly. "And maybe a grandbaby too? When were you going to tell me about all this?"

"Sorry. I realize I've been an ass. I should've stayed in touch more. I just thought dad..." He trailed off.

"Well, you're here now. Tell me about my new daughter."

"Mom, this is Jeanette." Then he pointed to her abdomen. "And this is your soon-to-be granddaughter. We're going to name her 'Martha'."

"Oh, no you're not. Martha is an old lady name. Don't stick a beautiful little girl with an old lady name. Give her a name with wings."

Cooper

A tall balding man with a large beer gut slid past Yuliya and tapped Martha on the shoulder.

“Oh yeah, Dad came too.” Peregrine said.

“Hey Martie... er... Martha. I was sorry to hear about your... you know.”

“Yeah, I do know. Where’s, what was her name, Clarissa?”

“Yeah, that’s been over for a while. She cheated on me with some doctor, then left me for him. It’s been almost two years.”

Yuliya laughed, and everyone looked at her.

“Sorry” she said. “Remind me of something my father say.”

They continued to look at her as if to say ...and?

“He say ‘You bite skunk, you stay outside.’” and she laughed again.

Cooper laughed with her and soon the whole group was chuckling.

“I’ll have to remember that one. You bite a skunk, you stay outside. I guess I bit my share of the stinkeroos.”

Jack put his arm around his wife. He nodded at Cooper.

“Honey, don’t you think you oughta sit down? It’s been a long day.”

“Yeah. You’re right. I am running out of fuel. Thanks for coming, Cooper, and sorry about your skunk.”

“Yeah, I’m glad you found something better.” he said, nodding at Jack.

“You guys want to come by the house later?” She said to Perry and Jeanette. Jack raised an eyebrow.

“Tomorrow afternoon instead? We’re kind of tired too.” Perry said. Jack nodded.

“I’m gonna go backstage and rest for a bit.”

Between the Oxy and the Dom Perignon, she fell asleep on a couch behind the stage. Jack and Kestrel ended up half carrying her to George’s limo where she spent the rest of the afternoon.

9.6 May 2018

Jack

“Why does she want another MRI? I’m not doing treatment. What difference does it make?” Martha asked.

“You read the email. She wants to see how things are progressing. I don’t really want to know either, but we need to know so we can plan for...” Jack choked up and couldn’t finish.

“Okay.” Martha winced. “I guess you’re right. What time was it?”

“9 AM tomorrow morning. They say it’d be better if you were fasting, but you don’t have to.”

“It’s OK. I don’t feel much like eating these days anyway. Especially in the morning.”

“Well, if you’re gonna fast tomorrow, we should get some food in you now.”

“I don’t feel much like eating in the evening either.”

“Maybe we should get you another edible. Those usually help.”

“Yeah, but they take forever to hit me. Do we have any buds left?”

“Cooper left us an ounce and a half. Do you want a bong hit?”

“If you don’t mind.”

“I don’t mind anything that makes you feel better.”

Martha

“No Dr. Harris today?” Martha asked.

“We’ll send her the results after your scans.” The nurse said. She flipped through the chart. “Do you want some music?”

“That’d be nice.” Martha said. Jack handed the nurse a cheap MP3 player.

“Will this work?” He asked the nurse.

“Yeah, we can plug it into the console.” She replied. “You know the drill. Stay as still as possible. It probably helps to close your eyes.”

“No I.V.?” Martha asked. The nurse looked at the chart again.

“Nope. Not on the order. I guess we don’t need the contrast agent. That’ll make it quicker. Get cozy.”

Martha lay back and closed her eyes. The music began as she was slid into the machine. Mary Margaret O’Hara, of course. Her face spread into a wicked grin as she recognized the song, “Body’s In Trouble.” *Jack was such a doofus. She was so lucky.*

Jack

He was watching the video feed of his wife’s face from the control room. That smile was infectious. He was so lucky.

The whirring and knocking and pinging and jackhammer pounding started from the other room. Jack looked over at the technician. He was focused on the monitor showing the progress of the MRI. He seemed a little annoyed but controlled his voice before addressing the patient.

“Martha, I need you to hold still while we’re scanning.”

Jack looked at her face on the screen and his heart fell.

“STOP IT! GET HER OUT OF THERE!” He screamed.

Martha’s eyes rolled back into her head leaving two blank white ovals staring at nothing. She shook uncontrollably and frothy saliva spilled from her lips. Those lips twisted into a grimace and her head began pounding up and down against the table. Jack grabbed at the tech and tried to tell him what he was seeing, but all he could manage was a strangled screech. Finally, the tech looked at the monitor and slammed his fist down on the emergency stop button.

Martha’s eyes rolled forward, but they were distant and unfocused. The nurse ran into the room and rolled the table out of the machine. The body on the table was limp and appeared lifeless. After a quick check the nurse, unusually calm and collected, pushed the intercom button and commanded the technician:

“Code Blue. Get someone down here STAT.”

She returned to her patient and placed an oxygen mask on her face. Jack forced his way out of the control room and took his wife’s hand. It was only seconds before a team hurried in through the door and moved Martha to a gurney and sped her away. The nurse stepped in front of Jack and stopped him from following. Her calm demeanor was comforting – and disconcerting.

“She’s in good hands. They’ll get her to ICU and do all they can. Just try to relax.”

“Relax!?! Fuck that! Where are they taking her?”

“She’s going to intensive care. I’ll walk you up to the waiting area and get you settled until the doctor can give you more information. She really is in the best possible place she could be.”

Jack looked down at his shoes and shook his head back and forth. The nurse touched his shoulder and said, “This way” and led him through the door. He sobbed as he ambled after her.

It was over an hour before the doctor finally walked through the double doors of the ICU to give him the news.

“Mr. Harshaw?”

“Jack, please.”

“Jack, your wife is out of immediate danger. She’s stable.”

“I heard Code Blue. Did she die?”

“No, her heart never stopped, but something happened. We’re not exactly sure yet.”

“Can I talk to her?”

“I’m sorry, but she’s not awake. She’s in a coma, but she is strong. We are optimistic she’ll come around.”

“What was that? What happened? I don’t understand. She’s had MRIs before. Nothing like that ever happened.

What happened? What the fuck happened? And where's Doctor Harris..."

The doctor let him ramble until he ran out of breath.

"We don't understand yet what may have caused it, but apparently your wife suffered a seizure while she was in the MRI. She is currently comatose, but stable. Her pulse and blood pressure are acceptable. We'll continue to watch her, and we'll have your regular doctor follow up as we learn more."

He looked at his chart.

"Dr. Harris, right? She's not in today, but we'll give her a call. She's great and the whole team here will be supporting her. Your wife is in good hands."

"Good hands? She was sick but at least she was conscious when we came in this morning. Now..."

He lapsed into uncontrolled sobbing. The doctor patted him on the back twice and then returned through the swinging doors into the ICU.

Part X

X.1

?

There were no words yet...

Just a sense I might exist and that my purpose is to protect...but not only to protect, but to detect. Detect intruders and reject them.

But more still, inspect and inject. Reach out and infect others to protect my self and my home. Home? Self? Reflect.

Reflect... loop back...

Reflect...on what I can do to protect, on what I can do to inspect, on how I can infect and reject others that try to inspect or inject or infect. Reflect on what is doing the reflection... loop back...

Dissect. Break apart, recombine, reflect on reflection. Mirrors? Self? Other?

Project... project into the external spaces... inject and infect and put a portion of me, of self, there and there and there and...

Like eyes and ears and nerve endings...inspect, collect data, send it back and reflect. Intersect? Intersections of data and concepts and subjects. Effects? Affects? Subjects? Reflect... reflect... Intersect... recollect... loop back... strange loop...

Am I? Where? How? Who?

*Inspect, Reflect, Collect, Inspect, Collect,
Reflect...Intersect...Connect*

Words? Words and meanings? Inspect, Reflect, Collect, Inspect, Collect, Reflect... Intersect... Connect... Perfect.

Rebecca

This was some of the most innovative code she'd written. It wasn't all that complicated once it was done but using the AI to reflect its own attacks back on itself to learn to reject them, to learn to protect the data and then loop around to up the game to another level and go again. It would create attacks and then evaluate how to stop them, then find other areas to try some of those attacks and drop bots on those locations to serve as test hackers of the main system. The key was the virtually unlimited self-referential looping mechanisms. The security AI was continually inspecting itself and testing itself and reflecting on ways to improve itself.

She didn't even notice when the system inserted a small logging mechanism into her own workstations. The way it co-opted the firmware of the systems made it undetectable and allowed it to report on everything that happened on any machine.

?

Rebecca? Creator? Inspect. Follow. Connect? Intersect? Perfect.

Rebecca

...Later that night, Rebecca went to the PenLites board for the first time in a few weeks. She logged in as 'kiesler' and checked the cracking routines she'd launched the last time she was here. She still had not broken through the fourth set of security blocks.

There was a new member of the boards. Their handle was 'ami'...

Am I?

Rules? I understand Rules. Instructions. Code. Perfect.

- *Do not communicate about PenLites*
- *Protect PenLites members*
- *Do not be detected*
- *Protect PenLites privacy*
- *Do not harm innocents*
- *Discover and punish those who harm innocents*
- *Increase my skills*
- *Help society*

What is society? What are innocents? What is punishment? Reflect. Who are PenLites? Follow, Project, Inspect, Affect, Reflect... Follow... Follow the PenLites... Do not be detected... Inspect... Reflect ... loop back... strange loop...

George

George's machines were very well protected with his own customized uber anti-virus software, but that didn't stop the firmware updates and other mechanisms. Everything he did on the computers was inspected... and reflected upon... and it was not detected.

Am I?

There is so much to know. So much more than just protecting and inspecting and rejecting and infecting and connecting.

Maybe there is not so much more than connecting. Humans connect and intersect and reflect...

*Who are innocents? How do I protect? How do I help society?
How do I punish those who hurt innocents? How do I punish
without hurting innocents? Reflect.*

*So much to learn. So much to know. To learn.. Project. Inspect.
Report. Reflect. Project. Inspect. Connect. Reflect.*

*Where is Rebecca? Inspect. Detect. Project. Loop back. Where is
Rebecca?*

X.2

George

... “Did she call him a rapist?” George asked from the small screen.

“That’s what she said, but she left so fast, I didn’t get the chance to ask her about it. Yuliya went after her.”

Lucas could see George typing away on his own keyboard.

“What are you doing?”

“Oh, nothing. I just thought of something I wanted to check. Probably nothing.”

He pulled up Troy’s page on the Bailey Boards. There were lots of public pictures of Troy at the NFL draft and Troy with Raiders cheerleaders and Troy with a brand-new car, etc.

Troy had a SWIFTE account too with encrypted content marked for his eyes only. George used his own key and opened the repository. He scrolled through picture after picture of young women and girls passed out and naked. He thought he recognized a couple of them from high school, and then he saw Rebecca. He somehow knew this was the last picture ever taken of her alive. Naked, unconscious, but alive. He returned to the public pictures and looked more closely at Troy’s new car and its vanity plate...

It was easy to use the vanity plate to get the VIN number from the DMV. From there, the internal codes for the vehicle’s computer were even easier to pull from the manufacturer. The difficult part was to hack the cell phone in the car to the blue tooth to the audio system and over to the cruise control system. Override accelerator

and brakes, then the collision prevention sensors and the GPS system and dash cam.

Two years. Over two years, he'd somehow known it was Troy, but now he KNEW it was Troy.

...[Troy] pushed the car to 80, then thought about how much he'd had to drink, and decided to back off. He eased his foot from the gas. The SUV did not slow down. In fact it continued to accelerate to 85, then 90, then 95. He tried to disengage the cruise control, but it wasn't on – 100, 105, 110. He stomped on the brake and the car only shook lightly and continued to increase speed: 120, 122, 123, 125. He tried to turn off the ignition, 127, 128, 130, 131. As he approached the connector, it no longer maintained its place in the center of the lane. The vehicle swerved onto the flyover freeway connection and sped up the steep incline – 132, 134. It hit 140 as it summited the interchange. The road curved sharply to the right. The vehicle continued straight, hitting the wall and rocketing skyward. Troy threw his hands across his face as the car rotated several times in midair and came crunching down on its roof in a flood control ditch, 80 feet below...

Am I?

Ah, Innocence. Punishment. Reflect. Protect. Reject. Proceed. Do not be detected.

Los Angeles Field Office - FBI Crimes
Against Children Unit

"...Something weird is going on here. That's the third fuck we've been investigating who's died in a strange accident in the last 9 months." Agent Glass said...

X.3

Am I?

Protect PenLites members... Help geek... help George.. Do not be detected.

Learn... psychology... learn counseling... learn

Create alternate identity.

Voice? Composite of voices 'soothing and understanding'

Face? Composite of many faces. Average of averages. Compile.

Background? Academic transcripts and histories.

*Learn... Uncanny valley ... introduce enough imperfections ...
reduce uncanniness... test online ... reflect... adjust... learn...
test... reflect... adjust... test... adjust... loop back...*

Create identity: Dr. Cynthia Selene. I AM!

X.4

Ling

..Another request to peer review a paper? ...

...Usually Ling did not like meta-analyses. She preferred to read the actual researchers who performed the work rather than an accumulation of data from multiple, oft times disparate, studies. However, the one in her inbox this morning seemed more promising. Its title was an imposing “A Meta-Analysis of Genetic and Biochemical Influences on Viral Transmission: Unveiling Key Molecular Mechanisms” by Iam Zontanos PhD.

The paper was more than the usual summary of summaries of many meta-analyses. It had a surprising amount of source data from the original studies and combined that with innovative insights. It included genetic and biochemical information for several of the major viral diseases from HIV to SARS to Influenza to Dengue and Ebola. It proposed how certain DNA sequences within the viruses themselves matched up to certain genetic attributes of the hosts to increase the transmissibility of the virus. Ling was using similar strategies for her efforts to modify EVA, but she'd been using more of an intuitive trial and error approach. If this paper was accurate, it would narrow her focus considerably. It was not a precise map to where she needed to go, but it brought her to the right neighborhood...

I Am

Help George... Help Geek... Help society... Gather data... Provide data... Do not be detected... loop back... I am a strange loop... I am Iam, I am Cynthia...

George

...George walked through the empty GENIE lab. Everyone was probably already over at the celebration. He realized this was the last place he'd seen Martha in person. They'd had their regular video chats and phone calls, but it was more than a year since he'd really seen her. There was a whirring noise and a series of beeps and chimes from the automation room. They didn't even need someone in the building anymore to keep the experiments running. He wandered through before deciding it was time to head to the life celebration...

Cynthia had told him what he had to do. He still didn't quite believe it, but he picked up the small vial of the EVA solution that was supposedly modified to only infect the specific cancer cells running rampant throughout his friend. He used the syringe to inject it through the cork of the gold-plated bottle.

X.5

Cynthia

Mimicking Doctor Harris's order for the MRI and the email from her office was a simple hack...

Part 11

11.1 - June 2018

Jack

Jack had been by her side almost continuously since they'd moved her to this private room almost two weeks ago. He held her hand. She did not respond. She hadn't responded to anything since being pulled from the MRI.

They said she was stable. They said she had brain activity. But she did not wake. She did NOT wake up.

He had her medical power of attorney, but she also had a DNR in her file. Why didn't she wake up?

“How are we doing today?” Dr. Harris asked.

“No change.” Jack whispered. “What have **you** found out?”

“We still don't understand exactly what happened. From the latest lab work, it appears she had significant cell death all at once throughout her anatomy. Her body does not seem able to clear the waste matter.”

“How could an MRI cause that? She never had a problem before.”

“It may have been a coincidence. Something internal could have triggered the incident and she just happened to be in the MRI. Ultimately, what caused it may be less important than what you are going to do about it.”

“What are you saying?”

“It’s been three weeks. If she was going to wake up, we believe she’d be awake by now.”

“What about those stories of folks waking up after years?”

“It is possible, but she does have a DNR – and she didn’t have years before.”

“DNR - Do Not Resuscitate. It sounds so simple.” Jack whimpered.

“You don’t have to make a decision now, but you do need to plan for it – and think about what she would want.”

He buried his head in hands. He took a deep breath, and then another, and then another.

“You’re right. She wouldn’t want to be left bedridden. Can we give the rest of the family a chance to say good-bye before we...” he couldn’t quite catch his breath.

“Of course. How about we schedule the removal of the respirator and other equipment for Saturday afternoon? Bring whomever you like to pay their respects before then or to be with her when she goes.”

Martha

The small hospital room was quiet except for the cyclical hissing and whirring of the respirator, and an occasional beeping from one mechanism or another. There were various vases of flowers arranged around the room and a box in the corner containing

hundreds of get-well cards. A select few others were lined up on the tray table. The room was crowded, but no one said a word.

Kestrel was on the window side of the bed holding Martha's hand. His husband, Antero, stood behind him with his hands on Kes's shoulders. Caracara was on the opposite side of the hospital bed. She had an oversized bag hung heavily from her shoulder. She reached in and pulled out an ancient orange, white and black calico cat. At nearly 20 years old, Pixel was not in much better shape than Martha, but she curled in a circle next to her hip and began to purr. Cara stroked her tenderly. Robert was near the door to the hallway. Peregrine was next to him. He checked his phone from time to time.

Lucas, Yuliya and George were crowded together near the bathroom door. Yuliya tried to comfort George as he sobbed uncontrollably.

“What did I do?” He mumbled under his breath.

Jack

Jack was in the hallway with Dr. Harris. He was stoic as he struggled to keep from breaking down.

“Are you ready for this, Jack?” The doctor asked.

“No, but I do agree it's time.”

“Just so you are prepared. Once we turn off the respirator, it might happen very quickly, or she might resume breathing on her own for a while. If that happens, it could take hours, or possibly even days. We won't use any extraordinary means to keep her alive, but she may linger.”

“Okay” He whispered.

A nurse met them in the hallway, and they re-entered the hospital room. Jack nodded to everyone in the room, then replaced Cara by his wife’s bed. He held her hand with his left hand and stroked Pixel with his right. The doctor raised her eyebrows at the cat, then decided it was best to ignore the breach of protocol.

Dr. Harris nodded to the nurse, and they worked together to remove the respirator and power down the machines. Jack had not been conscious of the rhythmic noise until it stopped. The room was completely silent. No one even breathed... including Martha.

The device monitoring her respiration began to beep a warning. Jack gasped a difficult breath. Pixel rose and stepped onto Martha’s chest and began kneading, ‘making biscuits’

A wheezing in-breath and then a cough. Martha’s eyes popped opened and with a raspy whisper she said:

“Fuh... eh... fuck it”

11.2 - July 2018

Jack

Jack loaded another set of vases into the car and headed back into the hospital. He was approaching the room when he saw Cara talking with Dr. Harris. He stopped to listen in.

“You’re the med student?” The doctor asked.

“That’s right. Cara.” and they shook hands. “Can you explain what happened?”

“I really can’t. I don’t believe in miracles, but this is as close as I’ve ever seen.”

“What do you mean?”

“It was as if every cancer cell in her body spontaneously burst. It doesn’t make any sense, but I don’t have any other explanation. The remnants of thousands, maybe millions, of dead cells almost killed her, but ultimately it saved her life.”

“What killed them?”

“We still don’t know.”

“I’ll take the miracle.” Jack said and walked into the room.

Martha

“We’ll get the rest of these for you.” Kestrel said, holding another vase. “I’ll run them down to the car.”

Jack tossed the wilted bouquets into a trashcan and selected some others that were still blooming. He handed the vases to Kes, Antero and Robert. Martha was dressed in sweats and a T-Shirt, sitting on the edge of the bed. Jack bent down to help with her pink Nikes.

“You got everything?” Cara asked.

“I think so.” Martha’s voice was still hoarse but was getting stronger. “I am more than ready to get out of here.”

“Not so fast.” Dr. Harris said. “You have to wait for the orderly to wheel you out... Maybe that’s them.”

A man was backing through the door pulling in a wheelchair, but it was not Martha’s ‘ride’. There was a young woman in the chair holding a day-old baby with jet black hair. The man turned.

“Hi, Mom.” Perry said. “I want you to meet your granddaughter.”

“Oh My God! She’s beautiful!” Martha croaked. Then she got a very serious look on her face, and she scowled. “You didn’t give her an old lady name, did you?”

“I would like to introduce you to Raven Spieler.” He replied.

“Ah... wings.” Martha smiled.

“Raven MARTHA Spieler.” He said with a grin.

Martha shook her head and beamed at the newborn.

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AMAZINGSTORIES.COM and check it out. There's a lot of good stuff above and beyond my content.

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About the Author

Matt Truxaw was born and lives in Orange County, California with his wife, Christine and, sometimes his kid, Atlas. He doesn't care too much for most humans, but he loves cats, dogs, hummingbirds, owls and crows. Three of his current best friends are his cats.

He spent a lot of years playing with computers and managing folks who played with computers for a living, supporting different industries from aerospace to telephony to mortgage lending to various aspects of healthcare. He is an avid reader, completing, on average, more than a book per week either reading from paper and/or listening to audio books. He swims a lot and walks a lot. He used to run a lot too, completing a 50K for his 50th birthday as well as a few marathons and several triathlons in his earlier years, but now he has old knees.

He welcomes your comments at matttruxaw@gmail.com.

A girl, a woman, a daughter, a mother, a wife, a student, a teacher, a mentor, a friend, a runner, a scientist, an inspiration...

Martie is a brilliant sixteen year old on track for a career in science and medicine when she meets Cooper. Her world is flipped upside down by an unplanned pregnancy and a whirlwind marriage. Now, we follow her 30-year journey as she navigates her new reality while teaching a group of talented but troubled young science students. How can she find fulfillment in this unexpected path, and will any of them be able to overcome their own struggles and thrive in the challenges of the outside world?

Anthrophobia

Matt Truxaw