

ACTUARIAL TESTING  
By Jerry Tuttle, FCAS, FCIA, CPCU

I asked everyone but Woody to stand as we raised our beer mugs. “Congratulations to our newest Fellow, Woody Fishman! People who aren’t actuaries have no idea how hard our tests are.” As the senior actuary in the company, I had gathered all the company’s actuaries for a celebratory beer fest at the nearby pub.

“So what will you be doing with all your free time?” asked Wendy Chang, one of the younger actuarial students.

“I know one thing he will be doing,” Jay Thompson chimed in. “A little mandatory new Fellow volunteer work.” Everyone broke out in hysterical laughter – except Woody.

“I don’t get it. What’s so funny?” asked Woody.

“You become a new Fellow, and then how soon you forget. Oh man, I would hate to have to do that. How did that tradition ever get started?” asked Wendy.

“Well, funny you should ask,” I replied, stroking my beard thoughtfully. “We’re out of the office, right? Whatever is said out of the office stays out of the office?” Everyone nodded in agreement. “I guess it’s OK to tell you. I have to admit that this quaint little custom is really attributable to something I discovered about ten years ago.”

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In 1982, I was working for a large insurance company with a big actuarial department. I was reporting to the chief actuary, Vince Lentini. I doubt if any of you remember those days, but that’s when there were three big insurance companies in town, and we were all sort of friendly rivals. The three actuarial departments were about the same size, and we generally knew our peers from actuarial meetings and softball games and such.

One day Vince pulled me aside and asked me if I was aware of the chief actuary’s bet. It turns out that he and the other two chief actuaries had a standing bet every six months on the total actuarial exam pass ratios of their respective departments. Each of them would put \$333.33 into a pool, with the winner taking the pot.

It turns out all three of them decided the total exam pass ratio formula was too simple and not necessarily equitable. In fact Vince seemed to lose considerably more often than two-thirds of the time. The three chief actuaries agreed to nominate one actuary per company to a little task force, with the goal of deriving a more equitable pass ratio formula – solely for this chief actuary bet. Vince nominated me.

Our task force met. We had experts in automobile merit rating, workers compensation experience rating – and baseball. Individual historical experience is used in all three of these areas to forecast future experience, and we thought we could do the same with people’s actuarial exam passing statistics. We found people’s age and years of experience had some nonlinear relationships with exam passing. We studied the pass ratios by exam – which are much different for the lower exams than the higher ones, by the way – and we investigated the probabilities of passing each exam at the first attempt, the second attempt, and so on, and how these probabilities change when someone enrolls in one of the actuarial cram courses or uses one of the supplementary study manuals.

We put all of this into some regression software, and we came up with a preliminary version of an experience rating actuarial exam pass formula. We tested it retrospectively on past exam sittings for each of the three companies, we calibrated it, and came up with a final version that we considered equitable for each company. Now for each upcoming exam sitting, each company provided its own exam history for each student, and we produced a predicted pass ratio from the formula for each company. The winner of the chief actuary bet was the company that performed best, relative to its own predicted pass ratio.

This formula worked fine for a good ten years. Each of the three actuaries was winning the bet about one-third of the time because the formula did a pretty good job of equalizing the three companies. It was as if we had created a betting point spread that had equalized the odds among the companies.

Suddenly in 1994 the formula started to weaken. We began to seriously underestimate pass ratios, and in fact the company with the lowest expected pass score was outperforming the two stronger companies in the formula. This happened for four consecutive exam sittings, so we wondered what had changed. We reassembled the original task force to delve into the problem.

There were numerous possibilities. Maybe the exams had gotten easier. Maybe the students were smarter or better prepared. Maybe something had changed affecting the mix of students or the mix of exams. We knew we had some investigating to do.

We used our contacts on the Examination Committee, and they insisted that the exams and the grading were as difficult as ever – no surprise there. There had been no major change in syllabus readings. None of the three companies had increased the study hours. We spoke to the people running the actuarial cram courses and writing the study manuals, and none of them seemed to think anything had changed. We studied the mix of students and exams – always a good answer when there are unexplainable actuarial results is that the mix has changed - had there been a shift so that for example, 60% of the students were taking the first exam for the third time, and was that causing the formula to crumble? We could find no explanation, and we were running out of ideas.

It occurred to me that since our three companies were all in the same town, most of the students would take their exams at the same exam site. Maybe the exam proctors had

some insight. We interviewed the proctors for all of the exams from the last sitting. Only one of them had any useful thoughts.

“To tell you the truth, I have been noticing something over the past few sittings,” began James Leech, a fellow from one of the other companies. “Now, you won’t quote me on this, right? Generally I assign the seating somewhat randomly, to reduce the chance of friends sitting together and cheating. But, my seating is not entirely random. I assign the best looking women to the front row. Hey, they have to sit somewhere, right?”

“Other than watching for cheating, I really don’t pay much attention to any particular person, except I might sort of casually gaze at the people in the front row from time to time.”

“What I have observed is after the exam is over, a number of students, both females and males, have been much more animated and chatty than they have been in previous years. People have had sort of a wild look in their eyes. If I didn’t know better, I would have thought some of the students might have been on drugs,” continued James.

“Now that I think about it, something else has increased in recent years. During exams, people have become more compulsive than ever. They constantly straighten their pile of scrap paper, they arrange their pencils in a precise order – I find it odd, but I guess it doesn’t bother anyone,” concluded James.

I’m no expert, but this smacked of drugs. I discussed this possibility with my task force, but they thought the idea was ridiculous. I have a colleague in another company, and if anyone would know about actuaries and drugs, he would. I called Sammy Finch and invited him to lunch.

Sammy was not at all shocked at my suggestion. “There is a guy,” he began quietly, looking around to make sure nobody was listening. “I understand he was a bio-chemistry major who took a few actuarial exams and then decided the exams weren’t for him. He then started selling some kind of product online that claims to help people with the exams. I’m not saying it really works. But I have heard that some actuaries swear by it.” Sammy wrote down the address for a web page. The address looked like a random sequence of letters and numbers; it was not a web address you would find by yourself. “That’s all I know about it. And don’t use my name, OK?”

I thanked Sammy for his information, picked up the check, and returned to the office. I carefully typed in the web address he had given me.

The website that came up was full of new-age gobbledygook about spiritualism, the connection between metaphysical and medication, and other topics that I considered nonsense. I followed the alternative health remedies link and found a statement that “many of these remedies have not been formally validated by scientific research.” What a surprise! But there it was buried several pages into the website – a web page devoted to the actuarial exams.

That web page had a good understanding of the actuarial exams – their mathematical nature, the enormous quantity of material that needs to be mastered, the need to both memorize numerous formulas and lists and then apply them creatively. The page went on to discuss the relationship between nutritional deficiencies and disorders such as hyperactivity and attention deficit disorder. Dietary supplements that treat those disorders could also be used in small doses for actuarial students. The supplements contained nutrients that worked with brain chemistry that improve focus, specifically appropriate to actuarial exam study.

Finally the web page got to the real ad. There was a single pill for sale for \$2,000 called Mathosphosphatidylcholine. I thought the “Math” part of the name was a nice touch. The pill was specifically for actuarial exam-takers who had failed the same exam before with a grade of five. It was to be taken precisely 18 hours before the exam. There was no guarantee, and there were some temporary side effects. The pill was described as being not illegal, but the Federal Drug Administration had not evaluated this particular use. There was a phone number for more information.

I called the phone number. The man on the other end had a deep hypnotic voice, and he would not identify himself. He clearly had an understanding of the actuarial exams. He was matter-of-fact about the idea of improving exam performance with a pill, although he kept referring to it as a dietary supplement. “You know, better living through chemistry.” He insisted it was perfectly legal.

I tried to order a pill for myself. The man discussed the side effects, which were similar to what the exam proctor had observed. The pill was only available to people who had recently failed the same exam with a grade of five, and that an official Society exam grade and a notarized signature were required before he would sell it. The five was necessary, he explained, because this was not a magic miracle drug for students who had no hope of passing; rather, it was for students who had proved they were close to passing and merely needed a little extra help in memorizing and retaining information. He asked me if I were willing to provide my notarized proof of my grade of five. Although I had failed a few exams with fives, obviously I had not done so recently, so I declined, thanked him, and hung up.

I wanted to discuss all this with my boss Vince, but I decided it was probably a good idea not to involve my own boss with anything about drugs. I decided to call the chairperson of the Examination Committee, Margaret Bradley, an old friend of mine. Margaret was incredulous when we discussed this, but she knew me well enough so that she would take my report seriously and do her own investigation.

I never heard back from Margaret directly, but I did notice about a year later that the Society changed its exam instructions to the effect that actuarial students are not permitted to sit for the exams while under the influence of performance-enhancing substances. Students would be tested at the exam site, and their exam scores could be excluded at the sole discretion of the Society. Subsequent to that, our exam pass ratio

formula reverted back to its old ways, and the three chief actuaries were happy. I'm not sure if they ever knew this story. Then one of the three companies was sold off, one of the chief actuaries changed jobs, and we retired the formula.

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There was silence at the pub as everyone considered my story. I could see some skepticism in people's eyes. Did I make up the whole thing? I am known as somewhat of a prankster, so it would not be beneath me to make up a totally outrageous story about ancient actuarial history that nobody else could verify.

That's quite a story," said Woody Fishman, the new Fellow, "but I still don't get what it has to do with me and why everyone laughed at the idea of mandatory new Fellow volunteer work."

"You may be a Fellow, but they still don't test for common sense on the exams, do they?" I joked. "Who do you think the Society gets to collect the urine samples of the students before the exam?"

END

# Baffin Island

By Nadine Gorsky FSA, FCIA

The funny thing was when the news arrived, we were thinking of the time *some other* news arrived.

“Do you remember getting the news you passed your last actuarial exam?” said the young man across the table. He had a naïve charm, a way of drawing people out. We were at an actuarial conference. It was lunch time. We were having a social conversation, like we used to have, about something we could all relate to. There were eight actuaries, strangers to one another, sitting around the table and I was the only one that remembered. The others turned their heads in disbelief.

“I only passed my last exam two years ago and I can’t remember. I just know I passed,” the young man remarked. He looked at me. I was 52 years old. I passed my last exam 24 years ago. At least 20 years ago he must be thinking or 30 for that matter. God knows how old I look these days. It seemed more than a little suspicious.

“I didn’t mean I remember. I just meant I can imagine where I was. You know like when you look at a picture from the past. You can imagine what it would be like to remember it,” I said.

“A reconstructed memory?”

“Yes exactly”

“I don’t even have reconstructed memories about things like that,” the young man said.

There was a time you couldn’t find an actuary who failed to remember getting the news. Back then, it was a moment of personal glory, a reward for all that hard work, an invitation to an exclusive club. That was before Ruin. Now, nobody wants to be reminded of when they cared about the emotional incidents of their own lives. It could shake your whole foundation in this new world order.

What do you do after 20 years of trauma? Emotions are muted. Pharmacology achieves that, like some inept but god-like figure smoothing out our destinies. It makes us all functional, more or less. That’s what it means to be a survivor. I’m different though. Yes I’m a survivor, but I’ve cut down to a fraction of the recommended dose. It’s a dangerous experiment, but I can’t handle the side effects. The rashes, the brief episodes of blindness, they were very pronounced for me. I’m sick of switching brands. I’m also sick of not feeling anything.

I dropped out of the conversation at that point and finished eating the rubber conference chicken. That’s when I spied the text message on my handheld. The words “Baffin Island” crept across the screen. I suppressed facial expression as a flutter of excitement swept through my body. I’d been summoned to Baffin Island, the Arctic Circle, the seat of world government, or what’s left of it. This was a privilege bestowed upon a very few. It meant you were important.

“What’s wrong? Are you alright?” the young man asked. His attitude was sad and earnest. It seemed incongruous with the light-hearted tone of a moment ago.

“Nothing” I said, feeling uncomfortable. We stared at each other briefly, his eyes concerned, searching. I had a flashback to staring contests I conducted with my brother when we were children. I’ve been practicing Extreme Yoga for years now. It’s a westernized yoga you can perform as part of your daily life, but it’s imperceptible to

other people, meditating and minutely flexing and stretching muscle groups. It gives me an advantage, almost as good as any drug, but not quite. I must recognize my limitations. The young man's gaze held. Mine shifted. I returned to my text message.

It seemed miraculous. I was going to Baffin Island, the last outpost of law and order, or at least a close imitation in this state of anarchy we try to adapt to. It's hard to know for sure without reliable news. The best you can do is scan the internet for conflicting rumours but they still suggest something promising across the waters in *Beautiful Baffin Island*. It had been years since I had been outdoors. In Baffin Island I heard you can go outdoors. What used to be arctic tundra is now a temperate island in a world torn between the extremes of scorching desert and storm tormented shoreline. I felt a cautious hopefulness, something no one around me could possibly feel with all those drugs muffling their emotions.

The last thing most people want these days is to feel like they want anything, what with people dying precipitously all around us, friends, family, acquaintances. So many vast sorrows, hopefulness is really one step closer to suicide. We hardly talk of trauma anymore. It's the norm; hence, the drugs. It's been a few years now since the drugs became ubiquitous as the population spiralled downward. We've only just achieved homeostasis, life trying to approximate business as usual. The actuarial conference was evidence of that. Actuaries are the only ones with seemingly normal jobs these days. Stochastic Risk models are at a premium in these uncertain times. We suddenly stepped into so many empty niches trying to impose predictability on the unpredictable. In the midst of all the people just trying to survive the turbulence, we were the hope for the future, somebody to figure things out, achieve control, somebody who gets paid. Not that there is anything to buy with the money we earn, but it's an incentive to keep going. Drugged, without emotions, why do we do anything? It's a question we all struggle with. As a form of feeble retort, the government had come to power with the appealing slogan "IT matters."

Despite tentative steps toward a working economy, chaos reins. For a few years now, police have noticed the "Psychopath Phenomenon." With all that chaos, you expect crime to increase, but the pace of increase was breathless. It was an actuary who first spotted the cause, which in some ways wasn't surprising given we were the only ones getting paid to analyze anything. So this one guy noticed the dramatic shift in demographics caused by the flurry of suicides as people simply gave up. Religious groups had formed to help people suicide. It was the kind of behaviour that used to be confined to rare fringe groups of cult crazies, but now it was an acceptable option. High dosages of new types of anti-depressants were required to finally stem the tide. So who survived this unprecedented level of crisis and trauma? A disproportionate number of "Paths" or psychopaths -- people who just didn't care. They didn't need the anti-depressants. Unpredictable as they were, they were just better equipped to survive the turmoil, like some sort of evolutionary adaptation. I would have to go through extensive psychological screening to get to Baffin Island. They would test for anti-depressants. Anybody with insufficient anti-depressants was suspect. There were studies showing a high rate of psychopathy among those who refused them.

As I sat at the table, I texted back to the CEO of the company I last worked for. He was the one summoning me, now it appeared working for the government.

*"where do I go for testing?"*

“nowhere this is an emergency we’ve got special dispensation,” he responded. “we’ll tell you when you arrive.” I felt almost a sense of disappointment. I’ve often wondered how I’ve managed to survive. Maybe you can be a Path without knowing it. Then I practice my Extreme Yoga and all the doubts and questions dissolve. I meditated on the comforting phrase “Control what you cannot accept, but accept what you cannot control.” I can even lower my blood pressure at will. I have a gift for it.

Without drugs, stepping off the plane in Baffin Island produced a painful nostalgia. All the things we have lost in the destruction of the earth. Here were the meagre reminders in this last remaining temperate zone. There were small shrubs. There was a cool breeze. There was fresh air. Well almost fresh. The smell of decaying....something.... but I ignored that. This was real life; this was outdoors.

Almost as soon as I stepped outside, though, I was inside again. The government offices were situated behind a huge network of concrete walls, surveillance towers and barbed wire. It was the most welcoming building design I could imagine. I was overcome by a penetrating sense of peace and security. The scene presented such a contrast to the fear and instability reigning back where I came from. The Paths roaming the underground back home have created unprecedented levels of anxiety among the rest of us. Even the drugs cannot combat that. New words have been coined to describe the endless varieties of fear pervading the streets, words like “*scalarm*” and “*terratonic*”. But here in this fortress, I knew I was safe. The actual office building was a composite of so many office buildings of years gone by. In a vast lobby festooned with tropical plants, behind a shiny desk, there sat a pleasantly anonymous security guy in a crested jacket.

“Hello Ms. Wright. How are you doing today?”

I went up to my assigned floor. No private office, but who cared. It smelled new. The whole network of cubicles was immaculate, unused and empty. Where was my boss? Who was my boss? I didn’t know. Why had the old CEO contacted me? I spent the entire shuttle ride over practicing Extreme Yoga meditations to quell the thousand questions that would otherwise trouble my mind. Obviously this was something unprecedented, strictly confidential. I sat for a while in the vacant set of cubicles surrounded by closed office doors anticipating I don’t know what.

One of the office doors opened and out stepped the old CEO. He was the same imposing figure as ever, only slightly aged, still tall and wiry, red faced, and completely bald with a goatee, now gone almost pure white. Whether due to stress, pollution or radiation, my own hair has gone white as well. I looked up at Chuck Cooper extending his hand, formal with that fake smile I never failed to find menacing. I would sometimes imagine him as Nag the snake in Rikki-Tikki-Tavi, ready to strike if the opportunity arose. It was a mental exercise to help calm my nerves in the face of his hostility. Yet I envied his drive, his ability to use any situation to his advantage, to get people on board. He had the gift of communicating arcane actuarial concepts to people who didn’t understand a speck of it. It was not hard to imagine him thriving in these circumstances. He would command confidence amid chaos I was sure. If it were anywhere but Baffin Island I would never have accepted this post. Before he approached me, I had sat at the desk, my memory replaying past exchanges with him, unsuccessfully searching for the source of this unusual distinction granted me. I could uncover only trivial remarks, all more or less unpleasant and aggressive on his side. What could have possessed him to text me now? Yet here he was again leaning over my desk like he hadn’t skipped a beat.

“Hi! How’s it going? What are you up to?”

I had just arrived, so eager to prove myself, but I had been given nothing to do. “Just situating myself here. I was waiting for an orientation to the place. I have a lot of questions. Is there something I can help you with?” I said.

“I can’t quite believe you haven’t started work. As for questions, I’d recommend you avoid those. We’ve got to maintain a strict level of security. Couldn’t you see the exterior of this place to decipher that one? It’s best you don’t know. Where’s the model?” He fired the question at me peering sideways at the internet news site I had been mindlessly exploring for the past half hour.

“Well that was one of my questions. I’ve not actually been told what to do ... or why I’m here.”

“Oh fine. Why the hell did we select you? Don’t you think just maybe there were some expectations on our part? Like maybe you could show some initiative with that stochastic Risk Model of yours. We’re expecting some results and damn fast. Do I have to spell these things out for you?”

“But where’s my staff? This was a model managed by a whole department of staff. It had countless modules. You say ‘my model’. It’s not like I can just flip a switch.” I found myself helplessly subsiding into anger and embarrassment. “I don’t even know where the damn thing is. I haven’t been given LAN access. I’m not sure this is my desk.”

“Why are you asking me? Can’t you pick up a phone? This is not 20 years ago. If you think you’re going to sit comfortably on your butt supervising a highly skilled staff for the next couple of months, you better reconsider your mission here. There are consequences, you see. If you don’t pick up the pace we are all in a damn site of trouble and you’ll get the worst of it. This is not business as usual. I can’t believe you need me to tell you this. Get the bloody model and get to work. I’m not giving you a set of school book instructions, just do it.”

“I’ll do what I can,” I said unable to imagine what was expected of me, cringing at his insulting tone.

“That’s why you came recommended.” He smiled his patronizing smile and patted me on the shoulder. “They said you could do it. We’ve not got the luxury of sophisticated project planning here. We just need it done and done fast. OK?” This he implored gently, an ineffectual apology.

“What’s ‘it’?”

“It? You want me to tell you what ‘it’ is? I might as well just send you back home now. Save us all a load of trouble...save your ass goddamn it. But I don’t have that privilege. I can’t save anyone’s ass right now, least of all yours. I’ve got to go.” Depleted from shouting, his expression resumed its tense smile. He spoke slowly and deliberately. “I’m going to tell them you’re working on it. I’ll say you’ll have it done in two months. Two months, does that sound reasonable?”

“Um, how about three?”

“Three sounds good. We’ll do it in three. Listen, I wish I could help you but I haven’t touched a computer model in God knows how long. I’d mess it up the moment I laid hands on it.”

I spent the rest of the afternoon scrambling. I found the Help Line number stuck to the side of a nearby computer terminal. I searched through the LAN drives trying to

guess the location of the model. I couldn't believe it when I found a drive called "top\_secret" I could believe it even less when the Help Line granted me access to it. It took me an hour then to find a manual on "multi-plex" programming language. Rusty is too generous a word to describe my present programming skills. They say some capacities increase with maturity. Programming and stochastic mathematics are not among them. I felt I was peering through a small window out onto a tiny island of comprehension I had lost site of long ago. With all the things I have lost since Ruin, it was still depressing to notice my reduced mental capacities. I also missed relying on the eager young staff who used to report to my area years ago, the ones who were managed by someone who was managed by me.

The pressure to keep track of all those disparate threads of code and quantification made time pass quickly. Yet, it was not long before I began to think of the bunker-like nature of the offices and wonder where I would be staying. What would I be eating? I was getting hungry. It was lunchtime. The work clearly demanded protected quarters. If a Path got a hold of the model they could exploit it for sinister purposes. But it occurred to me that this fortress arrangement was also confining me inside. However pleasant and safe, I was stuck here for, well, three months as it turned out. I received an email. Meals would arrive at my desk on a schedule, menus that resembled an endless sequence of conference food. After lunch, I continued to slog through the bits of programming I could locate in the top\_secret drive. Nobody else turned up at the office and I didn't see Chuck again that day. The Help Line told me where to sleep. An office had been converted to a bedroom. Talk about living for your work.

Three days later, Chuck appeared again at my desk, looking bedraggled. He might have been a member of the homeless hordes wandering the underground streets back home.

"Ahem" he said stooping over my shoulder. I turned back to my computer and spoke looking at the code.

"I've mapped out the flow chart for about 50% of the model. You can't imagine what it's like trying to pick up this kind of technical work after being away from it so long... well maybe you can?" I commented affably, trying to lighten the tone from before.

"Hmm... only 50%. Not so good. Did you notice the *specs.txt* document?"

"Well yes. You knew about that? It took me ages to find it. It's a crucial piece of documentation..."

"I wrote that."

"Well, thanks," I said uncertainly, wondering why he couldn't bother himself to tell me about that before.

"My memory's not what it used to be," he said, answering my unspoken question. "You need to pick up the pace, goddamn it. See ya tomorrow."

I didn't have a chance to call him back. He disappeared through a security access door. I began to suspect he was concealing information from me about the model, about what I was doing here, about everything. He didn't want me to succeed. That memory crap, failing to inform me about his extensive model documentation was just too weird.

I struggled the rest of that morning to discover the mapping for the remainder of the program, but I was starting to think vital pieces were missing. Who would have removed the code? My earlier suspicions about Chuck were reinforced.

I took a break. Wandering aimlessly from empty cubicle to empty cubicle, I began riffling through drawers. I pulled the handle on office doors. Miraculously his opened, an opportunity to find out what he might be hiding. The waste baskets were full of shredded documents and remnants of half-eaten meals, like nobody was cleaning the place. Then I noticed a document in the printer. It was a page from his calendar, this month, today, an appointment. I copied the information down onto a yellow sticky -- 18<sup>th</sup> floor, room B, 2:30 pm.

The rest of the morning I struggled helplessly with the code. I made minute progress, but I found myself obsessing about Chuck. What was he doing here? Why did he want to impede me, all the while berating me for lack of progress? What was the danger of asking questions? He obviously knew a lot more than he was telling me. I had always envied his success. He had a knack for office politics that clearly translated seamlessly to “real” politics. Who was he allied with? Was he a Path? Was I in danger? Danger has a different significance now. It’s all relative. The Extreme Yoga trains me to deal with panic situations. I just slow everything down. The more I thought about Chuck, the more I perceived the psychopathic qualities when I worked with him in the past, before he became CEO. The way he was always called upon for tough decisions, when jobs were at stake. He was always the most heartless. The measured way he talked behind someone’s back at important meetings. Who knows how these weasly qualities became magnified in circumstances like these?

At 2:30 I began my ascent in the elevator to the 18<sup>th</sup> floor. I would *control what I could not accept* as the meditation went. I didn’t have the security clearance but fortuitously found myself tailgating behind a security guard as I went up and down the elevator waiting for the opportunity. As the guard went in one direction I purposefully set off in the other.

The 18<sup>th</sup> floor was unfinished, like an office waiting to happen. Were they renovating? There was no carpeting, just concrete walls and flooring, beige paint splashed randomly about. There were a series of empty undifferentiated alcoves. I tried to walk like I knew where I was going. That was when I saw the sign “Room B” in brass plating on a dark wood door, a disconcerting fragment of normal office decor. I stood there puzzled, when the silence was suddenly broken by a series of appalling screams within, quiet at first but then loud and harrowing, a long interval of stifled urgent conversation in between outbursts. I don’t know much about torture but it was hard to avoid the thought, a source of “*scalarm*” for sure. It was all coming together, why I was chosen and why the drug test protocol was dropped for my benefit. I was chosen precisely because Chuck hated me. In his eyes I was the Path suspect he was commanded to nab. He was in there this moment torturing some other Path suspect, trying to extract information about the well-known conspiracy to undermine the government.

Silence resumed, then a rustling of papers was followed by the sound of heavy shoes approaching the door. I turned rapidly around on my heels, my heart racing. I ran as quietly as possible around a corner back to the elevator which luckily opened just as I pressed the button. There, I was confronted by a young man.

“Hi” he said as the doors closed. There was a pause as we went back down to the 4<sup>th</sup> floor. “Do you remember me?” he asked as he held the door open for me to exit.

Despite panting with fear, I was being called upon to engage in common courtesy. “Sure” I lied. “So good to see you again. How have you been?” He followed me out of the elevator.

“You don’t do you? At the conference. That must be when you found out they were sending for you. Me too. I noticed something about you then. Listen, where’s your office?”

I felt disturbed by his tone. It seemed like everyone here knew more than I. “I’m in a cubicle. Down there,” I said as vaguely as possible, wanting only to be alone and safe again.

“Any offices on this floor?”

“Yes lots. Empty”

“Great can we meet in one of them?”

“I’m not sure it’s safe.”

“That’s OK, follow me. I followed unwillingly, trying to appear calm. I saw him inspecting the walls. Could he be a Path? Somehow I felt it, like Paths were swarming this place, like Chuck in that room torturing someone, someone like me. I needed to escape. The young man turned around abruptly. We were standing in the corridor outside the men’s washroom. I tried to compose my face into a neutral expression, the unfocussed face I use to protect myself from those deranged homeless people lining the tunnels back home. I saw him place his hand on one of the familiar “IT matters” signs posted everywhere. He yanked something off the intersection of the “T” in IT. It was an electronic chip– he showed it to me, tore it open with his fingernail then closed his hand. “Let’s go in here,” he said, gently prodding me into the men’s washroom.

“Good grief, why? No I’m not,” I said in disbelief. I not only know Extreme Yoga but I’ve got a black belt in Tae-Kwon-Do. I quickly assessed what moves I would use on him if he persisted. I may be 52 years old but I still felt I could overtake him.

“It’s safe now,” he said urgently. “Please just go in,” his voice exasperated.

I was feeling more exasperated. “Look, I’m not going in there with you.”

“I’m sorry. I know you’re nervous. Back at the conference, I could see you’re a sensitive person. That’s why we need to make contact. We need to network. We’re obviously in a lot of danger. Both of us. But I trust you. I trusted you the moment I met you.”

Our conversation at the conference was coming back to me, the way it had seemed engaging and friendly at first, and then morphed into intense and intrusive. As we spoke, I was thinking about that micro-electronic thing. Some sort of surveillance device. I was feeling positively trapped between surveillance devices and this strange emphatic young man. I was torn between wanting to escape and wanting to look cool and arouse no suspicion. I went with him, into the men’s washroom. I started to sweat uncomfortably. He was some sort of decoy. They were trying to catch me at something.

“I don’t feel in any particular danger,” I lied. “I just need to get back to work. I’ve got this deadline. I don’t know what your difficulty is. You’ve just read this situation wrong, that’s all. Whatever you think we need to network for, I’m sure you’re mistaken. I’m so sorry you troubled yourself here. I don’t know you at all.”

“Hell. I don’t know you either. Everything happening these days is isolating enough. I’ve lost just about everything that matters to me and I know you must have too. You can only pretend you’re a functioning machine unit so long, that you don’t need to

depend on someone else, that you're not plagued by the worst agony of loneliness imaginable. But eventually you'll crack. I'm just speaking to you honestly. I want to help you and I feel sure you can help me. I thought that back when we spoke at the conference. If we could just team up together, we could get out of here."

"Well whatever it is you trust about me, just trust me when I say you don't need to worry about it. I simply can't understand what made you trust me in the first place."

There was an uncomfortable silence. That staring thing happened, just like at the conference, scrutinizing me, maybe marking me out as a Path, insufficiently drugged as I was. I began to back up toward the door, trying to find some casual way of taking my leave in these odd circumstances.

He suddenly laughed and shifted his gaze up to the ceiling, smiling. "Because you look like my Mom. That's why I trust you," he finally blurted out, looking at me once more his face distorted like he was going to cry.

The images from so many old horror movies about psychotic killers flooded my mind. Crazy men raised by crazy mothers. But those thoughts were displaced by the pathetic image of his earnest expression. "I'm sorry". I said.

"She died way back at the beginning of Ruin, together with my Dad. I was really small. I don't actually remember much of what she looked like. But I've got pictures. She looked like you." He squinted through the nascent tears. "A little."

I became aware of my heart racing, my throat constricting. I kept chanting in my head "accept what you cannot control" to stave off my own tears. I could have told him he reminded me of my son. But that made no sense. Aaron had died at only 7 years old. It was just that every living creature reminds me of Aaron, that amazing small being, who infused my life with so much meaning. Now vanished. I use Extreme Yoga to drive out those thoughts. After meditating intensely for 15 seconds, I decided I must go with the flow. I didn't even know his name, but if I didn't trust him, I could act as if I did. There seemed few alternatives. "Better something than nothing," my yoga teachings say.

"Are you OK? You look scared," he said.

"I'm fine. Hey let's see if we can start over. We don't even know our names. I'm Janet Wright."

"Matthew Stevens."

"Nice to meet you." We shook hands.

"So we'll like join forces?" he asked.

"Sure. What the heck."

"You were on the 18<sup>th</sup> floor. What did you find out?" he launched the question at me.

"Nothing"

"Come off it. I thought you trusted me. Do you think you're the only one?"

"Only what?"

"There's a few of us here. I've met two others. Nodnaps. My pals and I, we're part of a community."

"Nodnaps? A community?"

"Not On Drugs Not A Path. It's a pretty dumb name. I didn't make it up."

"You're not on drugs?"

"Can't stand 'em. I take it you're not either."

"No, well kind of... a bit."

“Without any reliable news, we’ve formed communities. I can see you’ve not joined one. It’s not real complicated. We meet. We talk.”

“About what?”

“About anything. About all the crap that’s been happening to the world. About all the crap that each and every one of us has suffered over the past 20 years.”

“That doesn’t sound very productive.”

“Oh really. So like you have a better idea?”

“Yes I do,” I explained patiently. “I use Extreme Yoga.”

“Oh I see. Good for you.”

So much for avoiding chit chat and cutting to the strategy, I thought to myself. This was a waste of time. I should be back at my desk striving to get that program together. I suddenly felt exhausted. I sunk down to the floor, my back to the wall. “So you and your pals know why we’re here?”

“Exactly. We’re suspected as Paths. They think Chuck’s a Path.

“They?”

“The government. His boss.”

“But Chuck’s different. I’ve known Chuck from before. He was a terror to work with.”

“Chuck -- he’s not such a bad guy. He just got in over his head. I’ve not worked long but I’ve worked with lots of jerks. Being a jerk does not make you a Path. I’ve been going over this with my community.”

“Your ‘community.’ Like what do you do?” I finally asked. “Sit around and cry and give each other a group hug?”

“Well sometimes,” he said. His expression was calm but defiant.

“Anyway, your ‘community’ has not read Chuck right at all. He’s more than just a harmless jerk. I heard something.”

“Up on 18? That’s where they’re getting tortured.”

“You know about that? I need to get back to my desk.” My previous fear of Matthew returned.

“That’s what you saw?”

“Heard. He was torturing someone.”

“It’s a witch-hunt you know. You won’t believe how we got singled out as suspects.”

“How?”

“It’s the telemarketers. It’s all trash, but the government thinks they can detect Paths from wavelength patterns in the voice. The government rigs up telemarketers with these Path detecting devices. They’ve been zeroing in on actuaries since we’ve been identified as a security threat. We have access to so many tools to analyze risk. We might use them for evil purposes. My pals and I worked it out. We’ve not even bothered wasting time on that dumb model. We’ve been applying all our efforts to team up with the systems folks and hack through the system into the secret documents governing this operation.”

“Who are your pals?”

“Other actuarial analysts. 3 of us. We’re kept on separate floors. The government is worried we’ll join forces, create a conspiracy. They want to extract

everything we know and then who knows what they plan to do with us? We're going to escape."

"What about the model?"

"It's caused us more trouble than it's possibly worth. We should simply bugger the whole thing up so nobody can ever unravel the mess we make."

"I don't think that's necessary. The model's important. It's a last vestige of civilized culture, something we need to preserve. It's a product of being human. Matthew, you're too young to understand this." Or he was simply a Path and trying to trick me. Paranoia has been a critical success factor for me so far, but something about this guy was chipping away at it.

"You want to be a hero?"

"Not a hero. But whatever state the model is in, we need to keep it out of the hands of people like Chuck. Paths. I'm going to make sure of it." I looked directly at Matthew. I wanted to shake off any false sense of security his candour was producing.

"Maybe you're right; it's more than just a model. But this thing about Chuck. It's freaking disturbing. I just can't believe it." Matthew looked troubled. "I need to consult with my community. Let's meet same time, same place. Tomorrow. I'm so glad you're speaking to me about this frankly. It means a lot to me. You put a special perspective on things."

Matthew gave me a hasty hug that took me by surprise, his face distorted and teary again. I had to quickly suppress the impulse to kick him.

That afternoon, I did not even attempt to work on the code. All I could think about is how I would confront Chuck the next time I saw him. I rehearsed Tae-Kwon-Do moves in my head and resolved to practice my forms back in my room that evening. Matthew was trouble too, but he seemed less of an immediate threat. He was an information source.

The next morning as I sat at my desk, a familiar voice coughed and said "Excuse me" over my shoulder. I turned around to find Bob the security guard handing me an envelope. He stood waiting as I read the contents. It was a promotion. I was designated "Senior Risk Analysis Aide." There was a new actuarial recruit who would be reporting to me. Bob escorted me to my new quarters. I was bewildered as we stopped in front of Chuck's office and Bob removed the nameplate.

"Congratulations, Ms. Wright." He saw the look of alarm on my face. "We'll have a new one for you tomorrow," he said, trying to address some presumed concerns about the nameplate.

"Where's Chuck?"

"Mr. Cooper has been reassigned."

"Reassigned? Where? Doing what?"

"I couldn't tell you that Ms. Wright."

"Can I contact him?"

"I'm sorry I don't have that information, M'am."

The office had been cleared out overnight, as if Chuck had never been there.

"You can pack up in the box provided. Congratulations again. Have a good day," Bob added cheerfully, and left me standing stunned in the middle of Chuck's ex-office. I went back to my old desk to try to contain my anxiety. Matthew's comments about Chuck surfaced in my mind. What if I'd got things wrong? What if that wasn't Chuck

torturing someone up on the 18<sup>th</sup>, but Chuck being tortured instead? Whatever the case, Chuck had disappeared and I had to get out of here fast. The last thing I wanted was to take Chuck's place. I looked down at my hands and saw them trembling. Extreme Yoga was failing me. I was tormented by the thought that I had neglected to pick up crucial signals Chuck had been sending me. I recalled his dishevelled appearance, the disruptions to my work on the Risk Model, his aggressive state of panic. Could he have been shielding me from information that could make me a target for torture?

The wrenching memory of my lost son and husband invaded my mind. All the human connections I've rejected since their deaths, where had it got me? I'd survived, but what else? However useful paranoia has been to me, I had the most wretched need to trust someone now, to protect someone. I resolved at that moment to trust Matthew and protect us both if I could. It would be a new mode of survival.

## Chaos Theory

1

“You know, things used to be quite different.”

Sy Rosen, Chief Actuary of the insurance arm of our Pelco ©, was holding forth in the cafeteria as he did nearly every day at lunchtime. As usual he was surrounded by many of the younger actuaries in his department, most of whom sat through his occasionally pedantic lectures on politics and the human condition simply to gain favor with the boss. I sat there too, for the same selfish reason of course, but also because I found this kind of informed preaching sublimely entertaining. I was only three years out of Pelco © University and my natural curiosity had always led me to these “mentor” types, almost always men, who would enjoy expounding at length on their areas of interest or expertise. It seemed to me that intelligent women either lacked the natural cockiness for such overt displays or were too smart to feign mastery over topics where so many open questions remained.

“Quite, quite different”, he added, his eyes losing their focus, indicating he was about to commence pontificating in earnest. “People really had the ability to change things, before the sovcos, I mean. Sure, it had been years since they had really exercised that power, maybe as far back as the civil rights and women’s movements of the 1960’s and 70’s. But to be fair, the sovcos had already started to coalesce at that point and they became harder and harder to resist.”

“You always talk about the sovcos like they’re a bad thing.” Jerry Simpson had piped up. He was here out of career necessity as well, but was easily irritated by what he considered the tired rantings of an old crank and couldn’t hide it all that well. “What’s the big deal? Things seem to work pretty well, we keep inventing cool new stuff and all of us sitting around this table have good jobs and decent pay. Pelco © treats us well. Was it really better in the good ol’ days? Or are you being a tad sentimental?”

“Well Simpson, it’s true,” Sy had a habit of calling his underlings by their last names, “ your sovcos, or so-called sovereign corporations, give you plenty of neat stuff to buy with your decent pay. You might even mistake the fleeting stimulation each new gadget gives you for genuine happiness. I’m talking about freedom.”

“Oh, come on.” Everyone at the table felt tense now, sensing Jerry was making a huge mistake. Proper respect for superiors at our sovco, at any sovco for that matter, was absolutely mandatory. Too much was at stake. For one thing, not only was your job at risk, but if you didn’t find other work quickly, your citizenship in the sovco could be threatened. This meant you had to apply for citizenship at another sovco, god knows where, hoping they weren’t already at capacity and then counting on good fortune to find you a decent job. If you were unable to attain citizenship elsewhere, you could easily end up in one of the squatter’s villages, and you didn’t even want to think about that.

“What’ya mean, freedom? We’re all free. Every sovco has a standardized bill of rights. What are you talking about?” Jerry was really pushing it now, and even though Sy had a reputation for tolerance of what others might consider insubordination, it simply wasn’t prudent to be challenging him like this. Fortunately for Jerry, Sy’s reputation was well earned and in evidence today, for now he broke out into a large, amiable grin.

“Tell me Simpson, have you ever voted for anything, or anybody?”

Jerry looked disdainful. “Of course not. Elections became outmoded and frankly unnecessary when the sovcos replaced the nation-states. Now the free market rules, as it should. Why have elections for incompetent bureaucrats when you can exercise choice? If I don’t like things at our sovco, I just go to another one.”

“That’s an interesting perspective, Simpson, coming from a young, highly educated man in a highly sought after, why, one might even say elite, profession. It may even be partially true, for you and your friends here. Unfortunately, your astute analysis leaves out about 90% of the population.”

“It’s a meritocracy, you know that.” Jerry was now visibly irritated. Sy, on the other hand, just kept grinning. He seemed to be loving every minute of this, which, of course, only irritated Jerry further. “The people who deserve the rewards, get them.”

“Mmm hmm,” said Sy. “I’m sure Marie Antionette thought the same thing.” I let out a small laugh at this remark, while everyone else at the table sat with blank expressions. Apparently they had never heard the name, which was not at all surprising. History isn’t what it once was, I thought. Sy immediately shot an interested glance in my direction.

The lunch tone sounded, a soft, gentle, yet insistent ping, indicating our 20 minute meal break had ended. The entire room began to stir at once.

“Kramer”, Sy called to me as we were lining up to return to work. “Were you planning to attend the GAC next month?” The GAC was the Global Actuarial Convention, the annual meeting of actuaries from the various sovcos around the world. I had received an invitation anonymously two weeks before and felt bewildered and excited by the prospect of going. Scoring an invitation was a major coup as many influential actuaries would be there, including most of the Chief’s of the insurance regions around the world. But why was I invited? Actuaries my age only rarely attended and I didn’t really think I was on the fast track to anything in particular. What’s more, how did Sy know about it?

“Of course, sir”, I spit out, a little too eagerly. “It’s a great honor.”

He suppressed a laugh, or maybe a guffaw. “Good, because I took the liberty of booking you a seat next to me on the flight to London ©.”

I hoped my involuntary gulp wasn’t as loud as it sounded in my head.

## 2

I arrived at the airport three hours in advance, which was excessive even given the various security protocols and searches you had to endure. Two year medical schools routinely churned out airport security screeners who practiced their art with what I can only call an unwarranted glee. I sat shifting in my seat awaiting the flight when a tall man sat down next to me.

“Going on a trip, Mr. Kramer?” he asked, flashing a badge which carried the initials G.P.C. The man was an agent of the Global Police Corps, the international intelligence and law enforcement company hired as a mercenary police force by a consortium of major sovcos. The organization inspired fear for its interrogation techniques and ruthless tactics, and if you were smart you did what you could to avoid it.

“Yes, I-I’m going to London © for a conference, for business.” I was actively trying not to sweat, which just made me sweat harder.

“With anyone in particular?” The man was casually watching passengers walk by. There was no question who was in control here.

“I’m going with my boss, Sy Rosen,” I replied. “It’s a business trip.” I seemed to be protesting too much, acting like a guilty child trying to direct attention away from a broken lamp.

“Yes, Sy Rosen. We’re very interested in your friend Mr. Rosen. We’re interested in what he does in London ©. You’ll keep you’re eyes open, won’t you?” The agent could see I was terrified, and felt perfectly comfortable with such presumption.

“H-he’s my boss,” I sputtered. “I don’t think-“

“Thanks,” he said, slapping me on the knee and getting up from his seat. “We’ll be in touch.” He walked rapidly away and out of sight.

I had no time to sort out this mindboggling exchange. Within a minute, I saw a sleight, bespectacled man coming down the hall, struggling with his bags. Suddenly I felt a brand new anxiety. How a man like Sy Rosen, who couldn’t have weighed more than 150 pounds, could appear so imposing to me, I couldn’t begin to fathom. I thought back on the dusty, decaying history books my father had given me, to be kept under my bed of course, and read only in private. Hierarchies, class, kings, serfs, the answer was probably in there somewhere.

“So”, he said, dropping his bags and collapsing into the seat next to mine, sweat beading on his forehead, “tell me what you know about the French Revolution.”

...

The conversation that followed was refreshing, if not entirely prudent. For the years since my father was forced to leave for another sovco when I was 13, my interest in history had been a solitary pursuit. Rarely, if ever, did I share it with another breathing human being. There were good reasons for this. For one thing, it was generally considered impolite to discuss history in casual settings, and the discomfort it would cause in people would be similar to the reaction you would get arguing over which of the religious franchises was best. But more importantly, and for a reason I could never quite comprehend, no one was interested. It was as if curiosity about the subject was located in an organ, an appendix, which once served a vital purpose digesting tree bark and now had shriveled from lack of use.

Yet here I was on a flight to London ©, talking about the English Civil War, the American and French Revolutions, and the great social democratic movements of the next two centuries, with a man I greatly respected and to no small extent feared. I couldn’t help myself. It was like listening to Mozart alone in a room for 10 years and then finally meeting someone who stops you and says, “hey, have you heard the Symphony No. 40?” What joy to share that with another person, a thinking person. But my reverie was short-lived.

“I’m impressed, Kramer,” Sy eventually concluded. “My guess about you was correct. I can tell you’ve run into the wall most of us do as some time or other. You feel like you’re swimming alone, no lifelines. Interesting. Where did all this come from, do you think?”

I shifted in my seat. “Well,” I started, not wanting to go where I was about to, “I guess it comes from my father. He loved this stuff. Maybe a little too much. I remember

my parents getting into some pretty nasty arguments after some dinner party or something, where my dad was a little too forthcoming about his interests and his opinions. My mother usually indulged him, but I think the pressure from friends and family was intense and he wasn't sensitive to that at all, from what I can remember."

"From what you remember. Did something happen?"

I stared briefly at the inflight magazine sitting in the back pocket of the chair in front of me. "When I was 13, my dad took a job at another sovco. It was some sort of special transfer, or exchange or something like that. It wasn't exactly clear what was happening, though I think he was less surprised than we were. But," I stopped myself, realizing I'd already gone further than I wanted to.

"But what?"

Sy's question was oddly direct and I wasn't prepared for it. I wasn't really sure I could speak about what had happened. Up to that point I never had with anyone other than my mother. I let out a long breath, calming my raging emotions. "The thing is, after he left, we never heard from him again."

Sy waited a few beats before asking, "Did that surprise you?"

"What do you mean? Of course it surprised me!" I held myself in check again. "I mean, it was sudden, and there wasn't a lot of time to absorb what was happening. But we at least assumed that we'd keep in touch through video phone and emails. I know that's permitted for families separated for employment reasons at different sovcos, far apart. I know some travel arrangements can be made with mutual sovco approval. It's not unheard of. But we never heard a thing, since the day a car came to pick him up from our house. We don't even know if he's alive."

Again, Sy paused before responding. "And that's all you know?" he asked.

Something about this question bothered me. Sy sometimes adopted an attitude of presumptive omniscience which could be incredibly annoying to the less enlightened listener. My initial reaction was to bristle at his arrogance about a subject so personal to me. But this quickly faded into stark confusion. What was he asking me?

Sy could see that I was at a loss for words. He faced me directly and allowed himself a bittersweet smile. "You know," he began, "there's a story about the philosopher Ludwig Wittgenstein. Someone once wondered to him how in Pre-Copernican Europe they believed that the Sun moved around the Earth, when even a rudimentary knowledge of astronomy would have made it clear it was the other way around. They were looking up in the sky, seeing the Sun rise and fall, and that was all they needed to confirm their belief. Wittgenstein agreed, but wondered what it would have looked like if the Sun actually did revolve around the earth." He turned back, closed his eyes, and within five minutes was snoring loudly.

The first two days of the conference were uneventful in the extreme. The only interruption from the endless stream of seminars and presentations came in the late afternoons when Sy and I strolled through the streets of London, seeing the sights and talking history. On one such walk we were crossing the Thames looking towards the Houses of Parliament, when Sy turned to me and asked, "What do you know about Guy Fawkes?"

I searched my memory. “Didn’t he try to blow up Parliament? Some sort of revolutionary plot?”

“Exactly,” Sy said. “The Gunpowder Plot. He and his conspirators were trying to kill King James and the Protestant aristocracy. They were Catholic revolutionaries who wanted to install a Catholic monarch. Swap one dictator for a better one, I guess was their theory. But I wonder, Kramer, what if they were trying to overthrow the monarchy in order to install a representative democracy? The kind of movement only glimpsed fleetingly in the past and now subjugated to the whims of the marketplace. Would the plotters have been justified?”

“Would mass murder have been justified?” I asked. “Can it ever be justified? Even if the intentions are good, I don’t see how. I prefer Ghandi’s route – nonviolent resistance.”

“You know what Ghandi’s advice to the Jews was during the Holocaust?” Sy asked me with just a hint of derision in his voice, “Suicide. Let the Nazis kill you to show the world how evil they are. No, Kramer, sometimes it’s necessary to take action. Sometimes a little *active* resistance is required.”

I stared at the grand clock-tower, its hands still dutifully marking off time while the building itself now stood as a vacant hull, a cavernous tourist attraction calling attention to the impressive architectural achievement rather than to a quainter time when debates raged in its halls, with voices pitched in passion. Those voices were silent now. The representative bodies throughout the world were slowly absorbed into the corporate structure until finally they were disbanded like so many underperforming divisions. Those, like my father, who were burdened with a secret love of history, were aware of what was lost. I knew, but found it easy to avoid thinking about. Watching my parents argue, hearing my father rail against the system he was living under, I decided early on not to make the same mistake. This never presented a problem, since our culture had made avoidance of history a favorite pastime. But now here was Sy Rosen, my boss of all people, tapping into what I was so careful to deny for most of my young life. It was like my father was speaking to me from... from where, exactly?

That night Sy asked me to come along with him to a meeting at the Ritz in Piccadilly. He explained that it was not on the conference agenda and it was more of an informal gathering of executives and actuaries from the major sovcos, but that he thought it would be good for me to attend. I agreed without hesitation.

The meeting was held in a suite appointed in a grand style completely outside my realm of experience and utterly out of date. Corporate luxury was sleek and efficient and there seemed to be a general disdain for anything bordering on the rococo. To my thinking there were good reasons for this. Primarily, those making the decisions found it convenient to shift attention away from themselves, rather than the other way around. That way, the rest of us wouldn’t get too riled up. The implication was that decision making and ownership was a burden, not a luxury, and one would be wise to avoid it.

This room harkened back to a different era, when the wealthy and powerful were so secure in their positions they didn’t hesitate to flaunt it. Everything from the curtains to the chairs to the carefully placed antiques spoke of wealth and privilege. This in itself

was disconcerting, but I was further jarred by the fact that I also admired the beauty surrounding me, and the skilled craftsmanship that produced it. Nothing I could see looked like it rolled off a factory floor, but instead appeared to have its birth in the workshop of an artisan.

Inside the room were twenty to thirty men and women of divergent ages, half old, half young. It looked like a gathering of elderly generals and aides de camp, except for the profusion of eyeglasses and ill fitting suits. These were actuaries, after all. People were milling about, snacking on cheese and crackers, sipping wine, doing the things you'd expect at such a gathering. But there were some extraordinary individuals here in this ordinary tableau. I recognized some of the faces, Elizabeth Benson from Telco ©, Stephan Millet from Sarco ©, others. These were eminent figures, and I was instantly unnerved realizing a wrong move here could be a career-ender.

"Gary Kramer?" I was so anxious that I almost jumped at the sound of my name. I turned to see an elderly man seated in a high backed chair, staring directly at me. The others in the room instantly ended their conversations, which made my unease particularly acute. I was suddenly aware of being in a strange place, with people I knew only by reputation, and feeling way out of my depth. Worst of all, I was now the center of attention.

"Y-yes?" I stammered.

"Has Mr. Rosen told you why you are here?"

I glanced over at Sy, who said nothing, but wore his customary mischievous grin. "No," I said. I was completely bewildered.

The man looked over at Sy disapprovingly. "Sy," he said, "you are taking an incredible leap of faith. For all of us. You should have at least prepared him."

My head was beginning to spin. "Wh-Wha..."

"Of course you're confused. Let's try to clarify things, shall we? Please, sit down." He motioned to a chair behind me and I nearly collapsed into it. "Before we start, I assume you've had a visit from our friends at the G.P.C.."

I stared blankly back.

"Of course", he said. "Yes, they are close." He glanced around the room and others nodded. "No matter," he went on. "It's much too late anyway."

I looked around the room, starting to gain my composure. "What's going on?" I said finally.

"I apologize, Mr. Kramer. I have a tendency to skip formalities and get right to the point. Drives my wife crazy." The man relaxed in his chair and folded his hands. "My name is Arthur Trenton, I'm--"

"You're the Chief Actuary and President of Ranco ©," I blurted out before he could finish. Ranco © was the largest sovco on the North American continent, and its leader was a legend. I internally kicked myself for not recognizing him sooner.

"That's right," he said, smiling. "If you know me I assume you know some of the people in this room, Chief Actuaries from nearly every major sovco on the globe. We have used the GAC as a meeting point for several years now. But before we talk about that, tell me, what do you think of our current political system?"

I glanced around nervously. "Is that...some kind of joke?"

"No, I'm completely serious," he responded. "Surely Sy has had discussions with you on this topic, or else he certainly would not have brought you here. Come now, tell

me what you think. And I can assure you, Mr. Kramer, this room is devoid of listening devices of any kind. All that has been thoroughly checked. You can speak freely here.”

“Well,” I began hesitatingly, “I suppose it could be better.”

“Please, Mr. Kramer, let’s not equivocate. What do you think? What do you *feel*?”

“What do I...feel?” My natural resistance crumbled at the question. “I think the whole thing stinks.” It felt surprisingly good to say something so innocuous.

Trenton laughed. “How exactly does it, as you say, stink?”

“I’m sorry,” I said looking down, “it’s just that the whole system is, well, wrong. People don’t have any say in what gets done, what gets built and where. They don’t get to vote, like people used to. ‘Voting with your wallet’, or whatever the mantra is, just isn’t the same thing. The people who own the sovcos, they decide everything really. And the squatter’s villages, that’s a travesty. I’ve seen pictures and heard stories about the conditions in those places. Just because some people didn’t fit into a role the sovcos set out for them, doesn’t mean they can be treated that way, just thrown out like so much garbage. It’s not right.”

“Isn’t this the ‘best of all possible worlds’? Isn’t that what you learned in your sovco school?”

“Voltaire was right,” I mumbled, producing a round of appreciative laughter from the gathering. I looked up, astonished.

“Don’t be surprised, Mr. Kramer. All of us here have an appreciation of the philosophy of the past. It’s one of the prerequisites, if you will, for attendance.” The room settled down. “Go on, how would you improve things?”

“From my study of history, there is only one way. We need a representative democracy with active participation by the citizenry. We need economic competition, rather than oligopoly. We need a culture of the arts, not a culture of consumerism, if such a thing even exists.”

“Excellent!” Trenton exclaimed, slapping his knee. “How do we get there, do you suppose?”

“What do you mean?” I asked, puzzled.

“I mean, say all of us in this room agree with everything you just said. How do we achieve such a radical change in the system?”

I thought for a moment. “I have no idea,” I said.

“You don’t?”

“No. I doubt if such a thing is even possible. There aren’t any forums for people to act together any more. It’s every man for himself. Unions have been outlawed as “economically unfair” to stockholders. Grass roots social movements are almost impossible to organize because no one has the time or energy, and they are so...so entertained and distracted, that it hardly seems worth it. ‘Amusing ourselves to death’, I think was how someone once put it.”

“Yes, yes, yes!” Trenton looked over at Sy. “Well Sy, you were quite correct to bring this young man here and to ask him to join our cause.”

“Cause?” I was beginning to grow impatient with this abstract discussion while I sat exposed like a carnival freak with the curtain pulled aside. “Look, can you just tell me what all this is about? I don’t know what you want from me.”

“Mr. Kramer,” Trenton said leaning forward in his chair, “most of the people in this room have been meeting and talking and planning for years. A few of us came together, perfectly innocently, with some common interests and common views. Slowly we found more, approaching some in key positions, educating others. Everyone in this room is here at great personal risk, but we are here because we believe in what we are doing.”

“What are you doing?” I asked.

“Quite right, Mr. Kramer, let’s skip the noble rhetoric.” Trenton nibbled on a cracker and took a long draw from the wine glass at his side. “Put simply, we are engaged in the largest actuarial and accounting fraud in the history of the world. We are not going to just sit back and rail against this corrupt and evil system of world government that you so correctly criticize.” He paused, fixing me with a gaze that seemed to peer right through me and into some impenetrable future. “We are going to destroy it.”

5

The room stood frozen in time. Everyone was waiting for a reaction from me, that was clear, but I was unable to satisfy them with a cogent response. Instead, in stunned amazement, I laughed.

“You’re kidding, right?” I blurted out. “Come on Sy,” I said, looking to him in desperation, “is this a setup?”

Rosen’s arch smile never wavered. “Not at all, Kramer,” he said. “We need your help. *I* need your help.”

“This is no joke,” Trenton broke in. “We *do* need your help. Let me explain. We, as actuaries, are in a unique position. We possess skills and techniques not widely available to the general public, critical thinking not being prized as it once was. We hold the keys to the entire insurance system. By setting reserve liabilities, we measure the ability of each sovco to cover its current and future obligations. We also have a hand in directing how trillions in assets are allocated and what investments are pursued.”

“So?”

“So,” Trenton replied, “a Chief Actuary is in a position to do tremendous amounts of damage. You see, in the past, there have been accounting frauds and major corporations were bankrupted and thousands of people lost jobs and money. Maybe you could argue the ripple effect hurt millions. But these were primarily in niche service or consumer product industries, and so the impact was not long lasting. What if you were to accomplish the same thing at an insurance division of one of our sovcos? This would lead to a major market disruption, since millions of insureds would suddenly be exposed to losses, and the financial markets would be rattled by the failure of a huge institutional investor.”

“Are you telling me-?”

“And now what if you were to perpetrate this fraud on a grand scale, involving all the major sovcos?”

My blood went cold.

“Yes,” Trenton said, sensing my comprehension, “the entire economic system would collapse.”

It took me a minute before I could muster a response. “But how-“, I looked at Sy now, “how could you possibly get away with this?”

Now it was Sy’s turn to speak. “Kramer, you’re young, but you should realize by now that the entire system is corrupt. The Boards of Directors of each sovco are not oversight bodies. They exist as a forum for the ownership class to meet and carve up their various economic interests amongst themselves. The other oversight entities, auditors, Insurer Review Boards, all these are stocked with bureaucrats who don’t want to be seen as troublemakers, or professionals with other profit generating interests on their agenda who would never intentionally rock the boat. Actually, the whole thing is too easy. Frankly, I’m surprised the computer programmers haven’t gotten there first.”

“Mr. Kramer,” interrupted Trenton, “the important thing is not to be too obvious about it. We have gradually been understating reserves in a marginal way for years, across all lines of business, even manipulating data when necessary, though it rarely is. At the same time we have been gradually increasing the risk exposure in our portfolios. Every new financial derivative a math Phd can conjure up gets our support with insurance funds. You come to this process late. Our work is nearly done. In fact, it’s quite possible that we are well past critical mass. Any exposure now will start the chain reaction. If I were a religious man,” Trenton declared, “I would say that Judgment Day is at hand.”

...

I felt an overwhelming exhaustion envelope me. All that talk about “democracy” and “active resistance” were leading up to this. I could see clearly how this plan would unfold, and how successful it would be. Once the first domino fell, the others would follow in an ineluctable cascade. The exposure of the first phony balance sheet leads to failure and bankruptcy, causing a panic as policyholders and investors scramble to cover their potential losses. The increased scrutiny on other sovcos will reveal fraud after fraud, leaving no safe place for money and a total collapse in the equity and insurance markets. Nothing short of a worldwide depression would result. The entire framework would need to be rebuilt from the ground up.

“How can you do this?” I said to no one and everyone. “The poverty, the misery it will cause. Have you thought about that?”

“There is no other way,” Trenton said firmly. “If you know anything, you must know this. It would be better if we could start a movement, speak out, educate people through mass media. What sovco would stand for this? How many people would risk it with their jobs and homes on the line? The propaganda about the squatter’s villages is persuasive.”

He was right. Such a thing was impossible. The power shift to the ownership class was complete and the techniques of control through media manipulation, born in the early 20<sup>th</sup> century, had been perfected.

“Look Kramer,” Sy almost pleaded, “I need your help. The eminent figures you see in this room are not superhuman. We can’t carry this off alone. The young men and women you see around you have all volunteered to help, because they know there is no other choice. There is little time and there is too much to do.”

“I don’t see how-“

“This is all going to happen within six months,” Trenton explained. “Until then you will work with Sy to help him put the final pieces into place. You can even agree to cooperate with the authorities. Tell them you will spy for them. We can feed you some harmless information to keep them busy and satisfy their interest, but by the time they can move against us we will have started the process.”

“No, I-,”

“Kramer!” Sy nearly shouted, “what would your father have done? Think back. Think back to before they took him away.”

“Took...him away?” The tears started to form before I could stop them. Shock after shock had pummeled me and now the reservoir of my resistance had run dry.

“What are you talking about?” I choked in a voice mixed with equal parts defeat and rage.

“He was never transferred to another sovco, Kramer,” Sy said with unexpected sympathy. “He was a troublemaker and to shut him up they sent him to the squatter’s villages. That is why you and your mother never heard from him again. Communication with squatters is forbidden, as you know. His case is well known in underground circles, though hardly unique. When you first came to work for me I recognized the name but never made the connection. It wasn’t until recently that I was able to piece it together. That is why I asked you here.”

Unable to handle another minute of this barrage I suddenly sprang out of my chair and ran into the hall, collapsing onto the floor in a wave of sobs. Faintly, as if from a dream or a distant childhood memory, I heard Trenton’s voice from behind the closing door. “Leave him, Sy. Give him time.”

## 6

I spent the remaining days of the convention either secluded in my hotel room or aimlessly walking the streets of London ©. Even as a commercial enterprise the city beckoned to a lover of history as few places could. I was deaf to its call, however, and passed by monuments and mundanity with equal indifference. I needed time to think. The depth and reality of what had been revealed to me only coalesced slowly into a meaningful structure. What emerged was not an edifice but an abyss, and I stood propped above it on a tiny circular platform, looking for a direction to take my first step.

I avoided Sy as much as possible and he was wise enough to leave me to my solitary thoughts. We didn’t speak again until we arrived at Pelco © Airport after a long, restless flight. We collected our bags and were walking together to the parking lot when Sy put his hand on my arm to stop me.

“Well, Kramer,” he said, “do you know what you’re going to do? Can I count on you?”

I looked off towards the horizon. I wondered how far the human eye could see. Far enough to glimpse one’s future? Did some barely perceptible destiny lie on the fuzzy boundary between earth and sky?

“You’re a good actuary, Sy,” I said, almost in a whisper. “You’re all very good at what you do. You found me and analyzed me as you would a mortality table. You wondered if I might help and so you collected the data, determined the possible outcomes, assigned probabilities, and calculated your expectations. Chaos from order,

order from chaos. But I'm beyond your calculations. I contain multitudes – infinite possibilities.” I walked to my car, not looking back.

...

I took to the highway. I drove and I drove. I drove past the exit for my house, where my mother waited along with an unseen guest, probably parked down the street, who wanted answers to questions his hidden masters sent him to retrieve. I drove for hours on end. I followed the highway until it thinned down to two lanes and I came to a sign that read “Road Ends 5 miles Ahead”. The border agents would be waiting. Everyone could wait, wait an eternity if they chose. I turned off the road onto the dirty plain and traversed an imagined hypotenuse until I came to an unguarded spot on the border line. I stopped for a moment, if only out of mathematical habit to calculate the Pythagorean distance I had traveled. Ahead lay the endless acres of squatter's villages, formless, yet alive. Yes, alive! I hit the gas.

# Charting the Perfect Course

By Gregory A. Dreher, FSA, MAAA

Daniel Passar sighed as he looked out the window. It had been dark for several hours already, and here he was, stuck in the office, still working. Now, that wasn't a particularly unusual fate for many actuaries in late January, but long hours weren't the rule at Buckhead Risk Analysis. Dan was here for one reason: he had screwed up.

A brief warm-up had brought springlike temperatures to the Atlanta area, and Dan had heard the golf course calling him. He had hastened to finish his work, so that he could play nine holes before dark. He had submitted his latest model for processing and had set the system to automatically distribute the results.

That morning, Dan had checked the model, and discovered a terrible error. By mistyping 0.30 as 0.03, he had drastically reduced the modeled population's sensitivity to tax code changes, and the recommendations for the optimal level of taxation for the 2040 federal budget would be wrong. Dan sighed. The first model cells' results had looked normal, but he should have realized that with his relative inexperience, he shouldn't have made such a hasty assessment.

Yesterday's warm afternoon was a distant memory as Dan checked and rechecked his model assumptions. He found no more errors, so all that was left to do was wait for the corrected model to finish. His eyes passed over a photo of him shaking hands with Buckhead founder H. Ronald Stossel, and Dan thought back to their first meeting.

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Ron Stossel was the keynote speaker at the first Society of Actuaries annual meeting Dan attended as a Fellow, back in 2036. He talked about the brief history of risk optimization, a discipline that arose from a desire to hold governments accountable for their decisions. No one knows for sure who originated the idea, but a few maverick politicians and several opinion-makers from across the political spectrum championed the idea that politicians should be accountable for their major political decisions. "It may be human nature to claim credit and shirk blame," they called, "but you should be willing tell us up front how much tax revenue you'll collect from your new tax, or how many jobs you'll create with your new program."

The first risk analysis bill passed in 2013, after another rosy projection of eternal surpluses had vanished with an economic downturn. Many firms arose to supply analysis in advance of the annual budget and social program reform. However, there was little agreement among firms; just as multiple economic theories existed to explain the same behavior, there were analyses for and against every proposal. The Society of Actuaries had quickly moved to establish an educational track for risk analysis.

It wasn't until the 2020's that risk analysis grew into its own, and became known as risk optimization. Several individuals had proposed analyzing data collected from neural links. These devices, while primarily allowing direct neural-electronic interface, also collected data on emotional responses. These data had only been studied by neurologists, in scientific studies, and had never been analyzed in bulk with data mining

techniques. The offer of free link upgrades convinced enough people to submit anonymous response data, and soon the field would change forever.

“Take a simple example where economic theory fails,” Ron had mentioned. “You take two people, A and B, and give A \$1000. A must give part of that money to B, then B must agree to the split. Economic theory says that even if A only gives B one dollar, it is to B’s economic gain to accept. But B will normally reject this split, calling it ‘unfair.’ It’s this kind of response that early risk analysts realized could provide insight into behavioral responses that conceal or amplify the predicted impact of policy decisions.”

With years of experience, the risk optimization projections gradually increased in accuracy. Firms entered and left the market, driven by their successes and failures, but Buckhead Risk Analysis was consistently among the top risk optimization organizations. “Charting the Perfect Course” may have been just a slogan used by Buckhead, but in this field, Buckhead had been as close to perfect as anyone had seen.

Growing up with an actuary father, and pursuing an actuarial degree in college, Dan learned about this new field. The work of the risk optimization experts was sexier, at least as sexy as actuarial work could be, and many classmates focused on this new field. Dan stuck with the traditional path, and hadn’t seriously considered working in risk optimization, until that meeting in 2036. Ron’s speech was engaging, but it didn’t compare to conversing with him in person. Over martinis in the hotel bar, Dan and several other actuaries listened to Ron expound about the theory of risk optimization, economic and political theory, and varied what-if questions. Dan was particularly impressed with Ron’s familiarity with the debates of the day; he knew the main arguments, and exuded confidence when expounding on the one he favored.

And thus, two weeks later, Dan made the initial contact with Buckhead Risk Analysis that would end with him changing actuarial careers. Sure, it would mean three more exams, but he felt like he’d have a chance to shape history....

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Dan’s computer beeped, indicating the model had finished running, and stirring him from his reverie. He called up the summary reports and studied them. At first, he was relieved to see the projections were in line with his expectations. Then, he noticed the results looked very similar. Puzzled, he looked at the projections from his earlier incorrect run. He stared in disbelief at two projections that were identical, exact to the dollar.

Dan clutched his head in his hands. He had somehow messed up the projection again, despite all his checking. Sighing, he went back to the input page. The correct taxation coefficient stared back at him. “But that means... my original model was correct?” A growing headache over rerunning the model again faded to relief, then regret at the long hours just wasted. He dug the original model out of the computer’s trash bin. He opened it, and a look of puzzlement crossed his face. The original model still had the error.

After trying to reconcile the two different coefficients in his mind for quite some time, with no success, Dan turned off his computer. If his projections had egregious errors, he would just have to admit it. But over the next week, no one questioned his results.

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“Don’t tell me you have another program modification,” Buckhead senior programmer Chris Tanner said, in a mock-serious tone, punctuated by an overly dramatic sigh. Chris had been Dan’s contact on the programming side since he had arrived, and they had seen a lot of each other, with testing constant refinements to Buckhead’s models. But Chris enjoyed his work, and understood actuarial methods better than half the actuaries Dan had met.

“Actually, it’s just a question about how the model is programmed,” Dan replied. “I spend all my time adjusting coefficients and inputting arrays of variables, but then what happens?”

Chris thought for a moment. “The short answer is, the program brings the factors together and builds the interrelations. Put in those new tax rates you’re working on, and it models economic scenarios, public reaction, business response, the reaction of stock and bond markets, foreign economies, trade, and how all of the above interact.”

“And what happens with unrealistic projections?” asked Dan.

“Any component of the model that exceeds what has been seen over the last 50 years or so is flagged. But it’s very hard to make things go haywire,” Chris added. “There are a lot of negative feedback loops built into the model, reflecting the twin realities that most people don’t continue doing things that aren’t working, and too many people have a stake in keeping things running smoothly. No one wants to see another Great Depression, or even 1970’s inflation.”

“So, that means you can trace the inputs through the program?” said Dan, hopefully.

“Of course,” replied Chris. “It would be very hard to debug or add features without it.”

“Well, I’m curious to see how it all works. When I put in this coefficient for tax sensitivity, where does it go?”

Chris highlighted the coefficient, and typed a series of commands. The computer screen erupted with dozens of boxes, each with a miniature representation of formulas and logical relationships, and a web of red lines connecting the boxes. “Each of these boxes is a programming module, something you cruel actuarial taskmasters forced us to create to model each new and proposed interrelation. You can trace each variable through these modules.

Dan peered closer at the screen. “What do the black square icons mean?”

“Those represent calls to the ‘black box’ calculation modules,” Chris replied. Upon seeing Dan’s blank stare, Chris continued. “The original models, which were created fifteen years ago, ran much slower—we didn’t have optical processors, and distributed processing was nowhere near as efficient. Many of the hard-core calculations were coded in assembly language, to speed up the model.”

“I thought programmers haven’t needed to worry about speed for some fifty years,” mused Dan.

“I think programmers are more willing to put up with moderately slower programmers than they are willing to put up with learning how to code in assembly,”

offered Chris. “We never touch the black box modules anymore. But Heather says the programming shaved 15% off the run times.”

“Heather was involved in programming?” asked Dan. He knew Heather Harland only as Ron Stossel’s second-in-command.

“Yes, she was brought in by Ron for her programming genius. But I’m sure she hasn’t touched any code in ten years,” added Chris.

“We’re much better off with her in her leadership position,” said Dan. “So you can’t see what happens in those old modules?” he asked.

“Actually,” said Chris, smiling, “I’m one of those old-fashioned computer geeks who still thinks there’s something to be learned from studying assembly language.”

“Then I have a mystery for you,” said Dan. “I’m concerned that the tax sensitivity coefficient isn’t having the right effect on the model. Can you trace it, even through the black box modules?”

“Consider me on the case,” said Chris.

\* \* \* \* \*

The next week, Dan was heavily involved in discussions over the latest behavioral response studies, so that he lost focus on his earlier investigation. So it was a mild surprise when Chris called him, but it was a much bigger surprise to get called at home in the evening.

“Dan, I have an explanation for you. But you’d better come in to see it.” Chris’s voice conveyed excitement, but Dan also caught a hint of worry.

Fifteen minutes later, Dan ran up the stairs and into Chris’s office. Chris turned to face Dan. “Here it is,” said Chris, pointing to the screen.

Dan looked, but all he saw was unintelligible code. Before he could ask a question, Chris continued. “In this module, the variable is overwritten by a number hard coded in here. From tracing the other dependencies, the number used by the model depends on the current level of taxes, the state of the economy, and, strangely, the political party in charge of government.”

“Political party? That shouldn’t be in there,” Dan said. “It goes against the principles of risk optimization.”

“Given how well Buckhead’s models perform, maybe it should be in there,” said Chris.

“Are there any other variables or arrays that get overwritten?” asked Dan.

“I intend to find out.” Chris attacked his computer, typing with the speed of someone whose hands rarely left the keyboard. Dan watched, but most of what Chris was doing meant nothing to him. He came over to look every time Chris found another variable, but spent most of his time gazing out the window.

“Look at that.”

An hour into the process, Dan saw a large group, a veritable entourage, gathered outside, under the lights near the front door of their building. Chris stood up and looked, too. “I don’t recognize any of them.” Buckhead Risk Analysis was the only occupant of their building, and small enough that both men thought they’d recognize most people in the company.

“Actually, I think I recognize the man in the center,” said Dan. “That looks like John Ward.”

“You mean...” started Chris.

“Yes, Representative Ward, the long-serving Congressman from Michigan, and considered a likely candidate for Speaker of the House if his party can take control of Congress.”

“Last time I checked, this isn’t Detroit, so just what is he doing here?” asked Chris incredulously.

“I really don’t know,” Dan responded. “Something for one of his committees?” he wondered aloud, but it didn’t sit right. With his general low opinion of politicians, Dan would have expected aides to handle any business with Buckhead.

The next day, everything seemed normal. There was no gossip about any top secret meeting, and Dan’s queries about potential new clients for Buckhead turned up nothing useful.

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Two weeks later, Dan picked up the phone in his office, and before he could open his mouth, the voice on the other end started speaking. “Dan, this is Heather Harland. I have a special assignment for you. I want you to open the sealed envelope in your second desk drawer, and follow the instructions therein.”

“What sealed envelope?” he thought. Dan set down the phone, opened the drawer, and spied an envelope sticking out from under some office supplies. He was sure it wasn’t there the previous day. He picked up the phone again, and started to speak, but only heard a dial tone.

Dan hung up the phone and opened the mysterious envelope. Inside was a single sheet of paper with detailed driving instructions to some place that could only be described as Middle of Nowhere, Georgia. Handwritten on the note was a simple phrase: “Everything else will be explained when you arrive.”

Dan followed the directions, from a state highway to county roads to nearly unused roads, finally crawling across a gravel road deep in the woods. Eventually, to his surprise, Dan came to a gate. A high chain link fence topped with loops of razor wire surrounded a featureless, low-slung building. The gate opened, and the armed guard at the gate waved Dan through. Dan parked near the building, one of only a handful of cars in a large parking lot.

Heather was standing outside the building, and hurriedly ushered Dan through a security checkpoint. They entered a lounge, where Chris Tanner sat, rereading a piece of paper that was very familiar to Dan.

“I understand you have been looking for answers. Let me provide better answers than the ones hidden in assembly code. How could the risk analysts at Buckhead be so confident in the public reaction to tax levels? Well, what if you could see the ultimate results of President Clinton’s 1993 tax increase being rejected in the House of Representatives by one vote? Or no proposed tax increase at all, when President Bush wins reelection in 1992 in a two-way race? This unique level of research is the competitive advantage that Buckhead brings to the field of risk optimization, and that is what allows us to chart the perfect course.”

“But how...?” Chris started.

“Let me show you how,” said Heather. “Follow me.”

Heather led the two men into a large warehouse with a high ceiling, coldly lit by bare fluorescent lights. Banks of computer screens and control panels filled the two near corners, but Dan’s attention was drawn to a strange device at the center of the room. A slightly convex metallic disk was supported by half dozen curved metallic beams, spaced equally around the structure. The whole thing called to mind a rounded space-age gazebo.

“This, gentlemen, is a technology that has no name, but you can think of it as a portal to other realities. When one of the infinite realities that result from infinite other decisions made comes close to our own, mathematically speaking, this device can open a portal connecting the two.”

Dan shook his head in disbelief. “I don’t even think that’s possible.”

“It is, and you may even see it in action,” said Heather.

“Where did this all come from?” Dan continued.

“Years ago, Ron Stossel served as a government analyst specializing in scientific research, and developed a friendship with a theoretical physicist named Austin Harrington,” Heather explained. “Dr. Harrington felt he was nearing a breakthrough in his research, but his line of research fell out of favor with a belt-tightening Congress. With the help of Ron and some venture capitalists, Dr. Harrington completed his research, but the results weren’t as expected. Rather than creating a field capable of storing energy, this field opened a pathway to other realities.

“Over the past twenty years, we have managed to detect millions of realities, and worked out complex equations to represent these realities and identify their intersection points. This whole project has been funded by some surprisingly high-performing investments. For the most part, the process is fruitless. We estimate only ten percent of realities have human life, ten percent of those have human civilization, ten percent of those have reached the Industrial Age, and ten percent of those are at a comparable technology level to our world. But these worlds, with their recent break points, are what allow us to see the answers to the what-if questions other companies can only guess at.”

“You send people through the portals to get this information?” asked Dan.

“No,” replied Heather. “While the technology is safe for living creatures, we have viewed it as a risk to enter other realities. What we do is utilize the shared technology and have a computer program set up a wireless Internet connection and download information. Encarta, Wikipedia, government databases... they’re normally present in the worlds we research, and in a matter of minutes, we download enough data to search for other decisions and their results.”

“But you still haven’t told us why we’re here,” said Chris.

“Last night, there was an accident. The field expanded beyond its normal dimensions, encompassing Dr. Harrington and Mr. Stossel, and then abruptly shut off. Later, we discovered it was no accident. One of the scientists here had interfered with the programs, and tried to eliminate records of the reality access that night—fortunately, those records are triple-redundant, and we know where they went.”

“But why would he do that?” asked Dan.

“I’ll be blunt. He was a spy,” Heather said forcefully. “We have been approached by a prominent politician, to go beyond modeling policy prescriptions and

advise on the course of action that would help this politician's party. That is not what Buckhead stands for, and Ron refused the offer, even refusing a personal entreaty from the politician."

"Congressman Ward," said Dan and Chris together. Heather raised an eyebrow, but confirmed their statement with a nod.

"Initial investigation reveals that this spy accepted a large sum of money in exchange for arranging this accident, stranding them," continued Heather. "The spy has managed to slip our grasp, but we will find him. Meanwhile, though, we have only a limited timeframe to rescue Ron and the doctor from this alternate reality. That reality will come into synch with our own in a couple of hours, stay in synch for about thirty hours, then separate for over a month. I am asking you to join in the rescue."

"You want a couple of desk jockeys to travel into an unknown world?" Dan uttered.

"We don't have a lot of choice. We were able to gather four members of our security force with relevant experience—former soldiers, wilderness guides, and the like—but that's all. You know more than most people about this secret project, and besides, you're not quite desk jockeys. You were quite an outdoorsman growing up in Minnesota, weren't you, Dan?"

"Well, yes," said Dan hesitantly; he was surprised anyone remembered the stories he occasionally told.

"And you, Chris, wouldn't this be more exciting than being a contestant on the revival of *Survivor*?"

"How did you know about that?" Chris gasped.

Heather smiled. "If you want to keep your application for the show a secret, you shouldn't talk about it on your personal Web page."

\* \* \* \* \*

"I will now brief you on the situation," said Eric Branwell, the apparent leader of the four security personnel. Dan and Chris sat at a conference table, looking out of place compared to Eric and the three other hardened soldiers. "Unclassified Reality 10739520 was first accessed yesterday at 21:47 hours for a total span of 3.4 seconds. The standard sensor readings detected clean air and a lack of radio or other transmissions, indicating no industrialized civilization on the continent. Human civilization in this reality is unconfirmed. Temperature readings indicated very cold temperatures, and visuals confirmed heavy snow cover. Glaciation in this world is possible.

"Our targets are H. Ronald Stossel, male, age 64, and Dr. Austin Harrington, male, age 58. Targets carried RFID tags and GPS transmitters as a matter of course. The latter will be unusable without satellites, but the former will transmit, with a range of 250 meters. Targets were unprepared for transition. Minimal emergency supplies were stored within the portal and are left behind in the event of portal termination. Targets are in primary danger from the hostile environment; additional dangers are unknown, but may include native animals or humans.

"The overhead projector shows a topographical map of the nine square kilometer area surrounding this facility. The topography in the corresponding area of the alternate reality is unconfirmed, but deviation is unexpected. Target Stossel is known to have a

rudimentary understanding of the topography, and we suggest three likely destinations to search, designated here as A, B, and C. In the absence of other evidence, the closest destination, A, will be our primary target.

“Our rescue timeframe is restricted to twenty-nine hours, thirty-eight minutes, commencing on or around 14:20 hours. All rescuers will be equipped with thermal suits, goggles, flashlights, radio communicators, canteens and rations, snowshoes and skis, and weapons and ammunition. Leader and subteam leader will carry tents and chemical heat sources, in the event overnight shelter is required. We will equip and reconvene in the facility’s main chamber at 14:10 hours. Dismissed.”

The three seated soldiers quickly stood up and departed to their own preparations. Eric approached Dan and Chris. “Let me thank you for being willing to face the unknown with us,” Eric started. “I can imagine this isn’t what you expected when you came into the office today.”

“No kidding,” said Dan.

“Give that man a Pulitzer for understatement,” quipped Chris.

“We have an hour and a half. I am going to demonstrate the equipment and get you as familiar with it as possible.” Dan and Chris followed Eric to what appeared to be a loading dock, where partially unpacked boxes were strewn about haphazardly. They fitted their protective thermal suits, and tested their equipment enough so that they no longer felt totally overwhelmed.

“It’s time to go.”

Dan’s heart was pounding as he followed Eric to the portal chamber. Three scientists were adjusting dials on one of the control panels. A small spherical field of crackling blue electricity was tethered to the ribs of the strange device by purple arcs of energy. “Please stand within the device,” ordered one of the scientists. “In one minute, the field will expand, forming a portal linking the device to the target reality. You must step away from the device quickly, before the portal is closed. Return to the same location when you’re ready to return. We will reopen the portal each half hour for a total of two minutes at each occasion.”

The six men stepped inside the device. Dan instinctively backed away from the glowing sphere, running into one of the ribs of the device. He could feel the sweat trickling down his face, and he didn’t think it was just because of his warm thermal suit. With each of his heavy breaths, the transition drew closer. The sphere pulsed... pulsed... pulsed... then expanded, filling his vision. Dan felt nothing, then....

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Dan gasped as the intense cold air seemed to forcefully extract his last breath of warm air. He squinted as the sunlight reflected off the field of pure white snow, before the goggles he wore automatically darkened. “Everyone, move out!” buzzed a voice in his earpiece. Dan jumped forward, his boots crunching through the crusted snow. Behind him, the electric field shrank, then winked out, leaving a circle of melted snow.

Eric checked his compass, scanned the scene with binoculars, and oriented the group. “Our first goal is a cave eight hundred meters to the south. Let’s don snowshoes and get a move on!”

The group trudged south, walking against a strong wind. Both Eric and the subteam leader checked monitors as they went. “No signal from the RFIDs,” Eric finally said as they neared their destination. “We’ll split up at Destination A.”

“I suppose that’s why they didn’t take shelter here,” said Chris, pointing to the spoor of some animal.

“The prints indicate a feline... a large one,” said one of the rescuers. “The trail isn’t fresh. But keep your weapons ready.”

“We’ll split up here,” said Eric. “Dan and Gerald, you’re with me. We’ll head west to the rocky outcropping. Richard, you lead your group to the ravine to the southeast. Keep your eyes peeled and stay in radio contact.”

Now in a group half the size, Dan felt more than twice as worried. He didn’t want to end up a cat snack in some strange reality. He kept checking behind him as they walked. But for all he saw, this place was a barren landscape.

“We have two signals,” said Eric. “Richard, bring your group back to the rendezvous point. We’ll recover the targets.”

Eric scanned the horizon and picked up his pace. “I think I see faint smoke ahead.”

Climbing over rocks, the three men dropped down, following the radio signal and the wisps of smoke. Finally, they spotted an extinguished campfire. They had arrived at the rock overhang they were seeking. Rocks and branches were stacked to create crude shelter.

“I don’t like seeing that the campfire is out,” said Dan. Eric and Gerald nodded. They approached, and saw Ron and Dr. Harrington, wrapped in a silver emergency blanket, but not moving. Dan rushed to check their vital signs. “They’re alive, but not responsive, possibly hypothermic.”

“Confirmed recovery of the targets, unconscious,” Eric spoke into his mouthpiece. “We will need to fashion a stretcher to return them.” As he spoke, he began to break down his tent. The three men worked at stretching the strong fabric across two braced poles. They placed the two unconscious men atop it, covering them with additional blankets, and activating and inserting the chemical heat source between the blankets.

Without further words, the group started back, Eric and Gerald carrying the stretcher, Dan carrying Eric’s extra gear. Dan counted each step as they proceeded.

Shots rang over Dan’s earpiece, and then echoed immediately through the air. “Team Leader! We have smilodon! We did not appear to hit it, but we have driven it off. We have taken shelter in the cave.”

“Acknowledged. Maintain defenses. Let’s move!” shouted Eric. “We’ll move through the trees until we see the enemy.” They moved slowly, pushing through pine branches, careful not to hit the men on the stretcher.

Finally, they approached the cave. Dan was first to see the saber-toothed cat, pacing, stalking the cave, ready to pounce on the prey inside if they left. The beast was well concealed behind rocks and a fallen tree.

Eric and Gerald set down the stretcher and readied their rifles. “Can you shoot it?” asked Dan.

Eric looked carefully through the scope. “It’s not a good shot. I’ll probably only get a grazing blow.”

“We’ll need to drive it off. If we try to reach the cave, or if our companions leave the cave, the giant cat will probably attack. We might have only one shot, so we’ll have to make it count,” Gerald assessed.

Dan glanced at the cave, and the snow-covered, rocky terrain around it. “I think I have an idea. See all that snow up there? What if it came down atop the cat?”

“An avalanche would probably buy us the time we need,” said Eric.

“If we can place that chemical heat source atop the snow pack, the melting could loosen the snow and cause that entire bank to collapse,” said Dan. The others nodded.

Dan took the heat source in hand and breathed deep, focusing on a shot more important than any he had ever taken on a basketball court. Gently tossing it into the air, he got a feel for how it moved. Then he lobbed it in a high arc. The chemical pack bounced off a rock and landed, sinking slightly into the snow pack.

The three men waited. Eric and Gerald kept their weapons trained, in case the saber-toothed cat moved to threaten them, but the animal patiently waited for its trapped prey. Finally, Dan noticed the snow pack begin to slip. Ever so slowly, it shifted downward, until finally the sheer weight of the snow rapidly accelerated the process. The heavy snow collapsed atop the great cat, which howled in rage.

“Richard! Move your team out and train your weapons to the left. Gerald, Dan, take the stretcher and move towards our departure point!” Eric rapidly ordered.

Dan didn’t look back as he ran as fast as possible, his gait awkward in his snowshoes. Orders crossed the radio relay as Eric ordered the men into a strategic withdrawal, covering their retreat towards the portal location. After running for a while, Dan almost stumbled as he stepped in the depression in the snow.

“We’re here,” said Eric. Only then did Dan notice that the depression in the snow was the one left by the portal. He checked his watch. This whole journey had lasted only seventy-two minutes.

Dan and Chris tended to the two unconscious men while the four more experienced soldiers watched for more trouble. Eric announced the time until transition every two minutes. Dan kept looking to the trees, past the snow banks, beyond the rocks, expecting trouble to arrive.

“One minute until portal.” Dan felt ten minutes pass. “Forty seconds.” Each ragged breath felt like an eternity. “Twenty seconds; we have visual.” A tiny electric orb struggled to form out of nothingness, and then inflated slowly, like a giant balloon. Everyone moved closer to the sphere.

Suddenly, out of the trees, Dan spotted the saber-toothed cat. The ferocious hunter escaped the tree line and bounded across the snow. Dan tried to shout, but it was hard to hear above the crackling electricity. He pushed Chris and his end of the stretcher back with all his might. Just as the beast pounced, the portal fully materialized, with one of the device’s metal ribs appearing directly in front of the smilodon’s head. With a sound louder than a crashing car, the moving cat met immovable steel.

Dan fell backwards. He blinked to clear his vision, and saw the exposed pipes and fluorescent lights of the warehouse room. “That was an intense hallucination,” he thought as he grabbed a beam to help himself up. Then he saw the formerly convex beam was pushed decidedly inward.

\* \* \* \* \*

Daniel Passar decided his perfect course was to stick with modeling risks, not taking them. He and Chris never talked about that February day, and neither did anyone else in the company, although an envelope with a nice cash bonus appeared in his desk soon after.

Two months after things had returned to normal, the staff of Buckhead Risk Analysis was celebrating the conclusion of another big project. Ron Stossel and Heather Harland led the celebration, and after dinner and drinks came the traditional raffle. Each of these raffles held desirable goods as well as hilarious tacky gifts. Chris proudly displayed a hideous ceramic hippo in his office, one of the latter kind of gifts. Alternately eagerly and with dread, Dan listened for his ticket number to be drawn.

“And next we have a collectible item,” announced Ron, holding up a nondescript box.

“And unlike the last one, you’ll actually want to collect it,” added Heather. She reached in to the basket and pulled out a ticket. “8-4-3-4-9-8.”

Dan smiled. That was his ticket! He headed up to the stage, and opened the box. He almost dropped it when he saw what was inside.

“Dan Passar has just won a vintage Nashville Predators hockey jersey!” announced Heather. “Isn’t it just so appropriate,” she said, looking Dan in the eye and smiling, “for the man from Minnesota?”

“And we have one more to give away,” Heather continued. As Dan walked away from the stage, he caught the eye of Chris Tanner. He didn’t need to look at all possible futures to know who was going to win this prize.

## Death in Tent Rocks

By Jerry Levy

The conductor on the METRA train banged his ticket puncher on the metal railing for the upper level seats and loudly said, "Tickets." Matt Kadoby looked up from the *Chicago Tribune*, muttered an apology and showed his monthly ticket to the conductor. He had been reading the preview of the football game between the Bears and the New Orleans Saints. The winner would play in the Super Bowl and Matt was daydreaming about the last time the Bears were in the championship game. Fantasy time's over, Matt thought and turned to the business section. As a consulting actuary specializing in pension plans, Matt routinely looked for articles about his clients or issues affecting retirement policy. One in particular caught his attention.

WASHINGTON (Associated Press 1/19/07) – "Federal Reserve Chairman Ben Bernanke warned Congress on Thursday that the economy could be gravely hurt if Social Security and Medicare aren't revamped and urged lawmakers to tackle the nation's thorny fiscal issues sooner rather than later. 'If early and meaningful action is not taken, the U.S. economy could be seriously weakened,' Bernanke said in testimony to the Senate Budget Committee."

Twenty Years Later in Placitas, New Mexico

Paul Soder woke up smiling from the dream he'd programmed the night before. Making love to Magdolna was like biting into a ripe peach. He fingered the implant behind his right ear. It was a little sore but well worth the discomfort if it could bring back such vivid memories.

The Personal Audio-visual Device, marketed as ImPad, was the fourth generation of implants. The first was mandated following the discovery of a suitcase atomic bomb near the Lincoln memorial. Although the bomb failed to detonate it was a workable prototype. A few weeks later, Congress introduced a bill to require a permanent ID for every US citizen. It was the most controversial legislation in the country's history.

Paul made his usual breakfast of multi-grain cereal, banana and skim milk. The pleasant dream made him smile and reflect on the early days with Magdolna. He washed the breakfast bowl and spoon and fingered the implant. Water dripped down his cheek. He thought of the last time he had been to Tent Rocks on the Cochiti Pueblo, when it had started to rain, and they had sought shelter in one of the shallow caves. "This would be a good time to go back," he said to Magdolna's picture on the kitchen counter.

After a quick shower, Paul made a sandwich and put it in a daypack along with a couple bottles of water, an apple, a wash cloth and his own blend of trail mix. He grabbed his cell phone and car keys and was on I-25 in ten minutes. The rainy season this year had been wetter than most years he could remember. The gray highway cut through the browns of the desert that was covered with the green of cholla cactus and piñon trees.

Paul turned off at exit 259 for the Cochiti Lake recreation area and passed the reservoir. Magdolna had always wanted to drive along the rim and look at the artificial lake the dam created, marveling at so much water in the middle of a desert. At the turnoff for route 22, Paul drove into Pena Blanca. The Rio Grande flowed from the reservoir into ditches that followed the road and irrigated the land. Magdolna would have wanted to

stop and buy something from one of the roadside vendors. They used to joke about the first time they saw the homemade sign offering piñon nut goat cheese. Magdolna thought that would be a great addition to their picnic lunch. They all had a good laugh when the old man explained it was nuts and cheese sold separately, and not mixed together.

The daydream almost made him miss the next turnoff at the water tower painted like a drum. Tribal Route 92 soon turned into five miles of dirt road that kept his speed under 30 miles per hour as he dodged the pot holes. Paul parked the Jeep at the entrance to the park and put on the daypack. It seemed heavier than usual. The physical decline was what he most disliked about getting old. Not being able to hike as far. That and always making sure he knew where to find a bathroom. Good thing this area was maintained by the Feds. That meant the restroom would be relatively clean. After relieving himself, Paul walked through a small grove of piñon trees that led to the trailhead.

Tent Rocks still gave him a good feeling. The cone-shaped rock formations were almost a 100 feet tall, standing at attention in front of steep cliffs. Volcanic activity from the Jemez Mountains resulted in layers of soothing beige and pink. Paul started to sweat and felt it trickle over the area of the implant. The technology had developed rapidly after the first generation, which was required solely for identification. Seeing an opportunity for a huge market, Apple developed an application that played music. That's why most people chose to have the implant behind one of their ears. The early version required ear buds that picked up the signal from the implant. Then the bio engineers got involved and figured out a way to send the sound through the nerve paths and ear buds were no longer needed. The newest version of ImPad was as thin as a postage stamp and 1/16<sup>th</sup> the size.

Paul made his way slowly along the trail. His legs ached and he swallowed a few tabs of ibuprofen anticipating that they would start to swell when the trail got steeper. He stopped in one of the ravines that was sheltered from the sun. Over millions of years, the wind and rushing water had smoothed the pumice rock into rounded contours. This was one of Magdolna's favorite spots. She would run her hands over the soft stone and wonder what people and animals had walked here thousands of years ago. Paul was the pragmatic mathematician. His questions were more about the forces that could carve such beauty. She would tease him about his scientific callousness and he would get argumentative. Then she would smile and hug him, laughing at his stuffiness.

Paul continued along the trail dreading the next part where it started to rise. He had to stop every five minutes to catch his breath and swallow some water. If it got any hotter, he would have to turn around. He took off his hat and wiped his head and neck with the wash cloth. The cotton material was soft but it still irritated the skin over the implant. Magdolna always scolded him for not upgrading when newer versions were developed. He wasn't much for music he told her so the second generation was of no interest. When the third generation had video capability, she thought he should try it. I don't need a new gadget, he had said. She told him how convenient it would be to watch a video. All he had to do was program the ImPad and close his eyes. Still he resisted. I'm a retiree on a budget he had said. The monthly Social Security check only goes so far. She smiled, shook her head and told him he was a stodgy old guy who she loved despite his old-fashioned ways.

He was practically crawling now. Had the trail always been so steep? No, he was an old man on a hike meant for younger people. Magdolna had always gone ahead and

helped him climb up this part. After a few minutes he took a few breaths and climbed to the top of the bluff. He walked to the edge and looked down at the tent rock formations, which appeared to be lined up like so many obedient soldiers blindly following an order that would never be rescinded. Then he jumped off the cliff.

Matt Kadoby was eating breakfast on the patio in the shadow of the Sandia Mountains when he read the email about Soder. "What was the old man doing in Tent Rocks?" he asked Lola as he tossed her a breakfast treat. The phone rang and he picked up the cordless expecting to hear Pearl's voice. She wanted to drive into Santa Fe for a gallery show by one of her favorite artisans.

"Matt, glad I caught you, this is John. How the hell have you been?"

"John, still protecting my Social Security benefit? I don't want to hear the fund is bust when I cash in my chips."

"I got yours in a special account, Matt. It's called the Kadoby Texas Hold 'Em Fund. I assume that's where most of your money goes. Or have you decided to invest in something safer, like casino futures?"

"I haven't been in a casino for at least, let's see now, about the better part of a good day and a half. Someone has to carry on the work that Javros started."

"A better math professor than gambler, may he rest in peace. Listen, Matt, can you spare a few weeks to help me on a special project?"

"The protector of the people's pensions wants my help? Is there a talent gap in DC? Can't get any promising young actuaries to devote their lives to public service?"

"It's not like when we were students at Illinois. Fewer actuarial science majors are interested in pensions; most of the action is in risk management."

"John, what could be more risky than the present state of Social Security? Speaking of Illinois, I was reading an email about Professor Soder when you called. The old guy was walking around a national park and must have slipped because they found him at the bottom of a cliff."

"What an awful way to die, the poor bastard. Didn't know he settled in New Mexico. Were you in touch with him at all?"

"Not since Javros died. He and Pearl used to play bridge once in a while with Soder and his wife. I would sub if Pearl wasn't available."

"Well, I'm sorry to hear he's dead, even though he kept me from graduating Bronze Tablet at Illinois. One lousy B and I fell below the cut-off. I told him I was sick but he wouldn't let me make up the test. Not that I still harbor a grudge or anything."

"Sick? I thought that was a hangover."

"Maybe that was it. Anyway, I need you to look over my shoulder and help prepare a report to the Commissioner of Social Security for Congressional hearings. We want a third party peer review, someone who doesn't work inside the Beltway. Will you do it?"

"If Pearl will take Lola. I don't want to leave her at a kennel. The last time I tried that, she wouldn't eat and Pearl had to pick her up. When should I be there?"

"As soon as you can. Congressional testimony is next month, so we need some time to prepare. Email me your flights and I'll have a car pick you up. And give my best to the lovely Ms. D'Allesluze, you lucky rascal."

"Thanks, John, I will. If everything works out, I'll be there in a few days after the funeral. Hang in there. The cavalry's coming."

“You bet. Safe travels.

Matt hung up the phone and looked at Lola. “Don’t look so sad. I know Pearl spoils you.” He grabbed a notepad near the phone and made a list of things he had to do. Number one was call Pearl. Number two was send flowers to the funeral home.

It was near closing, almost 10:00 p.m. and only one table still had players at the Rock Creek Go Club. It was the odd pairing that had attracted the other players to watch the outcome. Cheng, the graduate student from George Washington University put a white stone on the board and leaned back in his chair. He was worried that this old lady would actually beat him. Shit, he thought, so that’s why Kwan invited him to this club and introduced them. This was another one of those lessons in humility. He looked at her concentrating on the next move and wondered who she was.

Helen Mula, the retired chief actuary of Social Security, smiled to herself. She was starting to worry her young challenger and that would give her an edge. He had underestimated her like so many others. It started when she chose to pursue a career that was dominated by male mathematicians. At first the bias against women was frustrating. Then she noticed that a woman of equal intelligence threatened the boys. That realization made all the difference. She put a black stone on the board and looked confidently into her challenger’s eyes.

Cheng looked at the board and made a conscious effort not to frown. He was definitely losing the battle and had to do something decisive or he would be buying Kwan’s dinner. Cheng slapped a stone on the board and crossed his arms. “You are a very good player, Helen. Who taught you to play Go?”

Helen rocked her head from side-to-side so that her long earrings hit the side of her neck. Each earring was five little pieces of hematite made to look like Go stones, threaded on a thin black cord. “You are also a fine player, Cheng. I learned many years ago from a master who was assigned to the Chinese consulate.” And who eventually became my lifelong companion, she thought to herself. Helen put her elbows on the table and cupped her face with her hands. Her fingers touched the area of her ImPad implant. She would program another dream tonight about those early days. Focusing on the board, Helen put down a black stone and picked up two white ones.

Cheng pressed his fingertips together and tapped his upper lip. “I don’t think I can improve my position, Helen. I resign and hope one day we can have a rematch.” Cheng offered his hand in congratulations.

“I will look forward to it,” Helen said. She got up, nodded to the other members and left the Club. The drive along Rock Creek was always soothing. Helen replayed the game and smiled with satisfaction at the victory. The old girl’s still got it; now for a hot bath and a trip through time, courtesy of ImPad productions, she thought. Helen turned onto Connecticut Avenue and pressed the accelerator. The speedometer was past 90 when she drove over the grass and crashed into a tree.

Matt was in a taxi when he read the article about Helen Mula. The speculation was that she had fallen asleep while driving. He put the newspaper aside thinking that he would have to ask John about Helen. The taxi passed the National Academy of Sciences. Matt saw the statue and couldn’t help but think of Javros. His friend had kept a large color poster of Albert Einstein in his office. Where the statue gave the great scientist an avuncular look, the poster was an early picture in which Einstein appeared to be challenging the universe. That’s what John had always wanted to do—challenge the

status quo. Now he was in a good position to do it, but Matt wasn't so sure that anyone would listen.

The taxi driver looked in the rearview mirror. "Excuse me, sir. I notice the address you gave me is for the office of Social Security Administration. May I ask you a question?"

Matt read the driver's name from the license posted on the glove box. "Are you by chance from Ethiopia, Abebe?"

"Yes, do you have relatives there, my friend?"

A man with a sense of humor, Matt thought. "No, but I am a fan of your food and marathon runners. What would you like to know?"

"Yes, I was named for Abebe Bikila. My father trained for the Olympic marathon, but sadly never made it. Listen, I read that Social Security is going broke. I am paying a lot of money in Social Security taxes. I wonder if there will be anything left when I retire and want to collect my fair share?"

It was a common question and one that Matt had heard his whole career. "Don't worry, there will be something when you retire." It was Matt's stock answer. Something he said automatically, but lately with less conviction.

The taxi stopped and Matt pulled out his wallet. "Is Meskerem still the best Ethiopian restaurant in DC?"

"Not as good as my wife makes, but best for tourists. Be well my friend."

"You, too." Matt handed the driver some bills and wondered if he should really be telling people not to worry. He turned from the smiling taxi driver and looked at the large building with several tall pillars in front. It reminded him of tent rocks and then Soder's death. Matt shook his head and then walked up the steps. The columns were likely meant to inspire confidence, but seemed less impressive today than in past visits.

John's aide helped Matt through the layers of security. The image of the suitcase bomb still troubled many government workers. That was probably another reason John had difficulty attracting entry level actuaries to D.C. As they walked through the halls, Matt noticed that there seemed to be a lot of empty offices. He imagined the department had been hit by budget cuts, the result of campaign promises by the current administration.

John was on the phone when they entered his office. He motioned Matt to have a seat on the sofa near his desk and nodded to the aide in dismissal. Matt picked up a copy of an actuarial publication called *Contingencies* that was lying on the coffee table in front of the sofa and sat down. The featured article was an interview with John about the fate of Social Security. His candid remarks had led to the congressional hearings that were scheduled next month. John finished his conversation and hung up the phone like he had just received good news. "Matt, welcome to the bastion of bureaucracy. I was just talking with a colleague at Homeland Security. We're all going to have dinner tonight unless you'd rather cruise the hotel bar for some feminine companionship."

"Not likely, John. How about Meskerem, or will she object to eating with her hands?"

"No, no, that's great. I haven't been there since the last time you came to town. Hey, I didn't say if it was a he or a she."

Matt stood up and extended his hand. "It was the way you said colleague, you old rapsallion."

“You got me. Her name is Lucinda. I’ll introduce you later tonight. Meanwhile, you can set up in the office next door—that putz went into consulting, not that I harbor a grudge. I thought we’d start by reviewing the projections. You know my predecessors have been forecasting that the social security fund reserves would run out in twenty years. But I think that was optimistic. People are retiring sooner and living longer.”

“I would have thought most people haven’t saved enough to retire early. That, or the shortage of gray-haired talent would keep them working.”

John shrugged and looked agitated. “They’re working, but only part time. They need that Social Security benefit to live on. Not only that, but the so-called labor shortage you wise-ass consultants kept predicting never really panned out. Too many jobs were replaced by technology improvements, outsourced to third world economies, or eliminated in the continuing saga of merger mania.”

Matt looked at the photo of John in the *Contingencies* article. It showed him with that feisty look that got him in trouble with authority. He pointed to the magazine. “Yes, I remember that quote and other iconoclastic remarks that had a few Congressman on the defensive. Is that why you’re being called on the carpet?”

“Look, we’re already in hock for Medicare hospital insurance payments. That fund went under a few years ago. When, not if, the Social Security fund goes bust the strain on the economy will be devastating. The stock market will take a big hit and you can expect your taxes to go up—again. Try and sell that package to Congress.” John’s voice had been rising as he spoke and the last sentence was an angry shout. “We need the final solution, not these interim band-aids.”

Matt held up his palms. “Easy, pardner. I’m just the new schoolmarm from out West on her first day in the big city. You don’t have to convince me.”

“Sorry, Matt. I’m a little prickly about this. Let me give you the forecasts and assumptions. You look them over and we can chat over lunch, my treat. Here are the log-in protocols and temporary passwords. You’ll have to pick new ones so think of something cute before you log on.”

Matt left John’s office and walked into a much smaller one. At least there was a window. No view of a mountain, he thought, just huge man-made constructs of concrete, stone and glass. What the hell did I get myself into? He set up his laptop and focused on connecting to the network. Then he downloaded the forecasts.

It took Matt a lot longer to get through the material than he had hoped. Twenty minutes went by and he was still on the first page. The conversation with John and the angry look on his face were all he could think about. Matt closed his eyes and massaged his temples. Something about the conversation bothered him. “Time to focus,” he said and opened his eyes. The rest of the morning was more productive as he read through the documentation and took a few notes. Just before breaking for lunch he reviewed an internal memo from Helen Mula to John. It was odd that John hadn’t mentioned her death. He printed a copy and turned off the laptop.

John was talking to his aide when Matt walked in. “Matt, I was just about to order lunch. You still eating that rabbit food crap or do you want a man’s lunch, something to clog your arteries like a burger and fries?”

“Caesar salad would be good, with chicken if they have it.” The aide nodded and left the room. “You must be a real slave driver John. Your aide is always in a hurry and acts like she has no time for small talk.”

“She’s a little quiet, but great legs and devoted to me. I like that in a person. So tell me. What do you think of the new projections?”

“Before we do that, I read this morning that Helen Mula was in a fatal car crash. I’m curious that you didn’t mention it. Did you know her well?”

“I did, Matt. In fact I’m going to pay a condolence call before dinner. Did you want to come?”

“Thanks, but you go ahead without me. I brought it up because of a memo she wrote about the prior projections. From what I gather, you wanted to revise them based on the recent retirement and mortality experience, but she wouldn’t let you. Looks like you were ahead of your time.”

“I pleaded with her, Matt. At the time we really didn’t have enough data to call it a trend. Well, now we have the data. And it’s a dead solid certainty that at the rate people are retiring and collecting benefits, the fund is going under a lot sooner than previously communicated to the Commissioner and the public.”

They worked through lunch and the rest of the afternoon reviewing the results and then drafting an outline for the congressional testimony. John left to pay his condolence call and Matt went back to the hotel to call Pearl and take a nap before dinner.

Meskerem hadn’t changed much since the last time Matt was there. He walked into the restaurant and the welcome smell of watta, a stew that had many variations. It might include lamb, beef or chicken, mixed with vegetables, and seasoned with berbere, an Ethiopian red pepper. The hostess showed him to a table where John and Lucinda were already seated. They had obviously been there a while. The hostess picked up a bottle of wine in front of John and made sure it was empty before removing it.

“Matt meet Lucinda, the prettiest bad ass at Homeland Security. Lucinda, this is Matt Kadoby, the envy of lonesome cowgirls everywhere.”

Matt shook Lucinda’s hand and looked at John. “If Ms. D’Allesluze were here, she’d politely remind you that she was a championship rider. Then she’d kick your butt.”

“I’m used to his chauvinistic comments, Matt,” said Lucinda. It’s wonderful to finally meet you. Great dinner suggestion, I haven’t been here in a while.

The waitress came with menus and four glasses of Saba Tej, the honey wine indigenous to Ethiopia that some say was served to the Queen of Saba, now known as Sheba. John picked up a glass. “Here’s to finally solving Social Security’s problems.” John watched the waitress as she walked towards the kitchen. “That or I’m devoting my life to Ethiopian women. How do they move their hips like that?”

Helen grabbed John by the chin. “It’s the food—I’ll show you later tonight. Now be a good boy in front of company. Matt, how was your first day? Did John even think to buy you lunch?”

John grabbed all the menus. “I’ll order for all of us. Luce, I treated Matt to the best Caesar salad in DC. Just like we used to have at Henry Afrique before that nut-case blew up the place.”

Matt looked at Lucinda. “Wasn’t that the first reported case of a suicide bombing in DC? Seems like things changed dramatically after that, all the increased security and then the ID implants.”

“It was, Matt. I know the implants are unpopular, but Congress decided they were necessary. Besides, look at all the benefits of the upgrades that Apple developed. They can’t keep the ImPad in stock. The seniors are waiting in line like teenagers.”

The waitress came back. John ordered enough food for four people and a bottle of Gouder, an Ethiopian dry red wine. Lucinda watched John eye the waitress as she turned and left the table. “The children of the seniors like them too. They have a GPS function so they can keep tabs on Grandpa if he wanders off. You know about the wandering, don’t you John?”

“What, Luce? I was focused on giving our order to the waitress.”

“Well keep your focus at eye level. As I was telling Matt. The new ImPads are a godsend for the elderly, particularly patients with Alzheimer’s. You know John suggested Paul Soder get one for that reason when he called him a few months ago. What a horrible accident.”

John picked up his glass. “Here’s to technology, may it finally be the end-all and be-all it was meant to be—or not to be. Geez, I sound like a freakin’ poet. Where’s that waitress my glass is empty. A drink, a drink, my Social Security kingdom for a drink.”

Lucinda put a hand on John’s shoulder. “If you continue to botch the bard, I’ll have to make an arrest in the interest of home-literacy security. What about the benefits of the upgrade, Matt; aren’t you interested in dreams-to-order?”

“I’m living my dream in New Mexico with Pearl, but I must admit the idea of programming one’s unconscious thoughts is intriguing, but also a little scary. Suppose the wires get crossed and you have the world’s worst nightmare?”

“Well, no one’s complained yet that I know of,” said Pearl. “And Homeland Security is very pleased with the program. We have had almost no incidents of terrorism since the ID program went into effect. The President’s approval rating is at an all-time high and so is support of Homeland Security. We’re no longer viewed as a pariah.”

The waitress came with the bottle of Gouder and new wineglasses. When she reached over the table to fill John’s glass he whistled softly. Lucinda elbowed John and he mouthed, “what?”

Matt took a sip of the wine and looked at Lucinda. “I’m curious about the GPS functionality. Doesn’t that mean Homeland Security can keep tabs on us? Doesn’t the ACLU object?”

Lucinda stopped smiling. “It does, Matt, but it’s now the law of the land. Besides, there’s a policy not to use the GPS capability unless there is probable cause. It’s no different than getting a wiretap. A judge has to approve it.”

Unless it’s in the interest of homeland security, Matt thought but didn’t say. “What else can it do that the public doesn’t know about or is that too sensitive...?”

John interrupted, “We are such stuff as dreams are made on and our little life is rounded with a sleep.”

A busboy arrived with a large round platter of food and set it in the middle of the table. Lucinda tore off a piece of injera, the spongy sour-tasting flatbread that lined the tray of food. She used the injera to scoop up some of the wat. “Not to be rude, Matt, but I have to mind what I say here.” Lucinda used her hands for emphasis and some wat fell in her lap. She giggled and Matt thought she might be a little drunk. “The fortunes of homeland security are at risk. Suffice it to say that we’re testing the possibility of transmitting in addition to receiving.”

Matt woke up the next morning with a mild hangover. They had drunk three bottles of wine on top of the Tej. That was enough for him, but John and Lucinda had ordered several rounds of after-dinner drinks. John looked like he was suffering for his

indulgence and had difficulty concentrating as they reviewed the outline for the congressional hearings.

“Matt, we have to scare the bejesus out of these wonks. I need a mandate to reduce Social Security benefits so there’s enough to go around when we retire. I don’t want you crying on my doorstep that you need a couple extra bucks until your next check.”

“Thanks, John, it’s comforting to know that I can rely on your generosity and good will. I told Pearl that underneath that gruff exterior lies a heart of pure malice.”

“Yeah, Luce thinks that’s one of my strong points too. So do you agree with these projections and assumptions of when the social security trust fund reserve will run out?”

“They present a strong case for someone who will listen to reason, but these are politicians. Do you think a seven-year acceleration is sufficient to get any action?”

“All we can do is try and hope this work will make us free to do what’s right.”

They spent the rest of the day drafting the summary for the public and the more formal summary for the hearings. On the way back to the hotel, Matt’s taxi passed the Holocaust Memorial Museum. The tall limestone walls reminded him of the cliffs at Tent Rocks and of Soder and then Lucinda’s comment about John talking to their old professor a few months ago. Matt was pretty sure John had told him that they hadn’t spoken in a few years. It was odd that John had forgotten, but he was certainly preoccupied with the hearings.

Later that evening on the plane, he picked up a copy of *Hemispheres*, the United Airlines magazine. One of the articles was about the growth of the ImPad and suggested over 10% of AARP readers had the latest version. That was a staggering amount of sales in a short amount of time. The sales projection for the next 12 months was to increase that to 20%. Matt put down the magazine with a frown. He remembered Lucinda’s cryptic comment about transmitting and receiving. What civil liberties would be sacrificed under the guise of homeland security?

The Social Security debate intensified over the next two years and the administration’s attempts at reform became contentious. John was often quoted in the media but significant change looked doubtful. In their frequent phone calls John lashed out at Congress but overall appeared cheerful and optimistic. The last time they spoke, John said, “The final solution is near and national social interests will be well-served.”

A few months later Matt was at Tent Rocks with Lola. He had climbed to the top of the cliff where Soder had fallen. He sat beneath a manzanita tree; its red bark was a stark contrast to the muted colors of the rocks. Matt’s right hand held Lola’s leash as she sniffed the rocks. In his left hand he held a printout of some articles from *Contingencies*. One was a report on Social Security. The status of the trust fund was more optimistic this year due to favorable mortality experience. That meant there were more deaths than expected by the assumptions. The other article was a research project by a graduate student in demography. The author had analyzed different causes of death among the elderly and had stumbled across a recent anomaly that was off the charts. The paper presented several different alternatives for the odd result, but none of them seemed to provide an adequate explanation. The incidence of suicide among the elderly over the past three years had increased at an alarming rate.

Lola licked Matt’s face, but he hardly noticed. The thought that these articles were somehow related was so monstrous, so horrifying, that Matt shook his head in

disbelief. John's final solution for Social Security must be more than a poor choice of words with an infamous connotation for genocide.

Vera Goodwing was a recent resident of the assisted living home near George Washington cemetery. Almost ninety, Vera had struggled to be independent of her children and not be a burden. She tried to live on her Social Security check, but years of inflation and the high cost of prescription drugs finally put her in the red each month. Her children convinced her to move into subsidized housing.

Vera looked at the veins on her hand as she emptied the pillbox into her bowl. The veins were like a roadmap of her life. Last night she had traveled some of those roads again courtesy of her ImPad. Her hand shook as she mashed the pills in the applesauce. She brought the spoon slowly to her mouth and took a bite as she watched her favorite soap opera. By the time the program ended Vera was sleeping.

The medical examiner for the District of Columbia put down her cup of coffee and picked up the file on Vera Goodwing. The cause of death was clear, but was it an accidental overdose or suicide? She read through the summary again and seemed satisfied. She would rule suicide. The thought it might be murder never entered her mind.

## The Disposable Man

The Technology Team has implemented a new analytical tool into the data mining facility. It's the sort of thing that only a math major could truly love. The raw data is first converted into a holographic representation. This makes it very convenient to store everything on a CDROM, but that is only the first step. The second step is to apply a Fourier transform on the holographic file. Then the transformed file is used for a statistical regression. Now, Lori Petocelli, A.S.A. selects "claims" and out pops a list of names.

At first look, Lori was unable to explain just what it was that these names had in common, nor how they differed from the total list of names on policy claims. So, for the time being, she treated the list as a random sample. She gave the list of names to the underwriting and claims staff, who began doing their own investigations.

There was something about the list of names that troubled Lori. She had seen one of them recently on the obituaries page. Andrew Alexander. She had noticed it because the address was on the same street where she lived. The brief obituary did not mention any services, but asked that donations be sent to Biocellular Research – an organization that Lori had never heard of before.

Call it a hunch. She decided to hire her college friend Cameron Clark to dig into it. At home that evening, she pulled up the obituary online and printed it out. On Saturday, she took the printout and went to see Cameron. It was a gray, drizzly day in February when Lori pulled off the freeway at the NE 45<sup>th</sup> St exit.

Something about Lori's question sparked his interest. Most of his clients were looking for something more specific – such finding Joe who had moved away without paying Tom the money he owed, or investigating the sexual activities of a spouse.

This was like a mystery novel – Cameron's preferred reading material. He launched into his usual spiel about how he could not guarantee to find anything, and added some caveats about not even being able to estimate the time involved until he did some preliminary work. He continued, "Lori, you and I have been friends for a long time, and I hope you won't mind some frank talk about money. I can dig into it during the next three weeks for my usual flat fee. At the end of that time, I'll report back to you. There are a couple of possibilities. The most likely one, I think, is that everything to be found will prove a dead end. We'll just drop it at that point. The other possibility is that I can see some track to follow, and we can assess whether you want to extend the search, or just stop with whatever I found up till then."

Lori agreed, then asked, "What's the first step?"

Cameron mentioned three possibilities. First, talk to friends and neighbors to learn what sort of person he was, and what (if anything) they might know about his financial dealing, his enemies, etc. Second, review the death certificate and talk to the people at the funeral home. Looking for the same information, or ideas on who else to contact, including relatives. Third, try to find clubs or organizations he belonged to. This Biocellular Research organization might be a lead, but nothing else is obvious at this point. "It's important to remember the old adage, 'Follow the money.' But first I need to find the money trail."

The work of finding and tracking down leads was slow and tedious. There was so much routine data. Since Cameron didn't know exactly what he was looking for, he could only hope that he would recognize it when he found it.

He put on his trench coat to spec out the neighborhood. The Columbo connection sometimes got answers when he least expected them. It used to work better, nowadays so many people had never heard of Peter Falk.

One neighbor, a garrulous older woman, told him lots more than he really wanted to know. The trench coat didn't even come into play, she just liked to talk. She seemed to know every time people on her block came in or went out of their homes. Still, this kind of thing might contain a clue. She was now back on an incident about five years ago, in which an insurance agent had called on Mr. Alexander to sell him some life insurance. No, she didn't know how much or from what company. Cameron privately wondered how she knew it was life insurance, but he let that pass.

Now she was saying how odd it was. A year before that, he had been really worried about his health. Jaundice, she said.

Then somehow her mind flitted to the other side of the street. Miss Gurlock was obviously an alcoholic, and if she didn't get into AA pretty soon, she would probably either wind up with cirrhosis or else she would kill somebody while driving drunk. Cameron tried unsuccessfully to get her back on track. Finally, after hearing way too much about hanky panky on both sides of the street, he made his departure. Still, those last few tidbits might come in handy for a future client, so he filed those notes away, too.

The employer was another dead end. The wood paneled offices, high in the boxy First Bank building, seemed to be the workplace of good-looking androids (of both sexes) with no personal lives. The HR staffer, Ms. Pinkley, was happy to share any non-confidential information. However, anything that might have been of interest to Cameron was not to be found here. "Oh yes, he got along well with everyone. No special friends, no conflicts, a regular guy, no enemies."

He compared notes with his fellow private eyes at their regular Thursday night poker game. Joe Bean was checking on one of the administrative assistants at the same company, and he too had found nothing useful. He got the same bland comments from HR about his target, and even less from the three women who were friends of the admin assistant, and who also worked at the some company. Cameron made notes of three more people to call. But nothing came of it.

This was getting frustrating. And boring, too. Would Cameron be able to find any clues at all? Whoever heard of a person with no friends and no enemies?

Most of the time, Cameron ate microwaved frozen "healthy eating" dinners. But on Fridays, he cooked up a storm. Tonight, he stopped at Pike Place Market. Back in a dim corner was a seafood place. They had fresh salmon. He also picked up some farm-fresh herbs and vegetables. At home he blended a ginger teriyaki sauce and grilled the salmon, while stir-frying a mixture of bok choy, chard, onions, mushrooms, carrots and other winter vegetables. He kicked back on the weekend, but he was ready to start afresh on Monday.

The man at the Miller's Mortuary was a case of perfect type-casting. Tall, solemn faced, deep voice, gaunt and slow moving. Mr. Grey confirmed that there had been no services. Instructions had come in the mail from Mr. Howe at a law firm in the same building where Mr. Alexander had been employed. The body had been cremated, and the cremains sent to the law firm, who had paid the fees for the cremation and the death certificate. The funeral home had a death certificate on file, and Cameron wheedled Mr. Grey into letting him make a photocopy.

It said cerebral accident. Cameron knew that meant a stroke. And apparently he had arrived by ambulance from a 911 call. Cameron contacted the ambulance company, to find out who had called. He thought it might be that nosy neighbor, but actually it turned out that the call had come in from a pay phone down by the waterfront.

That afternoon, Cameron went down to see exactly where the phone was located. There aren't that many pay phones around any more.

It was drizzling, of course. His trench coat was actually useful in this weather. It was gloomy enough that the neon lights showed up brightly. A few sailors on leave were strolling around. He could smell the cooking oil from the nearby fast food stand offering fish and chips or fried clams.

Cameron noted a few ratty office building entrances among the pawn shops and taverns. One of them was right next to the "Best Hotel" sign, with intermittent neon in the letters H and O. He went in and saw a reader board list of tenants. 100A was called "International Gift Marketing." He could see matching gilt lettering on a door at the end of the hallway, past the elevators. It also had the name Mr. Lee, in smaller letters. He went down the hall, opened the door, and spoke to the bored receptionist. "I'm looking for Mr. Lee."

"He's not in," she replied without looking up from her long crimson fingernails. No, she had no idea when he would be back. She didn't offer to take a message, not that Cameron would have left one anyway.

Back to the elevator, time to try the second floor. 210 was Clive & Cowles, Bail Bonds. Cameron wondered if they had considered a name closer to the top of the alphabet as he knocked. No answer, and of course it was locked. Then he noticed a small business card with a new address scrawled on it. The office was no doubt empty.

Room 205 said "Medical Expediting Services" but the door was locked. He knocked but no one answered.

Back to the elevator, room 300. The window was unlettered, and cardboard covered it completely on the inside. All he saw was his own reflection, dim and brownish colored. Locked, of course.

Next to it, 310 was also labeled "International Gift Marketing." He could see that the room was filled with cardboard boxes, marked with Chinese characters, both printed and hand written in marker pen. He could also see that an interior door leading to room 300 was slightly ajar. Another locked door.

On the other side of the hall, 305 proclaimed "Save the Whales," "Wilderness" and "Clear Cutting is Clear Killing." All the signs appeared to have been there for twenty years. Inside, Cameron could see a desk with nothing on it but a telephone. The room was otherwise empty, and Cameron suspected that the phone was disconnected.

Cameron knocked, as he had at each locked door. He wasn't surprised when, again, no one answered.

He came back at various times for the next three days. There was no change in any of the locked doors. Mr. Lee had proved rather elusive, but Cameron finally caught up with him. It was another example of perfect type casting. He looked like Willy Loman as played by Dustin Hoffman. In a case of role reversal, he began pumping Cameron for leads. "Do you know of any stores that sell gifts, stationery, magazines?" Mr. Lee knew nothing about the call to 911. In fact, he seemed to know nothing at all except that he had a great product line.

The telephone book had not listing for Biocellular Research. There was a web site, with meaningless fluff about cutting edge biotechnology and promise of nano-tech solutions to the great problems of modern medicine. "Implantable devices for treatment of cardiovascular blockage" would soon be ready for clinical testing. No facts presented, no reference to any published work in the medical journals. The "contact us" generated an e-mail to a gmail address made up of numbers and letters. Cameron sent an inquiry about participating in the upcoming testing, but he didn't really expect an answer. It would probably just put him on another spam list.

The telephone book did have a listing for Medical Expediting Service. The ad even had a line that referred to the director, one V.J. Mornay, DO. But nothing useful came up for a search on Mornay. Even the doctor's listing service didn't seem to have him. A check at the license bureau turned up a license, revoked, but for some reason there was no date on it, nor any documentation of what had happened.

By now, it was Thursday again. Dr. Mornay, according to another private investigator, had been censured some years ago for improperly disposing of some gallstones that had been removed from a patient. It seemed a fairly trivial offense, and not in character as something to lose a license for, but nobody had any additional information on the subject. Cameron won the night's poker, a bonus he hadn't been counting on. Maybe his luck on the Alexander case was about to change.

Friday morning found him in the library, reflecting on the irony of trying to solve a murder mystery (if that's what he had) in the library. He found a three year old newspaper with a report on some sort of scandal. There were allegations of other irregularities, in addition to the gallstone incident – unauthorized surgery, false promises of "miracle cures," inadequate record keeping, etc. There seemed to be no evidence that Dr. Mornay was guilty of anything except the gallstone incident. His partner, Dr. Micah Allenthal, was completely exonerated. Editorial used the term "witch hunt." Then the story completely disappeared. Not even a letter to the editor during the following week. Cameron called for an appointment with Dr. Allenthal. Monday, 10:00AM.

He checked in a the seafood store at Pike Place market, and found steamer clams. Looking at a basket full of geoducks, he wondered about life. About why it was pronounced "Gooley-ducks." About how they grew so big. About what he would learn on Monday from Dr. Allenthal. He then stopped at QFC for a couple of lemons, and some artery-clogging butter and freshly grated parmesan cheese. Along with the claims in lemon butter, he enjoyed some classic pasta alfredo.

Dr. Allenthal was blond with a square face and a bluff, hearty manner. Cameron had schmoozed his way past the initial screening without disclosing the nature of his question for the doctor. He had not used his private investigator's license this time; he had a feeling that a bit of misdirection was called for. He explained that it was not his health that concerned him, but that of a friend. The doctor nodded as if to say that he knew there was really no "friend" but that the talk was simply to remain purely hypothetical. But he was cautious in his reply. "No, I don't think I can help. You know that organ transplants are strictly regulated, and that a person in need of a new liver must simply wait his turn. Of course, I could recommend an excellent surgeon at the University Hospital. Or perhaps your friend has already selected someone."

This seemed to be going nowhere. Cameron made one last attempt. "What is your former partner, Dr. Mornay, doing these days?" A shadow flitted across Dr. Allenthal's face, but he quickly controlled his expression.

"I don't see much of him anymore, but I understand that he has established a successful company that transports medical materials from one facility to another. His contacts in the medical profession are no doubt useful, even though he is no longer practicing medicine, of course."

Cameron was sure he would get nothing more out of Dr. Allenthal. Thanking him for his time, Cameron paid in cash at the reception desk for his office visit. He headed for home, thinking that he would soon have to call Lori with the news that he had found nothing.

Somehow, he was pretty sure that Dr. Mornay was doing illegal transplants. And that Andrew Alexander had gotten a new liver from him. If so, Alexander had certainly lied on the life insurance application. But Cameron still had nothing solid to go on. How did Allenthal fit in? What about Biocellular Research? Who had made that telephone call, and how did they know what an ambulance would find out in the Westlake district?

He needed another clue. He decided to call Mr. Grey at Miller's Mortuary. He asked him about the late Mr. Alexander. Had there been an organ donation? "Yes." It didn't matter much in cremation cases, but in this case someone had been gossiping, and Mr. Grey had overheard that Medical Expediting had been the contact. But even that was circumstantial. Cameron had to have a solid lead.

He checked his e-mail. To his surprise, there was finally a reply from Biocellular Research. It had an attachment.

It was an article, written in the 1990's. It was in the obscure, jargon-laden style typical of professional science journals, although no journal name was mentioned anywhere. The title was "Mechanisms of Repair in Atherosclerosis." It predated the use of the fad of nano- everything, so the abstract merely referred to ultra-small and micro-miniaturized. But the key was that this device was to be infused into the bloodstream, and then directed by an electronic pulse to the site of a blockage. It appeared to be purely theoretical. "More research is needed," it said, of course. But most interesting to Cameron was the author's names. Allenthal and Mornay.

And suddenly it occurred to him that he had one more connecting link. He pulled out his copy of the death certificate, and deciphered the scrawled signature. Micah Allenthal, MD. That was it, of course.

He now had enough information to go to the police. They could get access to information he could not, such as bank records. But he know what they would find.

First, Andrew Alexander would have been treated by Dr. Mornay. Five or six years ago, a large payment to him, to cover the surgery for the liver transplant. No doubt there were blackmail payments. The insurance policy was a brilliant variation. The attending physician's report would have been a pack of lies, but who would contradict it? Eventually Mr. Alexander would have grown tired of paying out. After all, revelation of what had been done would reflect adversely on Dr. Mornay, as well. But Mr. Alexander could not have known about the tiny devices still circulating in his blood stream. On a night when Allenthal was known to be on duty at the hospital, Mornay had triggered the Biocellular device, triggering a stroke. He had done it remotely, from downtown, then called the ambulance from there.

And the death completed the circle. Money from the life insurance, paid to Biocellular Research. More organs (other than the liver of course) for Dr. Mornay to use in illegal transplant operations. No obvious connections between Mornay and Allenthal, so their secret was still safe. Or so they thought.

He called Lori to tell her the good news. They would go out an celebrate. Her hunch had certainly paid off.

# **For Three Transgressions and for Four**

**By Ben Marshall**

**In loving memory of Rebekah Marshall**

Though the overhanging black expanse of a new umbrella kept the pouring rain away from Amos Jefferson's head, it could not keep his face free of the saline moisture that had formed about his ebony eyes. As he stood silently, the gusting October wind began to whip the raindrops sidelong at the lower extremities of his pants. Tilting his umbrella to compensate, Amos noticed that the dribbles of rain on his mother's tombstone had formed a rivulet. Nearly an hour had passed at the grave site during this twelfth annual sojourn back to Little Rock, with Amos alternately weeping and talking aloud to his mother's memory. As he watched the swelling stream of water, his thoughts turned to the last time that he had seen her alive.

\* \* \* \* \*

"You remember that time when you imagined that Talitha and little Kumi had gone off to fight in Iraq?" Amos queried his mother, Bonita Jefferson, about her two young grandchildren, his own niece and nephew, who had been mere tots during the time of her confusion. He gently massaged her right hand from the side of her North Little Rock Memorial hospital bed. Despite the residual impact of her recent stroke, Bonita snorted a hearty laugh of assent.

“You were in and out of reality for a long while back then. Who’d have think that a *bladder infection* could cause serious dementia like that?” Amos asked rhetorically. “Doctor Blevins said it poisoned your bloodstream, but it took ‘em forever to figure that out.” He watched his mother nod her recollection of the aftermath, though he knew that she had very few memories from the actual period of her dementia. Amos was thrilled to see that her long-term memory was still intact, notwithstanding the other obvious effects of her recent stroke. He tested the waters a little further.

“It was about that same time that you started comin’ up with all that nonsense about your friends at the nursing home dyin’ suspiciously.” He watched her eyes for a glimmer of remembrance, but instead saw the twinkle of mirth disappear. “What? You don’t remember that?” Bonita’s eyes closed, though whether in response or simply in repose, Amos could not tell.

For the next half hour, Bonita drifted in and out of consciousness, finally awakening fully when one of the hospital’s kitchen assistants delivered her dinner. Amos carefully and delicately spoon-fed her as he had done for each of her meals over the past several days. Because the stroke had made swallowing difficult for her, the main source of her nutrients was a protein-filled gelatinous dessert. As he was feeding her the gelatin, the shift nurse flounced into the room.

“How y’all doin’ today?” she questioned cheerily.

“Pretty good, pretty good – Momma’s a tough ol’ bird,” Amos responded, “She even likes this loaded Jell-o.”

“That’s pretty potent stuff,” quipped the nurse, “One of the kitchen staff sneaked that stuff for about six months and put on about sixty pounds!”

At that, Bonita's eyes lit up and she began to cackle with gusto. Amos could feel the bed quivering against his left knee.

Throughout the remainder of the evening, Amos continued to hold Bonita's hand as they reminisced together, laughed together, prayed together, and even sang together. Amos was amazed at the clarity of Bonita's articulation as she sang old hymns with him, especially given the slurring of her speech in normal conversation. He briefly stopped singing and simply listened, lost in the recollection of Bonita clad in a purple satin choir robe with yellow neckerchief, joyfully belting out praises from the platform of his childhood church. He fought back the tide of emotion that threatened to sweep him out to a sea of forlorn expectations. He knew that Bonita needed his strength now more than ever, but he knew that his strength alone was not sufficient.

As the time drew near for Amos to return to the airport, he drew out his Bible from his briefcase. With his mind on Bonita's difficulty with swallowing, Amos turned to the sixth chapter of the book of Matthew and began to read from the 25<sup>th</sup> verse: "For this reason I say to you, do not be anxious for your life, as to what you shall eat, or what you shall drink; nor for your body, as to what you shall put on. Is not life more than food, and the body than clothing? Look at the birds of the air, they do not sow, neither do they reap, nor gather into barns, and yet your heavenly Father feeds them. Are you not worth much more than they?" Amos felt a gentle squeeze from Bonita's hand, and observed a serene smile on her face.

"It's time for me to go, Momma," whispered Amos, his voice unable to find power. He managed a smile, and saw unrestrained love in her eyes as she beamed back at him. "I love you, Momma – I'll see you at Thanksgiving." He leaned his cheek against

her face, embracing her fondly before kissing her gently on the forehead. She squeezed his hand one more time and smiled from her eyes before he turned toward the door to leave.

\* \* \* \* \*

“Your attention, please – please direct your attention to the flight attendants at the front and midsections of the cabin as they direct you in our pre-flight safety instructions,” the automated voice droned over the intercom. Amos roused from his restless slumber, but his attention was not drawn to the obligatory spectacle of seat-belt demonstrations. His mind instead wandered back to the same Little Rock to Washington flight after the days spent with his mother in the hospital twelve years earlier. That time, his worries had been directed toward Bonita’s expected long road to recovery. Little had he realized that she would die suddenly and – to him, at least – unexpectedly, merely three days later, shortly after being transferred back to her Pine Bluff nursing home residence, just down the street from the apartment of his brother Hosea. Amos had been on the phone with his brother Joel, who lived in California, when the grim call from Hosea – Talitha’s and Kumi’s father – had interrupted on Joel’s cell phone, announcing Bonita’s demise. His airline tickets for a joyous return trip to Arkansas at Thanksgiving were converted into a heart-wrenching trip back for his mother’s funeral.

Amos was no longer the aspiring young businessman that he had been when his mother had passed on. His career as an actuary had blossomed over the last several years. Regrettably, he had not had the satisfaction of seeing his mother’s reaction when

he had obtained his fellowship in the Society of Actuaries. An achievement in itself, the designation carried even more significance for Amos, an African-American who had been raised by his widowed mother in impoverished circumstances. Now – the fall of 2022 – he was in charge of an entire division in the Office of the Chief Actuary (OCACT) at the Social Security Administration (SSA). Amos felt that he should be at the peak of career satisfaction. Instead, his work seemed to carry little genuine significance. Somewhat daunted by the fact that he was now older than his late father had ever been, and troubled by the sense that he had no legacy of his own – no wife, no children, no purpose – he sometimes wondered if he should have followed in his father’s footsteps as a Baptist minister. Thoughts of career alternatives meandered through his mind as Amos drifted back to sleep...

\* \* \* \* \*

“I still have a dream...” Amos heard the booming baritone voice of Dr. Martin Luther King, Jr. resonating from the steps of the Lincoln Memorial in Washington, D.C., somewhere deep in his sleepy subconscious. Amos’ father, Walter Jefferson, had participated in the March on Washington as an angry young teenager. As an adult, Walter had become a man of gentle persuasion, teaching Amos that anger reflected a perception of injustice, serving to warn us that we needed to fix the perception or fix the injustice. He had often spoken to Amos of the impact that Dr. King had had on his thinking from that historic late August day in 1963 onward. Walter – like his icon – had died all too

young. Walter succumbed at age 41 to a massive heart attack, several years before Amos entered his own angry teen years.

The sweltering heat of Amos' dream was stifling, and he perspired profusely as he twisted in his reclined airplane seat. His subconscious rolled forward.

"I have a dream that one day this nation will rise up and live out the true meaning of its creed: 'We hold these truths to be self-evident: that all men are created equal.'"

With that cue, Amos' subconscious rocketed backward in American history. He found himself standing beside Thomas Jefferson, from whom Amos' own surname had been derived. In Amos' dream, Jefferson was oblivious to Amos' presence, despite his close proximity. Amos was surprised at the American forefather's delicate, porcelain-like facial features, contrasting with the square-jawed hero who has been portrayed on the front side of each American 5-cent piece minted from the days of the Buffalo Nickel forward. Amos moved behind Jefferson and peered over the patriot's shoulder. He watched him scrawl with his quill pen through a line in the third paragraph on the parchment page: "We hold these truths to be *sacred and undeniable*: that all men are created equal..." was replaced with "We hold these truths to be *self-evident*: that all men are created equal..." As Jefferson's scribbling of changes continued, Amos watched a still sacred theme emerge: "...that they are endowed by their Creator with certain unalienable Rights; that among these are Life, Liberty and the pursuit of Happiness..."

Amos' cranial motion picture careened further back in time. He found himself in ancient Israel, circa 750 B.C., in the city of Beth-El, listening to a bearded shepherd from Tekoa, a town further south in Judah. In his dream, Amos was inexplicably able to understand the Hebrew tongue spoken by the nomadic prophet who shared his first name:

“Thus says the LORD, ‘For three transgressions of Tyre and for four, I will not revoke its punishment, because they delivered up an entire population to Edom, and did not remember the covenant of brotherhood...’”

“Thus says the LORD, ‘For three transgressions of Edom and for four, I will not revoke its punishment, because he pursued his brother with the sword, while he stifled his compassion...’”

“Thus says the LORD, ‘For three transgressions of the sons of Ammon and for four, I will not revoke its punishment, because they ripped open the pregnant women of Gilead in order to enlarge their borders...’”

“Thus says the LORD, ‘For three transgressions of Israel and for four, I will not revoke its punishment, because they sell the righteous for money, and the needy for a pair of sandals...’”

“But let justice roll down like waters, and righteousness like an ever-flowing stream...”

\* \* \* \* \*

At that moment, the plane lurched with turbulence. Amos, suddenly wide-eyed, found himself reaching for the airsick bag in the cloth flap behind the seat in front of him. He retched violently, not sure whether from the bumpy ride or the frightening scenes evoked by the prophet’s vivid incantations near the tail end of his dream.

Able to regain his composure, amble to the restroom, dispose of the bag, and get a drink of water prior to buckling back in for the plane’s landing, Amos weaved his way

through his mental checklist of things to do upon arrival. His emotional and physical exhaustion argued for grabbing his bags and heading home to bed, but other allegiances warred for his attention.

Despite finding that his annual visits to Bonita's grave increasingly left him disconsolate about the meaning in his career and his life, Amos still took his job seriously. Though the hour was now late, he decided to drop in at his office at OCACT, which had been re-located to Washington from Baltimore several years earlier.

"Hey there, Amos – you're back!" The genuine fondness that Sam, the night security guard, held for Amos was evident in his broad, neon grin. Amos returned the greeting as he approached the security desk and, after swiping his security card on the electronic reader, decided to invigorate his lethargic bones by climbing the stairs to his fourth floor office.

As he rounded a corner to the third floor landing, Amos was stunned to see the sprawling figure of Hugh MacKnight lying in a crumpled heap at the foot of the next set of concrete stairs. Amos clutched Hugh by his shoulders and shook him gently, trying to stir him to consciousness. Hugh's eyes opened, but could not seem to focus.

"Hugh, buddy – it's me, Amos! What happened to you?"

"Compression... of... the... distribution..." muttered Hugh slowly, his thick Scottish brogue nowhere to be found.

"Hugh – what're you talkin' about?" Amos pleaded. His eyes fixed on a cherry red, almost black, oozing wound near the crown of Hugh's burnished head. "Did you fall down the stairs?" Amos shuddered at the sheer stupidity of his question. There was no reply. Hugh's eyes closed once again.

“Hugh, listen to me – we’ve gotta get you to a doctor. Lie still and let me call 911.” Amos nearly swore as he fumbled the cell phone that he was extricating from his shirt pocket. After picking it up, Amos saw that there was no signal – a common frustration caused by the thickness of the building’s walls, but now looming as far more serious than the typical transient inconvenience.

“Crap,” muttered Amos. “Hugh, I’m going to get help. Stay there ‘til I get back.”

Amos bounded down the stairs to find Sam and quickly explained the situation. While Sam issued the emergency call and waited to show the paramedics where they were needed, Amos raced back up the stairs to assist Hugh. He sat on the floor beside Hugh and cradled his friend’s head on his inner elbow.

“Hang in there, buddy – help’s on the way,” Amos offered, feeling helpless and unnerved.

Hugh’s eyelids fluttered once more. “Help... them...” he whispered. Hugh’s neck went limp.

“Hugh, buddy – wake up!” Amos shouted desperately. He tried to administer CPR to Hugh, but it was to no avail. By the time the paramedics arrived, it was clear to Amos that his friend was dead. The official proclamation was made at the hospital a short time later.

\* \* \* \* \*

Hugh had by no means been one of Amos’ closest friends, but the two had worked together on several projects at OCACT and shared a certain sense of comfortable

camaraderie. Hugh was a fellow actuary, though his credentials had been earned through a different professional body, the Faculty of Actuaries in Scotland, prior to his arrival in Washington. Amos had always enjoyed Hugh's sarcastic wit, as well as his heavy Edinburgh accent. Hugh had been responsible for performing numerous mortality studies over his years at OCACT. Amos found it disturbing that Hugh would so soon become one of those statistics.

In the weeks following Hugh's funeral, Amos found himself increasingly puzzled by the final phrases spoken by his late friend. "Compression... of... the... distribution..." ... "Help... them..." Amos also found himself haunted by recurrences of his dream about Dr. Martin Luther King, Jr., Thomas Jefferson, and the prophet Amos.

On a blustery Tuesday in late December, two days after a brown but frigid Christmas, Amos received an innocuous mass-distribution email notice from the Society of Actuaries. It solicited his nomination for the 2023 Robert J. Myers Service Award. While the rest of the world was enjoying a long holiday break with their families, Amos sat motionless behind his office desk, pondering the email's content. He reflected on whether the award had ever been made posthumously, and wondered whether Hugh would somehow qualify. "The award recognizes actuaries for a single noteworthy public service achievement and actuaries who have devoted their careers to public service," he read aloud. He knew from past history that there was a tendency to grant the award for lifetime service, but Hugh had been too young to qualify on that criterion. He probed his recollection of Hugh's body of work, but could not fathom a single crowning achievement on which he would otherwise qualify for the award.

Amos was roused from his musings by a rapid burst of knocks as his office doorknob turned. A silver-haired, bespectacled gentleman peered from behind the frosted glass of the door. Amos recognized the man as Henry Petersen, a paradoxical being if there ever was one, for he was both an actuary and a politician. Petersen's reputation had reached near-mythical proportions; he was known to be not only keenly intelligent, but also cunning and articulate.

"Jefferson, I need you to look into something for me," Petersen stated flatly. He appeared blatantly unaware of the lack of any direct reporting relationship or accountability channel between the two. Amos leaned forward, eager to hear Petersen's request, despite his inner resentment that Petersen's tone seemed to demand rather than to ask.

"I've been trying to justify to Congress why our 2022 OASDI Trustees Report still shows an under-funding problem," Petersen continued. "I don't think the assumptions have been updated sufficiently to reflect emerging experience. MacKnight was working on some new assumptions, but his untimely tumble has left me without the recommendation I need. You've got to make somebody available to assist me."

"Well, Congressman, we're all strapped for resources. Hugh didn't work in my division. Why do you want somebody from *my* staff?"

"Damn it, Jefferson, you're like so many of our fellow actuaries – always identifying the problems rather than looking for solutions!"

"Look here, Congressman, I resent that remark," retorted Amos. "You, more than anybody, should know that when you're allocatin' scarce resources, you have to develop

priorities. I'm just tryin' to figure out whether this belongs in the queue, and, if so, where it stacks up."

"Fine – sorry, Jefferson," apologized Petersen, "but this is really important. It will affect next spring's Congressional budget in a significant way. Even minor changes to the assumptions could keep us from having to raise payroll taxes or cut Social Security benefits once again."

"I see," conceded Amos, "but I still don't know why you're comin' to me. Hugh's old department should already have a runnin' start on it."

"To be honest, I wasn't satisfied with their work thus far. 'Paralysis by analysis,' you know. I need this done, and I need it done yesterday. I already know what the assumptions should be – I've seen the experience data. I just need somebody with authority to look over the proposed assumption changes and bless them."

Amos felt an involuntary shiver run up the length of his spine. Results-oriented judgments – he'd heard about them from his lawyer friends, but he hadn't often heard them suggested by his actuarial peers, at least not in the public sector. "Tell you what, Congressman," he said, "I'll take a quick look at their files and see what I can do. But I want you to understand that I'm makin' no promises at this point."

"Thanks, Jefferson, that's all I can ask," replied Congressman Petersen. He withdrew from the room in as sudden a fashion as he had entered.

\* \* \* \* \*

The early days of 2023 brought a pristine blanket of bright dust-like snow to the nation's capital. Amos pushed the fringed ends of his woolen scarf inside the neck of his heavy black trench coat. His frosty breath hovered in a mist about his face as he trudged westward along the Mall grounds. He always found a walk around the monuments to be productive at those times when he needed to engage in some heavy mental weight-lifting.

“Results-based assumptions,” he thought. “That’s what it sounded like when Petersen barged into my office. But that’s not what the numbers bear out.” He kicked a frozen wedge of snowy ice off the salted asphalt. “Hugh’s mortality experience studies *really do* show that the cost of Social Security benefits is flattening out – maybe even *declining*. But what was taking Hugh so long to recommend that the assumptions be updated to reflect that reality?”

Amos picked up the pace of his stroll. He raised his gloved right hand to shield his face from the gusting northerly wind. His eyes were transfixed on the Lincoln Memorial, which lay several hundred yards ahead. His inner conversation continued: “The cohort life expectancies at birth – using updated actual experience from our massive database – keep on climbing, just like they’ve been projected to do for years. But the cohort life expectancies at age 65 – again using updated actual experience – have stopped climbing, and even dropped a little in recent years. Couldn’t Hugh see there’s no mathematical doubt that payroll tax increases and benefit reductions are no longer needed?”

Amos strode more briskly toward the monument that he had set in his sights. As he finished climbing the myriad of steps, he felt the protection of the Memorial’s

northern wall from the gusting wind. He walked almost reverently to the feet of the giant statue.

“Ol’ Abe,” he whispered aloud. “Even as good a man as you took almost two whole years to work up the nerve to do what was right. You could’ve signed the Emancipation Proclamation right after the war started, without tryin’ to build up a consensus.”

Amos froze in his tracks, as much a statue as the giant form in front him. “Do what was right,” his thoughts repeated. A shadowy picture began to emerge from the mental haze that enveloped him. “Life expectancies at birth: rising; life expectancies at age 65: declining.” Amos’ epiphany wrestled to free itself from the recesses of his mind. “That means the distribution of deaths is being pushed later at the younger end, and pushed earlier at the older end – *compression of the distribution!*”

The throttle on Amos’ brain was now at full tilt. “What would explain such a phenomenon?” he questioned audibly. “Better medical technology, healthier lifestyles, and the final arrival of universal health care availability in 2011 – all those factors help to explain the mortality improvements at the front end of the distribution. But what could explain the deterioration at the back end? AIDS, increasing engagement in extreme sports, and sedentary lifestyles don’t describe what we’ve witnessed in the older generation in recent years.”

A montage from Amos’ recurring dream passed through his consciousness, stirring multiple senses. From the steps just outside the monument where he now stood, he could hear Dr. King declare from the past, “I have a dream that one day this nation will rise up and live out the true meaning of its creed: ‘We hold these truths to be self-

evident: that all men are created equal.” He could see Thomas Jefferson fine-tuning his Declaration of Independence to include the additional truth “...that they are endowed by their Creator with certain unalienable Rights; that among these are Life, Liberty and the pursuit of Happiness...” He could smell the sheep dung on the feet of the prophet Amos as he called down divine retribution on the nations that committed atrocities against the weak and defenseless: “For three transgressions... and for four...”

“Dear Lord,” he prayed aloud, “I know you’re showin’ me somethin’. Your word tells me to trust in You with all my heart, and lean not on my own understandin’; and in all my ways acknowledge You, and You will direct my paths. I’m leanin’ on you for understandin’, Lord.” A glimpse of his mother’s troubled face, suddenly devoid of the mirth that had been so evident as she lay in her hospital bed, imprinted itself in Amos’ mind. His words that had elicited her response returned to him from some dozen years distant: “It was about that same time that you started comin’ up with all that nonsense about your friends at the nursing home dyin’ suspiciously.”

“Oh... *my... God!*” Amos bellowed, seemingly from his bowels, as he realized the enormity of his revelation. His breathing became labored and his pulse raced. His roiling stomach threatened to leave his not-yet-digested breakfast at Lincoln’s feet. “The government... couldn’t make the Social Security system work on benefit reductions, revenue increases, and alternative forms of investment...” He remembered with disdain playing an on-line “Social Security Game” that had been sponsored by the American Academy of Actuaries, posing these three alternatives for dealing with the Social Security under-funding problem, in his early days at OCACT. The aging of the Baby Boom generation, the pay-as-you go structure of the system, the shortfall in the SSA trust

fund, the Congressional reluctance to increase payroll taxes – they had all been solved with an ingenious yet dastardly response: *the covert and systematic elimination of infirm elderly Social Security recipients.*

Amos knew from his early indoctrination as an actuary that “the work of science is to substitute facts for appearances and demonstrations for impressions.” He was reluctant to jump to conclusions. He resisted the notion that his own government, or some renegade faction thereof, could sponsor such an atrocity. But in his heart of hearts, he knew that it was true.

Envisioning his father Walter entering the mental montage with his mother Bonita, the prophet Amos, Thomas Jefferson, Dr. King, and Ol’ Abe, Amos recalled the opening words of one of the later chapters in the New Testament book of Hebrews: “Therefore, since we have so great a cloud of witnesses surrounding us... let us run with endurance the race that is set before us...” As he pondered those words, he could hear his Scottish friend’s dying words echoing from within the memorial walls: “*Help... them...*”

\* \* \* \* \*

“*Proof.* Irrefutable evidence – that’s what I need,” Amos murmured angrily to himself. Two weeks of searching Social Security databases and Library of Congress records had yielded little more than subtle hints and statistical subterfuge. A sparse few Internet articles blared accusations against governments sanctioning the elimination of the elderly, but their impact vanished amid the multitude of quack-variety conspiracy theories that accompanied them. None provided a shred of credible evidence.

Amos felt his anger rising from a simmer to a seethe as he reflected on his frustrating quest. “Anger’s always a red flag,” he could hear Walter’s homily to his impressionable young son, “it tells you somethin’ needs fixin’ – fix your perception, or fix the injustice.” If Amos was right about what was going on, there was a serious injustice to fix. If he was wrong, his perceptions seemed to indicate that he’d developed paranoia in his advancing middle age.

The fact that he felt he could trust no other person to help on his quest made him wonder seriously whether he was indeed paranoid. “This is big – *really* big! It would take a massive effort, no matter how covert. There’s no tellin’ who’d have to be involved. I just *can’t* take any chances,” he thought despondently.

Amos adjusted the fluorescent lamp that rested on his cherry veneer office desk. He needed some illumination, but perhaps illumination of a different variety. He returned his attention to the computer screen that seemed to stare blankly back at him. He began a visual scan of the numerous directories that he had pored over dozens of times before.

Amos had previously been given security access to Hugh’s directories in order to address Congressman Petersen’s request, and had come away with no progress on his alternate agenda. “Come on, Hugh, ol’ buddy – where’d you hide it?” Amos paused and chuckled to himself, “Talkin’ to yourself again, Amos. No doubt paranoia is the least of your worries.” His shoulders shuddered with the first real belly laugh he’d had in weeks, maybe months.

“Maybe I’m goin’ about this all wrong,” he hypothesized, staring at the subdirectory list in Hugh’s “My Documents” folder. His attention rested on the one labeled “Program Files.” “That’s odd,” thought Amos, “program files should be on his

own computer, not on his network directory.” He began to explore the Program Files subdirectory.

“Nothing looks odd,” he thought as his eye passed up and down the list, “still, there’s gotta be a reason for him having a Program Files directory on here.” A sudden burst of mental illumination shone as his vision focused on a further subdirectory marked as “Compressed”. Knowing that such a subdirectory typically is used for storing files in a format that allows more efficient utilization of drive space, Amos nonetheless alighted on the final thought in Hugh’s mind: the distribution of deaths by age was *compressed*.

“You wily ol’ devil, Hugh,” chortled Amos, “what a great place to hide your research.” He clicked his mouse on the subdirectory and was immediately prompted for a password. “What would you have used?” he asked aloud. “Something meaningful to you...” Amos reflected on Hugh’s heritage and humor. He began to type: H-A-G-G-I-S. “I’ll only get three chances before the network locks it down,” thought Amos, “gotta make ‘em count.” He declined to hit the “Enter” key, foregoing a password attempt based on the Scottish sheep-liver delicacy. “Gotta have at least six letters; knowing you and your minimalist tendencies, it’ll *only* have six, and it’ll be easy to remember,” Amos quipped. His fingers tapped once more: T-A-R-T-A-N, he began to offer. He again hesitated over the “Enter” key. A second burst of illumination flashed across his psyche. “Hugh, you were a triple whammy nerd – not only an actuary and a computer hacker, but also a *Trekkie!*” He smiled as he typed the name of Hugh’s understandably favorite Star Trek character of all time: S-C-O-T-T-Y-[Enter]...

Amos was startled as the error message “Password Invalid” blinked across the monitor. “I could have sworn...” he sighed. A final burst of illumination seized Amos.

“I’m right, but I’m wrong,” he said aloud. “Hugh would have been a little more careful than that.” His fingers clacked on the keyboard once more: D-O-O-H-A-N-[Enter]. The “Compressed” sub-directory flashed its contents across the screen, in beautiful recognition of the Irish-Canadian actor who had portrayed the crusty Scottish chief engineer who enabled so many adventures aboard the U.S.S. Enterprise...

\* \* \* \* \*

*Petersen.* He was in the thick of it. Having spent half a career inside Social Security financing, half a career inside Congress, posturing all the while to become a power broker, who better was there to engineer a plan like this? Hugh’s skills as a hacker had served him well. His files were filled with highly confidential material, stocked with damning evidence, not only against Petersen, but against high profile figures at a plethora of government agencies. From the chronology found within the Scotsman’s records, it appeared that the seeds of the SSA conspiracy had been planted a few decades earlier. Germinating from a simple government policy position to essentially require “Do Not Resuscitate” (DNR) orders to be signed by or on behalf of seniors who were receiving public funding for nursing home entry, the “cost reduction” plan had taken root with a clandestine scholarship program for medical and nursing students who were willing to join the effort to promote the “greater good” via “helpful” interpretation of such DNR orders. The strategy blossomed as the front end of the Baby Boom generation neared septegenarian status, allowing more widespread recruitment within the higher ranks of government, to help combat the scourge of Social Security benefit costs that threatened to

spin out of control. The DNR interpretations made their way outside the drab olive walls of nursing home wards and into the sterile white confines of hospital rooms of often vivacious seniors. A truly utilitarian society had developed while the masses slept.

“But surely Hugh’s research can’t be exhaustive,” breathed Amos, “Who and how many conspirators are there? And who’s simply as blissfully ignorant as I’ve been? More importantly, *where can I turn for help?*” Amos was warmed by the recollection of the beginning and end of Psalm 121: “I will lift up my eyes to the mountains; from where shall my help come? My help comes from the LORD, who made heaven and earth... The LORD will protect you from all evil; He will keep your soul.”

Amos was chilled by the grim realization that Hugh’s “untimely tumble” was in all likelihood not an accident. “Don’t want to become another statistic,” realized Amos, “at least not just yet. I’ve gotta have a plan.” Amos could barely suppress the thought that if ever someone within his circle of acquaintances had exhibited signs of paranoia, it was Amos Jefferson at this very moment. Nonetheless, after less than fifteen minutes of cogitation, he sprung into action in response to these thought processes.

“Congressman Petersen,” Amos chirped to the voice on the other end of the telephone line, “Sir, I haven’t had much time to spend in the details...” He felt a momentary twinge of guilt at his involuntary prevarication, prompted by his instinct for self-preservation. “Nonetheless, from a high-level review of the model results, I’d say it’s a no-brainer to pull in the reins on Social Security payroll tax increases or benefit cuts.”

“Excellent,” responded Petersen, “good work, Jefferson! Can I count on you to accompany me to the end-of-March hearings before Congress? Your testimony may well be needed to get the message through the thick skulls of these bureaucrats.” His derision

for his Congressional peers wafted across the wires. “Jefferson, you cut a very credible figure – you’ve got to learn to use it to your advantage.”

“Thanks, Congressman. I’ll get my act together; just send the dates and times, and I’ll plug them into my calendar.”

“Will do – we’ll have lunch a day or two beforehand so that I can finish briefing you.” The click at the other end indicated to Amos that he had been dismissed.

\* \* \* \* \*

The coverlet of cherry blossoms trumpeted the arrival of spring in the District of Columbia. Unable to observe the beauties of nature while secured inside the Capitol building, Amos contemplated his impending presentation to Congress. He pulled nervously at his white collar, loosening the constriction of the conservative business tie that adorned his ebony neck. “No need to be nervous,” he assured himself, “it’s not like anyone could manage to bring any sort of weapon in here.”

Congressman Petersen approached and winked at Amos as he took his seat beside him. “It’s okay, Jefferson. Take a deep breath. You look like the whole world is resting upon your shoulders.” “Somethin’ like that,” replied Amos. His inner voice clarified, “Little do you know, Congressman.”

Amos gazed at the crowd seated around him. He searched for those wearing press passes or carrying cameras, making sure that the opportunity for his message to be disseminated as widely as possible would be available. Always risk averse, Amos had taken the precaution of setting up timed emails to be transmitted during his presentation

to all the major news agencies around the country. The emails carried attachments from Hugh's files to provide the detailed evidence backing Amos' claims, to a greater extent than he would likely be permitted in the Congressional forum.

A short while later, the time had come for Amos to testify. The cameras were rolling. He was sworn to tell the truth as he took his place behind the seated podium. He silently prayed for fortitude and fluent delivery. "You cut a very credible figure," echoed Petersen's earlier admonition across the canyon that seemed to be forming between Amos' ears. The Congressman's reassurance spawned serenity in Amos' soul and narrowed the gap between his ears. He checked his notes, paused for a moment to make eye contact with the listeners and then the cameras, and commenced his prepared yet passionate speech:

"Congressmen... Congresswomen... my fellow Americans... I have been called upon to testify before you today on a matter of very grave concern. The under-funding of the Social Security program has been on the agenda of American society for generations. During those decades, many solutions have been proposed; fewer have been tried; and all except one have – due to demographics – experienced varying degrees of failure."

"I have been asked to bring you tidings of great joy: news that the spiraling costs of this program have been brought under control; news that the assumptions underlying the cost projections do not reflect reality, but are grossly exaggerated when compared to actual historical experience. And I am prepared to bring you that news."

"But I am today answering a higher calling. I am today wearing the mantle of the prophet Amos, in calling down judgment upon this nation. I am clothed in the garb of our forefather, Thomas Jefferson, in declaring the unalienable right of *every* person to life,

liberty and the pursuit of happiness. I am walking in the path trod by Abraham Lincoln, in proclaiming the emancipation of a class of people who have endured captivity and suffered unspeakable violence at the hands of their captors. I am standing on the pinnacle of the mountain seen by Dr. Martin Luther King, Jr., in crying out, ‘Let freedom ring!’”

“But I am no hero; neither am I a raving lunatic. I am simply a grateful son, who was raised to do what was right. I am simply a believer in the Father of the widow and the orphan, who calls us to do justice with compassion.”

“To you I am bearing witness today of an atrocity that we – myself included, had I not seen the evidence – would smugly dismiss as being beyond impossible; an artifact of American antiquity, pre-empted by the lessons learned in the abolishment of slavery and the vanquishing of Hitler’s concentration camps. But we have not learned the lessons of history.”

“At this very hour, the evidence supporting the truth that I now declare to you is being reviewed at news agencies across this land, from sea to shining sea. That evidence leads to this inevitable conclusion: that the elderly among us are falling prey to the avarice of certain factions within our government; that state-sponsored genocide is not a relic of the past, but a current reality. The statistics that announce the tidings of Social Security cost reductions also declare the price truly paid for those savings. I bring you a mathematical message cloaked not simply in correlation but in causation. My fellow Americans, *our government has waged war on the elderly, systematically exterminating those unfortunate enough to find themselves resident in nursing homes or in need of hospitalization.*”

Amos paused for effect, and then continued: “That unrelenting assault is a function not only of government avarice, but of *your* avarice and *mine*. Please hear me out: let me explain in very clear terms. Politicians possess one primary approach: to please, or at least appear to please, the people. Long ago, certain politicians recognized the ‘no-win’ situation of Social Security. Every solution was unpalatable: raise taxes; cut benefit amounts; defer eligibility ages; the list goes on and on. But at the root of that unpalatability was an *implicit and unchallenged assumption*; that the American dream *requires a standard of living unmatched by any other nation in the world.*”

“That dream has loosed the anchor of our morality. That dream has caused us to set sail on a covetous crusade. We and our children now bow down at the idolatrous altar of the almighty dollar. In order to please the people – particularly those able to venture out to vote – the politicians determined a way to feed our greed; a way to keep taxes on working adults down, and to keep benefits to voting retirees up – regardless of need. They did it not only for themselves. They did it for you – and for me.”

“I am today calling for another American revolution. I am calling us to give up *that* American dream – that *nightmare* of the infirm elderly – and replace it with a dream that accords with that of Dr. King. I am calling us to relinquish our requirement for riches; a requirement which is in no way an inalienable right.”

“I invite each of you hearing me – ‘for him who has ears to hear, let him hear’ – to converge on Washington in peaceful demonstration, in support of these elderly victims. I invite you to stand in solidarity on the steps of the Lincoln Memorial and across the Washington Mall and the entire city, as was done some three score years ago – as a statement of a new dream, of an equality that eschews rather than embraces avarice.

*Now* is the time. It is time to take back our country. It is time to take back our families. It is time to take back our *souls*...”

\* \* \* \* \*

THE END

# Inherent Value

By Erik Anderson

I was a “lucky” one. I was in a meeting room in one of the underground floors when the bombs hit. The building toppled over instead of coming straight down and I was able to dig my way out.

I don’t know what happened. It must have been all over the country because there is nothing but static on the radio. No televisions work because the power is out. Maybe I’ll never know

The kids must be dead. The school was right next to the base. I started that way, but it was impossible. The house is gone. Just a pile of wood. I don’t know where my wife is.

There must be radiation. All the birds are dead and my gums are bleeding.

I staggered a few miles to the mall and stayed there with a bunch of other people for a couple days, but they were starving faster than I was. I thought I could do better on my own. I headed out of town. Maybe things would be better in the country.

I avoided the interstate and took the local highway north. No people, no cars, just some of the dead. It looks like they just laid down and gave up. I quit noticing after a few hours. I was too tired to do anything but plod along. Maybe I can make it to the next town. Focus on the yellow center stripe and put one foot in front of the other. I practically bumped into the picket. He had stepped out from behind an abandoned semi.

“Where you goin’?” he said gruffly.

He had a gun. I ignored it.

I saw the campfire back behind the treeline. Something was cooking. I could see a pot sitting on a grate propped over the coals.

“Are there people here? Can you help me? What happened? Do you have any water?” I tried to push past him.

The gun barrel in my face stopped me.

“No one comes in or gets a handout unless they can contribute. We’re especially looking for mechanics. You a mechanic? Or a farmer?”

“No, I’m an actuary. I worked for the insurance company in town.” I stared at the camp. The aroma drifted over.

“What’s that? What’s an actuary?”

“It’s hard to explain. I determine the value of future contingent events. Like setting prices for insurance or valuing pension contributions. You take these really hard tests and learn about applied models and ...” I was babbling.

Someone else grabbed my neck and pushed me face down into the concrete. There was a knee in my back and I tasted blood. My arm was twisted painfully behind me. I couldn’t see who had snuck up on me.

A new voice. Rough.

“We know what an actuary is now pal. Dinner.”

## Macon's Exam Morning

By Mark Maxwell

The lack of traffic was pleasant and surprising. It is 7:30 Wednesday morning November 4<sup>th</sup>, 2015. A broken parking meter outside the megalithic insurance building meant both free and convenient parking for Macon Love.

Each of the building's four massive front doors must be 20 feet tall (6.15 meters). The mono-browed security guard must be 75 years old. And the imported Italian marble staircase must cause significant fixed-cost charges for each of its clients. Room 208, where Macon's exam is scheduled to begin in an hour, is located at the end of the tapestry adorned corridor. The quiet room with natural light and twelve large tables is a perfect setting for an actuarial exam.

There is no way that Macon's horoscope will be an accurate prediction of today's events. His horoscope, along with that of everyone born between April 21<sup>st</sup> and May 20<sup>th</sup> reads:



*You will be presented with several problems today. If you have to guess at the solution, you will be wrong. ★*

Macon had never seen a horoscope that predicts a one-star day. Who gets free parking on a one-star day? There was no way that this actuarial exam will be too difficult. Macon was satisfied with his preparation. Pass or fail, the exam would be over in 6 hours. In 6 hours and 10 minutes, Macon will be drinking the first of, pleasantly way too, many beers.

Macon finds the door to room 208 unlocked, enters the exam room, and takes a seat.

Macon's heart drops and stomach turns moments later when "the calculator banger" enters the exam room. The calculator banger situates his 6 foot 2 inch frame (1.8 meters) at a middle table. The readers know the calculator banger, or his sibling "the keyboard banger". The banger pounds on the calculator with great vigor. The noise produced is annoying as hell. The banging was annoying last year. The banging was annoying as hell the year before that too.

The calculator banger used to be more outgoing. His aggressiveness in attacking calculator keys increased dramatically after his tragic exam-related incident of May 2012.

The banger's first foray into the world of actuarial exams was the jointly sponsored SOA/CAS/ANP Quiz  $\zeta$ .<sup>1</sup>

The calculator banger was comfortable with Venn diagrams. After his exam three years earlier, the calculator banger wanted to construct two sets for which he was the only person in the intersection. His two sets were  $P$  = people passing an SOA exam and  $S$  = people who smoke crack. Macon never learned the exact details of that tragic day. Suffice it to say, the calculator banger is no longer allowed to donate blood.

Macon thought the banger could bring this day down to two stars, but not one. But the calculator banger also has the potential to make it a perfect five-star day. He could, for example, ironically break his index finger as he pounds away on his calculator. He could, for example, have a massive coronary. Macon doesn't wish for bad things to happen to good people. But Macon doesn't mind so much what happens to the truly dreadful (e.g. inconsiderate drivers, people who victimize the elderly, several close paternal relatives, most academic deans, anyone who likes hominy, etcetera).

A few minutes passed and a third candidate entered the spacious examination room. Añel Rétentiv was wound tight, even for a reserve actuary. He made seven "practice rides" to this exam site. He used his data to compute a 98% confidence interval for his arrival time this morning. Añel brought 3 identical blue Sanford PH.D-style mechanical pencils with him. Añel filled each pencil with 6 pieces of HB lead and new erasers two days prior. He brought four calculators with him today. Añel's four calculators consist of two TI-30X and two BA-II plus'. Añel loves his solar calculator, but was worried about the room not having enough natural light (one would have thought he would investigate the exam room conditions prior to exam day). Añel brought a battery operated calculator as a back-up. That totaled two calculators. Then, of course, he needed a back-up calculator for each of his two types of calculators.

The last candidate enters at 7:55. Macon does not know her, but he sure wants to. She is gorgeous, tall, slender, and possesses beautiful willow skin. She selects her table and sits down. Who is this miracle?

Macon seeks the courage to approach her, to extend an invitation for a cold libation after the exam at his favorite pub (a place called *The Dead Patriots*). But this will not happen. If she accompanies him to his favorite pub, then today's horoscope prediction could not be correct.

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<sup>1</sup> SOA/CAS/ANP Quiz  $\zeta$  primarily covers calculus-based probability and statistics. Prior to the great exam overhaul of 2010, this material was covered on SOA/CAS Exam P. Prior to changes implemented in 2005, the material was covered on SOA/CAS Course 1 exam. Prior to that, the material was covered on the old SOA Exam 110. Since successful implementation of the every-five-year exam restructure of 2015, we now see this material on the syllabus for SOA assessment anchor I.

Perhaps Macon would never have found the courage. Perhaps Macon remembered that he was married. The actions of our final character in this plot had the most significant impact. The exam proctor, Al, enters the room immediately after our angel takes her seat.

Al's glasses, circa 1974, are not going to come back into style, ever. Not only is our proctor sporting a stylish camouflage pocket protector, the pocket protector matches his camouflage boxer-briefs<sup>2</sup>. Macon thinks that our exam proctor must be in his early 40's. Al had plenty of time to practice his comb-over technique, he should do it better.

Before the reader concludes that Macon is overly judgmental based upon superficial observations, let's recall our proctor's initial actions. The first order of business is for the four exam candidates to vacate the room until 8:00AM. No one is to be in the exam room prior to 8:00AM. Al must have read this rule somewhere.

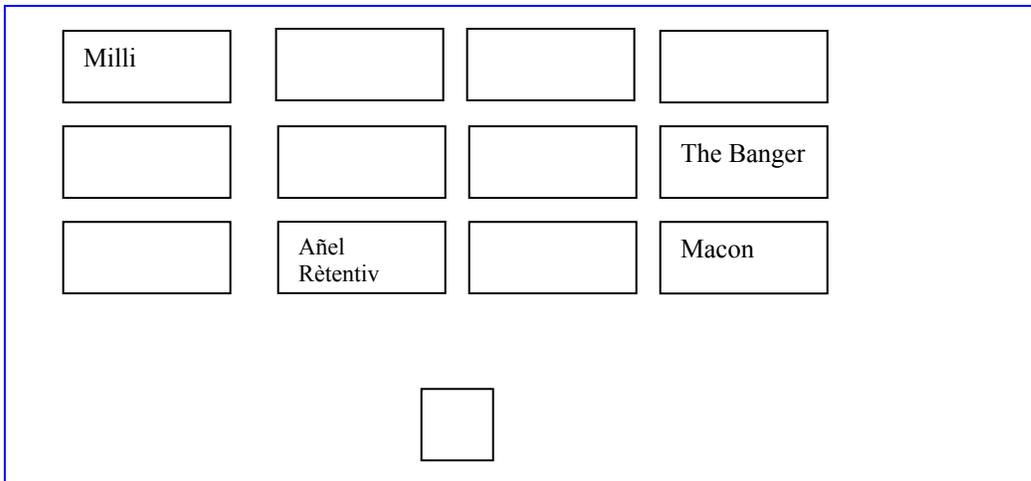
The four exam candidates leave their chosen seats for the 4 minutes that they are prohibited from being in the room. The four candidates return to room 208 promptly at 8:00AM. As it happens, Añel Rètentiv sports the hottest new techno-gadget since the Wii – the Microsoft America Chip 3000 (M.A.C. 3000). The M.A.C.3000<sup>3</sup> is combination MP9 player-computer-phone-internet connection-Madden2016 microchip surgically installed on the user's left earlobe. The M.A.C. 3000 is voice operated and displays computer generated images two feet in front of the user's eyes. Añel homepage is calibrated to the official civilian atomic clock in Denver. Añel announced to his peers when it was exactly 8AM.

All four candidates return to the wonderful conference room with its natural light and large desks. Twelve large tables and assigned seats! The proctor brought hand-written name placards and assigned seats as follows.

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<sup>2</sup> Decorum prohibits divulging how we know this.

<sup>3</sup> Apple Corporation sued Bill Gates and Microsoft Corporation for patent infringement in 2011. Apple claimed that M.A.C.3000 infringed on its product with similar features, the MAC300. The Apple product was introduced 18 months prior to the Microsoft product. Two days before the Supreme Court was to rule, President Martha Stewart named 11 more judges to the Supreme Court. Apple lost its suit. In 2008, Martha Stewart narrowly defeated Arnold Schwarzenegger for the oval office. Bart Simpson finished 3<sup>rd</sup>.



Our long-legged beauty must be named Milli, grinned Macon. This probably makes her 25 years old, give or take 4 days.

Oh the horror. Oh the humanity. The calculator banger is assigned the table directly behind Macon. A one-star day is guaranteed,

Six minutes pass, all candidates sign in, a passport is thoroughly examined, calculator memory is cleared, and placarded seats taken. The banger flips through index cards so fast Macon wonders if the cards show the road runner being chased by Wiley E. Coyote. Añel arranges his four calculators. Milli does nothing whatsoever, and she does nothing very well.

Macon’s thoughts returned to the proctor, a proctor whose greatest success occurred in this very room twenty three years earlier. In 1992, our proctor scored a “10” on the old SOA Exam 200. None of his pocket-protector friends had scored a “10” on the old Exam 200. Studying 900 hours for the 4-hour exam really paid off for Al.

The Society of Actuaries was a different beast back in 1992. It took an unreasonably long ten weeks for the SCANTRON™ answer sheets to be scored and candidates sent their results<sup>4</sup>. Al dedicated his life to these wonderful exams; these actuarial exams that clearly prove his intellectual superiority to colleagues.

Al serves on four exam committees. He spends his vacation time crafting convoluted multiple-choice exam questions and writing his annual entry into the SOA Speculative Fiction contest. You know Al’s exam question type. Questions where three fictional statements are made, two fictional answers are provided, and the multiple-choice answers depend upon obscure interpretations of the reading from supplement I-42c (as well as what one means by “is”).

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<sup>4</sup> It is 2015, and the Society of Actuaries is much more responsive to candidates. SCANTRONS™ are scored immediately. Candidates are informed of the number of correct answers within 5 business days. Then, within 12-14 weeks, candidates are sent the grading scale and learn if they actually passed.

Al's Speculative Fiction entries never win, but he remains undaunted. His first submission told of an exam candidate who tried to bring coffee into the exam room. This caused the Earth to stop rotating. Only those people who are allowed into a top-secret government bunker would survive. Only people who scored "10" on SOA Exam 200 were guaranteed a spot in the secret government bunker in West Virginia; only "10"s and Jennifer Lopez.

His second submission told of an exam candidate who continued to mark her answer sheet after time was called. This caused the Earth to stop rotating. Only those people who are allowed into a top-secret government bunker would survive. Only people who scored "10" on SOA/CAS Course 4 were guaranteed a spot in the secret government bunker in Hawaii; only "10"s and Angelina Jolie.

In 2007, our proctor's 7<sup>th</sup> submission told of an exam candidate who left the exam room at the same time as another candidate. This caused the Earth to stop rotating. Only those people who are allowed into a top-secret government bunker would survive. Only people who scored "10" on SOA Exam C were guaranteed a spot in the secret government bunker on Mars; only "10"s and Paris Hilton.

Next year, in 2016, Macon hopes to read about a calculator-banging exam candidate who dies tragically. Macon doesn't really care where the secret government bunker is located.

## **The End**

### **Author's Notes:**

- 1) This is a work of fiction. Any similarity to actual events can not be proven.
- 2) The author is not Macon Love. The author is not the exam proctor Al. The author is a bit anal retentive.
- 3) Milli does not exist, I swear.
- 4) Milli and Añel promise to provide Macon an alibi for the night the calculator banger disappears.

Mislabeled  
by Brady Hawth

Hans stared at the news on the display scroll on his lap as he rode the high speed train back to Singapore City from the annual Chinese national actuarial conference, but his heart wasn't really in it. "More Unrest in Middle East." Great. Hans glanced out the window and the view hadn't changed - the New Myanmar solar thermal installation still spread out in every direction, tinted pink by the thin tube holding the hydrogen the train traveled through. He was not one of the few who knew (or could understand) the way the installations sprawling over deserts like a plastic and metal alien kudzu really worked, but he had long since gotten over his unease at that. "In the end, economics always wins," he mumbled. "Might as well switch over to those damn display glasses if there's not going to be anything to look at," he thought, and decided to do some more work. "What else but an actuarial job in Singapore for a German luddite?" he thought, and laughed out loud for the thousandth time at the rather poor joke. Sure, it made a twisted sort of half-sense. Hong Kong and Singapore became centers of actuarial work, thanks to now-past advantages in cultural/educational fit, adoption of new technologies that other countries had avoided, and the continual incompetence of the US government. They mostly managed to hang on to that status as the work changed, with the bureaucracy, ironically, bringing in European and American actuaries as an anti-bureaucratic element. But that wasn't quite the same as making sense.

As Hans approached the 110th year of his life, he remembered acutely how much the world had changed. It would be egotistic to say he had seen the world change more than his grandparents did or grandchildren would, but he was certain that people weren't made to deal with such shifts. "Ah, well," he thought, "You always believe you and everything else will change in a only a few ways, ways you think you understand, but change comes only in every direction at once." Distributing news feeds between neural networks? Deciding what aggregate data to order from the corporations running the major online forums? The heck if he even knew what he was really doing most of the time anymore. "Acrophobia or no, technology marches on," he sighed. No time for existential unease today. There's work to do. That was the nature of the beast. Every year, the mathematicians and supercomputers turned another art form into a matrix multiplication and the programmers turned another job into a holographic sugar cube to put in a computer. Most of the economy went through little programs trading contracts back and forth with the receipt of every data packet a weather computer or solar monitoring station turned out and every paper published by every two-bit academic. As tools and competition improved, actuarial work

moved again and again from one analysis to a harder one, until the only real chances left for them to look at were human behaviors. The main causes of uncertainty in lifespan projections were now firstly the lifestyle policyholders would adopt in the future and secondly the medical advances that would come during their lives. For any given person, there was a medicine that would give them a life twenty years longer that may or may not be developed. Prediction is hard, especially about the future, but people like Hans were there to give the companies that bought their work no more and no less than a description of what direction their clients' lives and society as a whole would be statistically likely to take in decades to come. And, every time fields converged, actuaries took a bigger slice of the analysis pie.

Hans had been the most senior actuary at the actuarial consulting firm Marcus & Millerman for forty years now, and during his career it had grown to be one of the larger such firms. So, he was the first one there approached, eight years ago, with the work that now occupied most of his time. "Comparative Terrorism Risk Analysis." Most of the work, of course, was done by the new generation of plussed. The ones that by parental influence or black markets had obtained the latest memory boosters and plasticity enhancers and everything else nootropic that they downed like candy to bring their already high intelligence scores well past regulations for civilians. Whiz kids that had already passed all thirty-eight exams. (Of course, their superhuman symbolic reasoning skills still came at the cost of some amount of OCD, autism, and schizophrenia, and promises of manufacturing genius went unfulfilled as always.) However, someone had decided that a highly experienced actuary should be involved. "Another old geezer that doesn't trust those kids managed to stay on top, heh," he had chuckled.

Each new advance meant more damage that a single dedicated individual could do. Whether a computer virus, synthesized virus, industrial sabotage, nuclear explosion, or something wholly unconceivable would be the cause was irrelevant. What was important was the dot product of intent and capability times damage, and the right side of that had increased very fast indeed. Terrorism risk analysis was now an important field. "And still a growth industry," Hans thought. The main tool of modern terrorism risk analysis was "Network Pseudodiffusion Pattern Analysis". In a nutshell, people were represented as vectors of a few hundred numbers, distributed randomly in a complex pattern. Their interactions were then modeled as a sort of directed diffusion across a number of different network patterns representing the various interpersonal and mass media. The vectors then changed over time according to functions that studies had found represented the human instance of the principle of neural networks seeking reinforcement by changing in every direction a minimal amount. Finally, certain patterns were searched for, and the incidence of such patterns was used to

calculate the risks of various kinds of terrorism. That then became premiums for terrorism insurance policies - at a substantial markup, of course, due to the nascent state of terrorism risk analysis. The results were still highly dependent on the actuary's selection of the various relevant patterns (or selection of support vector machines and neural networks and training sets to generate patterns) and that meant subjectivity, and subjectivity meant uncertainty. It was an effective tool, though. Simple things in high dimensional spaces can be surprisingly powerful. *Comparative* terrorism risk analysis was similar, but instead of finding the risk according to one model, it compared risks that a range of slightly different models would find. This was the light for the path towards making disparate results meet, towards patching the holes in maybe not just terrorism risk analysis models but many others as well. It was just too bad that it was about like slogging through tar pits.

For six years now, Hans had done this work exclusively for the government, doing the same thing with only slightly different datasets and goals. This was not unusual. The efficiency of e-mocracy (Hans winced whenever he thought of the name) was such that many transactions had been subsumed by it, and some amount of idiosyncrasy often came with its projects. Singapore had not yet adopted e-mocracy when Hans first moved there, and it had been a long road to it. E-mocracy was a simple yet somehow alien folding of idea markets - like Parker-Sochacki folded Taylor series - to avoid contradiction and duplication while making these markets serve as judgement as well as analysis. It had been a long road to it. First, the idea surfaced and became a blog fad. Second, corporations using it started to out-compete companies based on the more traditional principle of mutual corruption between directors, CEOs, and public officials. Technophilia in Singapore, meanwhile, continued its ascent. Finally, conservative elements deciding that they preferred e-mocracy to the creeping privatization of government functions combined with the social effects of the investor panic in the aftermath of the collapse of Moore's Law when quantum tunneling limits were hit and none of the promised brilliant solutions came gave e-mocracy the final push into place. At least, that was the conventional explanation. Hans had seen other things creep unstoppably from unthinkable to obvious; this wasn't the first or the last. "Collectivism finally trumped hierarchy," he had thought at the time, but he knew that a German ex-pat may never really be qualified to say that. As it turned out, it was not long before a new hierarchy sprang up. "Like a mushroom," he'd thought as he watched the evolution of this new government made rapid by the frictionless environment of the Internet.

Hans returned to his office to see another very new green storage/encryption/verification box sitting on his desk. From Joshua, as always. The label read "Dataset 106 - Hans." He re-adjusted his apparently borrowed chair, then dropped the SEV box on a power pad and rested his hand on it while

he waited for his computer to start up. "Huh. That's strange." Something felt different about the label. He held the box up to one eye - lucky thing he was nearsighted, just like 90% of Singapore - and noticed that there appeared to be two layers to it, and that it was thicker than usual. That hadn't happened before. After a moment of poking in his desk drawer he pulled out his Swiss Army Knife, and in another minute he had peeled off the label. He held it sideways in the light and tried to split it apart with the knife. "Aah, curse these shaky hands." In another minute he had it. It was another label, covered perfectly by the other, reading "Marked For Incineration."

Now his curiosity was piqued. He stuck the labels back together and put them in the trash, put the box back on the pad, scanned his finger, entered a code, and swiped his national ID card. It appeared to contain a typical assignment and nothing else. After copying the data, he entered the code to disable the box's security measures and took it down to IT. "Hey, I accidentally overwrote something important here. Do you think you could open this and lend me one of those, whatever you call the devices to recover deleted data?" "Right away, sir," the young man replied, and Hans admired his deftness as the one-way screws were pulled out magnetically and the sugar cube was removed from its matryoshka in thirty seconds. "Here you are sir." Hans put the sugar cube in his pocket and took this new box back to his office. The box hummed for a couple hours as he worked, then beeped. He glanced at the contents - a few documents with meaningless names, of negligible size - and copied them to a pen drive. Then, he took out the sugar cube, set it on a tissue on the floor, and stepped on it firmly, making a sound like a shoe dropped on gravel.

Back at his home, Hans started to read the documents. Each was a progress report from a project. The projects were described so euphemistically that he was halfway through reading the first before he realized what it was describing. Euphemisms take on the meaning of what they describe and must be replaced. The writers had clearly gone through several such cycles in their attempts to hide what they were saying from themselves. He read on, filled with a growing horror. "Project Serene Byte: Annual Report." Illegal modification of servers to manipulate recommendation systems. "Project Applied Falconry: Semi-Annual Report." Secret construction of nuclear weapon facilities. "Project Ranch Hand: Annual Report." Addition of intelligence-capping substances to illegal street drugs. "Project Gottlieb: Semi-Annual Report." Preparation for adding development-affecting chemicals to children's shampoos. "Project Zagorsk: Semi-Annual Report." Development and testing of synthetic viruses designed to alter neurotransmitter balances in humans. "Project Green Grass: Semi-Annual Report." The risk analysis, that he had been a part of, that was being used as justification for the activities of the other projects. His own latest results were right there in the appendix. Each project listed "improvement of social harmony" as its

purpose.

Hans found his long-unused fake ID card after some searching, and took it with him to a nearby cybercafe. He fed it to a computer, and after what seemed like an extremely long time, a ping signaled the card's acceptance. Entering the e-mocracy system, he began to search for the things the reports had described. To receive funding, they had to be listed somewhere. He found two of them, very out of the way and very innocuous, but with very little information available and the highest classification level Hans had ever seen. Hans started looking for people who had a high enough classification score to manage those projects. He found only eight. They had no real real-life contact information. Well, one of them had a PO box number, and that was all. Hans started to search the posting history of each of them, and found only useless philosophy. 'On an alternative utopia of essayism' wasn't going to help him find where they lived. Hans continued reading posts. "You cannot have both. A billion years ago fish met under the sea and said, 'We are fish, we have all this power, and now it is time to conquer the land.' But you cannot conquer the land while remaining fish." read one. Read another, "They're all simply confusing what a symbol means to them with what it is in reality, and they always see too late that so submerged it's as impressive as a sugar statue in a lake. It is an inevitable and definitive confusion of mankind. People have always been attuned to reality, and dealt with abstractions by seeing them as a part of reality. But this can't work now. Abstraction has won. Nowadays only a few spots of reality show through here and there. Buy a steak, let alone a stock option, and the complexity of what really just happened is staggering! There is only one solution: a complete reversal. That is, instead of viewing abstractions as real, viewing reality as an abstraction." "Yes, I'm sure you think Plato goes well with Nietzsche," Hans thought. Just then, he had an idea, and left the cybercafe.

Hans went back to his workplace, which still contained a number of actuaries working late. The information license classes Hans had as a high-level actuary were broad and not entirely related to his work. This meant that he had the authority to purchase most security camera data after some amount of time had passed. Hans looked up the PO box he had found, and ordered a week of footage from a camera covering it. Three days in and five minutes later, Hans had someone making a pickup from the box. Now, he started placing orders to follow this man. Two hours, thirty-two cameras, and two miles later, the man opened a door to an unmarked building. Some more footage established the times the man seemed to spend there. Hans went home, and decided to go on a walk to think. When he returned, he knew what he was going to do. He sent an email to his boss, telling him he would be taking the next week off. He then contacted his friends 'blue0wl' and Soong to call in some favors, and went to

sleep.

When Hans woke up, blue0wl had responded. "here's the data you wanted, this is heavy stuff my friend but i guess you've done the risk/reward analysis ;-)  
password's your id number" it read. Hans was listed as the sender, too. Hans sighed. Guy always had nerve. After copying the data to a pen drive, Hans headed out to see Soong at the fabrication lab before it opened. Soong frowned when he saw him. "Yeah, I guess I can do this for you. I owe you for last time. Come back an hour after closing, and I'll have it for you. But..." "Yes?" "You owe me a drink next time I see you." Hans smiled. "Sure thing, old friend. And nothing but the best." Hans handed Soong the data blue0wl had sent him and left.

A couple days later, Hans decided that the time had come. Hans put on the contacts and finger-cap that Soong had made for him, and left for the address he saw the man go to. That turned out to be enough. A heavy metal door opened smoothly and a cloying voice welcomed him at no more than a swipe of a capped finger and a look into an eyepiece, revealing a large office that had become something like a bachelor's apartment. A very expensive computer was the centerpiece. It was on, and logged in. Hans searched for some passwords and other information and copied it, and then copied a program that blue0wl had provided and ran it. As the cloying voice bid him farewell and Hans started back home, smoke started to come out of the computer's case. "Did you know me? Did you know this would happen, anonymous labeler? Or was it just chance?"

Now Hans could see the inevitability of their reasoning. What was important was the dot product of intent, and capability times damage. For society to maintain its integrity, as one side increases, the other must decrease. Civilization was a balancing act, and technology increased every force applied. To maintain a balance, for each potentially destabilizing force, there must be a greater one to oppose it. As power became absolute, control would come to be everything. As risk increased, precursors of increasing subtlety would have to be targeted to prevent the coalescence of dangerous intentions. Hans distilled risks. For the pattern to continue, someone must eventually distill certainties. Hans spent the next half hour typing, and then, it was ready. He looked at the old picture of his children and grandchildren hung on his wall. "Right. Well, nobody lives forever, eh?" He got out the government's dust-covered 100th birthday present to him, and punched out the pills onto his desk. Then, he picked out a bottle of scotch he'd been saving for a special occasion and set it down beside them. "I can see, now, the ambition that geist has dragged them towards - to work on the level of historical forces - but no stable system can have people simultaneously inside and outside it," he thought. "And, likewise, I must now do this; it is my duty, my destiny," he thought.

"I can end this now," he thought, but what he did was stare at the photo of the Trinity test he kept on his desk, and whisper, "Peace..."

## Prospective Reserving

Chris Fievoli, FSA, FCIA

He obviously don't get it, Vernon Grove concluded.

For some reason, the display booth situated at the end of the final row of the exhibit hall caught his attention. It was easy to miss, and apparently, everybody was doing just that. There were no colourful displays or eye-catching graphics; just a simple sign that hung in front of the table reading "Stalwart Valuation Systems". A couple of piles of photocopied handouts sat atop the white tablecloth, evidently untouched. The sole vendor, a slim middle-aged man with dark, combed-back hair, sat in a folding chair at the back of the booth, his nose buried in a paperback novel, paying no attention to the activity around him. The whole scene seemed distinctly out of place. It didn't make sense to travel this far, and make no effort to attract anyone's attention.

It was the Society of Actuaries annual meeting, which Vernon had made a point of attending for the past number of years. He found this year's event, held in Singapore, to be particularly enjoyable. Not the best meeting, mind you – that honour went to the SOA's 100<sup>th</sup> anniversary celebration two years ago in Prague – but certainly right up there. Thanks to the introduction of suborbital nuclear-powered aircraft in the 2030's, international travel was now fast and affordable, allowing the Society to choose more exotic locales for their meetings. This particular trip was only a 45-minute flight from Spitzer Airport in New York, which Vernon found remarkably convenient.

One of his favourite attractions at these meetings was the exhibit hall, primarily because he was fascinated by the lengths to which vendors would go to get his attention. Several booths had resorted to using 3-D holographic images of long-deceased celebrities; just this morning he had seen Michael Jordan and Mike Tyson hawking reinsurance across the aisle from Jack Nicholson. Others were very much into give-aways – micro-sized handheld computers were the item in vogue this year. Vernon already had three or four in his pocket. As usual, the competition for attention from software suppliers was intense. Run time had long ago been eliminated as a point of differentiation; any decent valuation system could process a few hundred thousand policies in twenty or thirty seconds. The key feature now was the value-added analysis. For example, if you could wait an additional ten seconds, the latest system from Severin Technology could do a 500,000 scenario multi-variate stochastic analysis on your entire block of business. It was no longer a question of how long, but how much. And the companies here were doing whatever they could to get their message across.

Which is why the booth for Stalwart Valuation Systems seemed like such an anomaly. Even fifty years ago, this sort of display wouldn't garner much attention; how could it compete with the advanced technology of today? Curiosity got the best of Vernon, and he decided to take a closer look.

"Excuse me," Vernon said, calling across to the man with the combed-back hair. He looked up slowly in response, as if someone had wakened him from a nap. "Yes?" he replied meekly, not bothering to get up from his chair.

Vernon suppressed a laugh. This was too pathetic to be believed. "I was hoping you could give me some information on your system."

"Very well, then." He placed the book down on a side table and slowly rose to walk over. "It's just your basic valuation system," he said dryly. His mannerisms reminded Vernon of an undertaker. "Performs the basic functions and analysis to support a regular reporting cycle."

Which is what any system should do, Vernon thought to himself. So what was the appeal of this particular system? "And what does your system do that none of these other systems can do?" He gestured towards the neighbouring exhibits.

The vendor looked up at him. Vernon could now see the dark circles that lined the bottom of his eyes. "Well," he said with a deadly serious expression, "it's entirely accurate."

"But I'm sure every other system being promoted here would vouch for the accuracy of their calculations," Vernon retorted.

"No – what I meant was the *results* are accurate. No uncertainty."

Vernon smiled, hoping that he didn't look too derisive. "Any reserve contains a measure of uncertainty," he replied. "That's the nature of our business."

"Not with our system," came the blunt reply.

For the first time, Vernon began to suspect this gentleman didn't quite have all his faculties about him. He began to manoeuvre a polite exit from the conversation. "If you have any material I can take with me, I'll certainly give it a look."

The gentleman reached into his pocket and pulled out a business card, with a USB key attached to the back. Vernon looked at it with bemusement as he picked it up in his hand. Paper business cards had long since gone out of fashion; any contact information was now typically transmitted electronically. The front of the card read "Stalwart Valuation Systems. Martin Cale, President" in plain black lettering. Vernon looked at the key on the back. "And this is?"

"It's an evaluation copy of the system," Cale replied. "90-day free trial." The ubiquitous USB keys could now hold hundreds of terabytes. The only restriction on their size was not making them so small that they would routinely get lost in one's pocket.

Vernon smiled politely. "Thank you. We'll have a look at it."

"Just one request," Cale said. "Please use it only for the purpose for which it was intended."

It was an odd comment to close with, Vernon thought. He smiled, nodded, and continued on his way.

Within a few days, Vernon was back in the offices of the Arcadium Insurance Company, located on the 174<sup>th</sup> floor of the Jeter Complex in mid-town Manhattan. The building boom of the mid-30's had revitalized New York City as a centre of business and commerce. On any given workday, approximately 15 million people made their way to work on the island, housed in hundreds of huge office towers, scores of which exceeded three thousand feet in height. Private

vehicles had long been banned; in their place, thousands of high-speed electric trains operated twenty-four hours a day, shuttling people from location to location. In the more congested areas, it was commonplace to see a dozen layers of railways rising up from the street level.

Vernon had actually forgotten about the Stalwart system until he found the key buried in his jacket pocket one morning. Holding it in his palm, it occurred to him that this was something Luther Sterling might find interesting.

Luther was part of Arcadium's systems development team. In years past, a company the size of Arcadium would need several hundred developers to maintain the myriad of systems they employed. Thankfully, modern technology had evolved to the point where they could only get by with a handful of technicians and programmers. Arcadium had five on staff, and even then there was a sense that they were being under-utilized. Luther was the one that Vernon felt the most comfortable dealing with. Although he wasn't an actuary himself, Luther seemed to have the best grasp of actuarial principles. Plus, he was a tireless investigator. Give Luther an arcane problem, and he wouldn't rest until it was solved.

This particular morning, Luther was well into his third cup of coffee when Vernon walked into his office. "Something you might find interesting," he said, tossing the key to Luther. "I picked it up at the SOA meeting last week. New valuation system. We have it for a 90-day trial."

Luther looked at it with curiosity. He didn't expect that it was something they would adopt, but if there was anything in the system that looked attractive, he would make a note of it. "Sure, I'll give it a look," he replied casually, dropping it onto his already overly-cluttered desk. "Might not get to it for a few days, though."

"No rush," Vernon replied. He elected not to relate any of his strange conversation with Martin Cale.

"How was Singapore?" Luther asked. He took off his eyeglasses and polished them on his shirt.

"Pretty good," Vernon replied. "Still feeling a bit jet-lagged."

"You know," Luther said. "They should really hold those conventions in the middle of the night. Everyone is coming over from the US anyway; just keep all the clocks on Eastern time." That was typical of Luther; his off-the-wall suggestions always had a kernel of innovation.

"I'll be sure to mention that next time," Vernon replied with a smile.

It was later that Friday afternoon when Luther walked into Vernon's office unannounced, with a wide grin on his face, shaking his head in disbelief. He disdainfully waved the key in the air. "And?" Vernon asked.

Luther started to chuckle out loud. "It's complete garbage," he declared.

Vernon began to laugh as well. "I suspected it might not be the best quality," he confessed.

"Quality? Not even close. Check this out." Luther pulled out his handheld computer for a demonstration. Monitors were now obsolete; the newest models emitted a thin layer of vapour that would serve as a virtual screen, suspended in

mid-air. Luther flashed some numbers on the screen a few inches away from Vernon's face. "The results make absolutely no sense at all. Look at this example – I had it run the reserves for these two policies. Almost exactly the same in all aspects – \$50 million face amount, same issue age, risk class, you name it. One of them has a reserve of just over \$7 million, but the other one – if you can believe it – is \$49.9 million!"

"So, like, he's going to die next week," Vernon quipped.

"And you get that sort of thing all over the place. No consistency whatsoever. And there's thousands of term policies that just show a reserve of a few dollars. It's crazy!" He was waving his arms manically now, as if this whole system was beyond rational belief.

Vernon raised his hand to signal that he had heard enough. "I think that will take care of it, Luther," he said with a laugh. "Sorry to have wasted your time."

Luther shrugged. "Hey, it was fun," he replied. "You never know when you'll find something useful."

Eventually, Vernon decided that he should make a courtesy call to the hapless Mr. Cale and pass along his regrets. Phone calls these days were entirely wireless; once you reached your party, their image would show up on their own virtual screen in front of you. It was as good as having a conversation with someone seated in the same room.

Cale's image was no less dour when it appeared on the screen. Vernon did his best to maintain a professional poise. "Thanks for letting us evaluate your system," Vernon said. "I don't think it really matched our needs at this point."

"You would be surprised," came Cale's puzzling response.

Vernon felt he should give some sort of constructive feedback. "I thought I would point out that there were several inconsistencies in the calculations," He cautioned. "You may want to look into some of them further."

"Life is full of inconsistencies," Cale retorted. "Events rarely occur with the same probabilistic precision that you actuaries assume." Vernon was somewhat taken aback by the remark, as he tried to ascertain if it was intended to be an insult. "You still have a few weeks left in the evaluation. I would suggest taking the time to fully understand the system. So long as you only use it for the purpose for which it was intended."

Vernon quickly brought the conversation to a close, and wished Cale well. He had no desire to speak further. Frankly, Cale scared the hell out of him.

Martin Cale and the Stalwart System were quickly forgotten, or so Vernon had believed. But there was something that intrigued Luther Sterling. The system, as it stood, simply couldn't be generating random numbers. There had to be some logic behind the calculations, even if it was somewhat perverted. Specifically, what would happen to those policies with the huge reserves? Add a month's interest, and the reserve would start to exceed the policy face amount. The issue rattled around in the back of Luther's mind for a few weeks, so when a

window of opportunity opened, he decided to have a second look. And that's when things started to get very weird.

When Luther walked into Vernon's office one Thursday afternoon, his usual ebullience was missing. Vernon picked up on it immediately. "Luther, is something wrong?"

"This system," he said, holding the key gingerly in his palm, as if it were some ancient artefact. "There's something I can't explain."

"I thought we were done with that," Vernon replied, not masking his surprise.

"I thought so too. But do you remember those policies where the reserve was absolutely huge? I thought I would see what they looked like after aging them a month. So I tried to look up one of them on this month's records, and it wasn't there." He paused, prompting Vernon to reply.

"Missing?"

"Death claim," Luther replied coldly. "So I did a scan, picking up every policy where the reserve was within half a percent of the face amount or so. And guess what?"

Vernon just shook his head, not having an inkling of what to guess.

"Each and every one of them came through as a death claim between then and now. No exceptions." Luther dropped himself into a visitors chair for maximum effect.

Vernon, meanwhile, recalled his dismissive comment about that one policy dying the next week. His blood felt cold. "So how could this sort of thing happen?" he inquired.

Luther raised his hands palm up, in a sign of submission. "I have absolutely no idea," he retorted. "But it scares the crap out of me." He reached over, and gently placed the key on Vernon's desk. "I think I'm done with this now," he said bluntly, moving his hand away carefully as if the key was carrying some horrid infection. "I'll leave this with you."

Vernon stared at the key as Luther made his way out of the office, wondering what exactly was going on.

Logically, this couldn't be possible, Vernon decided. He was now reviewing the work the Luther had done, trying to find some clue that would explain what they were seeing. His first reaction was that this had to be some elaborate hoax, but that wasn't possible. The system had somehow known a month beforehand which policies were going to make a death claim, and set the reserves as if payment of the death benefit was imminent. Could it be that these claims had already occurred, but just weren't reported? No, deaths were electronically reported within minutes, and according to the policy records, every claim was after the date of their first conversation. Perhaps they were fraudulent cases? No, there was no way that *every* claim made in the last month was fictitious – and this system had accurately predicted each claim they received.

Bizarre thoughts began to fill his mind. Was somebody going from policyowner to policyowner, causing their death, and making the system a self-fulfilling prophecy? Of course not – that was ridiculous. The notion of Martin Cale

leading some sort of pseudo death squad made for a humorous mental image that offered Vernon some momentary diversion.

The most logical conclusion was that the system knew who was going to die.

But that was simply not feasible. Or was it? Vernon recalled just how much progress underwriting and risk selection had made in the past quarter century. An abundance of specialized tests emerged which allowed users to identify diseases with increasing accuracy. Calculations of individual life expectancy were become more and more refined. Advances in genetic testing made predictions of life-threatening illnesses more science than speculation. In fact, about a dozen years ago, the insurance industry implemented a self-imposed limit on what tests they would use in the underwriting process; the idea being that insurance would be useless if individuals could figure out exactly when they were going to die. The industry had put on the brakes; had Stalwart Systems found a way to keep going?

It still did not connect in Vernon's mind. These were accurate to within the *month*. Even the most advanced testing could never get to that level of specificity. There had to be something else to it. And hopefully, the answer lay somewhere in the numbers.

It was after hours on the following Friday afternoon, when Vernon started to do some analysis. Almost immediately, he noticed a strange pattern. When he looked at the ratio of last month's reserves to the face amount, similar numbers began appearing. A few quick calculations revealed that the differences were all constant multiples of each other. Could they be connected to something else? He ran through the other data fields, looking for some matching pattern. After sorting his records several different ways, he spotted it. There was a relationship between the ratio and the date of claim. If these ratios represented some sort of discount factor, and if he calculated the days between the valuation and the date of claim.....

The he saw it. Once he annualized the discount factors, he saw the same value for each and every policy. And he recognized the value – it was their valuation interest rate. Then he understood that the reserves were simply the death claim discounted back from the claim date to the valuation date. He was surprised that he didn't see the pattern earlier. But then the frightening implication dawned on him. If he could calculate the reserve based on the date of death, could the formula be reversed? In other words, given the reserve produced by this system and an interest assumption, could he predict the date of death? All the data was there in front of him. Did he dare do the calculation?

He pondered the issue for a few moments, before finally deciding to go through with it. Within a few minutes, he could – if this system was as accurate as it seemed to be – predict the date of death for every policyholder on their system. Before he knew it, he had produced a list of dates, one for each policy, which showed when the system predicted that each individual would die. Vernon stared at the list of numbers momentarily, before abruptly shutting off his handheld computer. He felt conflicted; this was information he had no business

knowing – or even wanting to know – but still, a part of his mind, deep in his psyche, desperately wanted to see it.

It was three a.m., and Vernon was having a hard time sleeping. Instead, he was pacing the floor of his condominium, staring out his window, which offered a panoramic view of the Hudson River, with New Jersey beyond. It wasn't actually a window; rather, it was a glass plate with a floor-to-ceiling high-definition three-dimensional video panel behind it, offering a real-time view of the river from some distant camera. Once developers realized they could use space much more efficiently by not providing windows, it was only a matter of time before most living and office space in New York was developed without them. He could have chosen a view of the Taj Mahal or the Eiffel Tower instead, but Vernon had always thought that was too pretentious.

The truth was that he had not slept well all week, to the point where he called in sick on Thursday in a futile attempt to get some additional rest. It didn't work.

As it happened, morbid curiosity had gotten the better of him. After resisting for a few days, he finally succumbed to temptation, and looked at the list of policyholders that were expected to die that week. Sure enough, as he accessed their policy records, he saw that each and every one had submitted a claim on the predicted day. From that point forward, he had found himself in a state of paralyzing anxiety. Every moment, he felt his heart racing, his pulse pounding in his ears, his head swamped with dizzying disorientation. That was Tuesday morning. Vainly hoping that he would see some exception, he checked the list again Wednesday afternoon, and saw that day's list had submitted claims as well. It was now early Friday morning. By his calculation, he had been awake for close to fifty straight hours. He felt feverish one moment, and then seized by chills the next. His hands had started to develop a slight tremor.

As he paced the floor, the virtual screen hovered a few inches in front of him. On it was a list of everybody scheduled to die that coming day. There was Justin Myers, age 81, of Bar Harbour, Maine. Mrs. Ellen Ayers of Sausalito, California was on the list as well, age 64. They were all strangers to him, but Vernon felt compelled to do something with this information. But what? Warn them? Tell them they were going to die today? They would think he was crazy – which, all in all, he hadn't ruled out himself. Yet, somehow, it didn't feel right to know this, and not do anything about it. All these people on the list – their lives were going to change radically today, and he was powerless to do anything about it.

Forlornly, he continued to scroll through the names. Melissa Cannon from Tempe, Arizona, age 88. Lance Tomlin, St. Petersburg, Florida, age 72. Michael Carnahan –

Vernon stopped, as a burst of adrenalin flooded through him. He recognized the name. Frantically, he punched up the rest of the information on him. His residence was listed as New York City; his age was 45. The beneficiary on the policy was his wife, Pamela. That was him. Vernon had met him at a Cancer Society fundraiser last year. They had since crossed paths a couple of

times at some volunteer functions; he even vaguely remembered meeting his wife at one point. Vernon scoured the information looking for more clues. His policy was for \$40 million, but ominously, there was an accidental death rider as well. A quick check revealed a reserve that was ready to pay out the full amount. So there it was – Mike Carnahan, an actual acquaintance of his, was going to die later that day in some sort of accident.

Vernon felt like he had been punched in the head. He had difficulty forming coherent thoughts; they all seemed to spin away into nothingness, as if he was losing consciousness. He now clearly remembered Mike's face; the image floated like a ghost through his mind. Vernon had now collapsed onto a leather couch, his eyes focused loosely on the ceiling, trying to decide what – if anything – he could do. After spending several minutes lost in random thoughts, it then hit him. Instinctively, he ran to the bathroom, planning to shower, shave, and ready himself for the coming day. He was going to prevent Mike Carnahan from becoming one of their death claims.

The address on the policy was an apartment complex on 56<sup>th</sup> Street. Vernon knew where it was, and arrived in the lobby shortly before six a.m., taking a seat on a sequined couch facing the elevator banks. He recalled that Mike worked as an investment banker, his office conveniently located a couple of blocks away. That should mean that he would be walking to work, Vernon concluded, hoping that he was right.

For a few moments, he was tempted to head up to their apartment, but decided that wouldn't be a good idea. There was no point rousing them from their sleep to try and explain what he wanted to tell them. After that, the thought crossed Vernon's mind that maybe the accident had already happened, and he would be too late. As a diversion, he wondered if there was any way to extract a time of death from Martin Cale's system. Was there some option that allowed him to do that?

His thoughts were interrupted when, shortly after seven o'clock, he saw Mike Carnahan step from the elevators. He was wearing an innocuous dark grey suit, and walked with his head hunched forward, staring at his handheld, as so many other morning commuters did on their way to the office. Vernon leapt from the couch, and caught up to him halfway across the marble-floored lobby.

"Mike? It's Vernon Grove. I'm hoping you remember me. We've volunteered together on a few occasions."

It was obvious that Mike recognized him. "Yes – Hi, Vernon. How are you doing?" He smiled in amazement. "Although, I should ask you *what* you are doing."

"I -I needed to get in touch with you," Vernon stammered.

"It couldn't wait until I got to the office?"

"Actually, no. Mike, you have insurance policies with my company, correct?"

"Yes, I seem to recall mentioning that, yes."

Vernon took a deep breath. "Mike, I have reason to believe that there is going to be an accident today, and we will end up paying a claim on your policies. I'm here to try and prevent that."

The look on Mike's face was one of bewilderment. He didn't know whether to be angered at the notion, or burst out laughing. "What's going on, Vernon?" he asked cautiously.

"Our system – our valuation system at the company – indicates that a claim will be payable today. An accidental claim." Vernon could tell that his face was flushed and perspiring. He was worried that he looked insane.

Mike took a few cautious steps towards the door. "So what do you want me to do, Vernon?" he asked in a quiet tone, with more than a hint of condescension.

"Stay home," Vernon said. "Stay home and – don't do anything."

Mike shook his head, and began walking briskly away. "Have a good day, Vernon," he said dismissively, as he turned to leave the building.

Vernon hesitated for a moment, then gave chase, catching up to him on the sidewalk outside. It was moderately busy this time of day, as a good number of workers were already making their way to office buildings which towered on either side of the street. The high-speed trains whizzed along silently, already carrying thousands of commuters from the outlying states. Before Mike had a chance to disappear into a crowd, Vernon gently, but firmly, grabbed the sleeve of his jacket.

"Mike, I know this sounds crazy, but you have to believe me on this," he pleaded.

Mike turned, and glared at him with an expression of anger. "Yes, it does sound crazy. You sound crazy, Vernon. If it's that important, call me at the office. But in the meantime – " He roughly pulled his arm away from Vernon's grip, and marched forward.

By now Vernon was acting purely on instinct. He raced forward, and grabbed a hold again, this time making sure he held onto his arm, and not just the jacket. "Mike, you have to listen to me. We have a system that can tell when we will have a claim. *It knows!*"

Mike again pulled away, stumbling closer to the edge of the sidewalk. This time though, he responded by shoving the heel of his fist into Vernon's chest. "Get the hell out of here!" he shouted. A couple of passers-by slowed to watch the brewing conflict.

At this point, Vernon lost control of his actions. He took two steps back, and then flung himself towards Mike, wrapping both arms around him from behind. Mike responded by driving his elbow into Vernon's ribs. The pain radiated through his chest, but he maintained his hold. Mike then grabbed onto Vernon's wrists, squeezing them until they felt like they were burning, until he finally felt his resistance weaken. At that point, Mike pushed himself forward, knocking Vernon backwards, and propelling himself off the sidewalk, directly into the path of a speeding train.

Vernon saw the train from the corner of his eye, and instinctively leapt forward, grabbed Mike by the shoulders, and pulled him backwards onto the

sidewalk, clearing the train by what seemed like inches. They both fell in a heap, with Vernon hitting the concrete sideways. The force of the impact rendered him motionless for a moment. He was afraid he had fractured something.

After about thirty seconds, Vernon was able to pull himself into a upright position, his right arm and shoulder still throbbing. Mike's motionless body lay on the sidewalk beside him. Did he not make it in time? Vernon was sure he had pulled him away before the train struck him. He looked up to see that the train itself had come to a stop directly in front of them. That seemed unusual; it had been speeding along at over a hundred miles an hour. How could it have halted itself so quickly?

It was then that Vernon noticed an eerie calm had settled over the city. The usual morning cacophony of rush hour was silenced; there was absolutely nothing to be heard. Vernon wondered if the impact of the hitting the sidewalk had somehow made him go deaf. He clapped his hands together, which he fortunately heard clearly. So what was going on?

He turned towards two men – both attired in dark brown overcoats – who stood staring at the scene in front of them. Their faces were frozen in shock; their mouths open in disbelief. One of them had his right arm stretched straight out; his hand twisted as if he was trying to grab something.

And they weren't moving.

Neither, for that matter, was anyone or anything else. Vernon could see the train passengers through the window. They all stood and sat motionless, like life-like statues. One of them appeared to be in the middle of adjusting his coat, with his hand resting uncomfortably on his shoulder. Vernon turned to look around. All up and down the sidewalk, he saw every single person, perfectly immobile, caught in mid-stride and mid-conversation, looking like they were captured in a photograph.

Except they weren't. Vernon walked cautiously, searching vainly for some signs of movement. He turned towards the men in the brown overcoats, and grabbed one by the sleeve. There was no reaction. He pulled on it, first gently, and then more forcefully. Nothing happened. Vernon sprinted towards the next individual he saw, an elderly woman carrying a large handbag. Touching her gently on the shoulder, he again saw no reaction. He even reached into her handbag and retrieved a leather wallet, eliciting no response at all.

Now he began to notice further oddities around him. Two workmen across the street had been unloading boxes of oranges at a corner grocery. One of the boxes was suspended in mid-air, from where it had been thrown off the truck. Birds floated motionless in the sky above him. Just ahead, a small boy had been walking with his mother, tossing a yellow ball up and down. The ball hung in front of his face, his eyes focussed lifelessly on it. Vernon plucked the ball out of mid air, and let it drop onto the sidewalk, bouncing twice before rolling into the gutter.

He felt dizzy, and dropped to his knees. What had happened? As soon as he had pulled Mike Carnahan from in front of the train, everything froze in time. Why? Was that the accident that was supposed to take place today? Had he prevented it? Vernon didn't know what to think. His thoughts were disjointed and jumbled; he couldn't connect ideas together logically. He saw himself pulling his

handheld from his pocket, and calling up the address for Martin Cale. He had no conscious notion of why he was doing this; it seemed that, intuitively, he would be the only person that might be able to make sense of it all.

He prayed silently that his connection would work in this frozen environment. Within a moment, Martin's cheerless face appeared on the screen, his eyes blinking lazily. Vernon felt a wave of relief to see another living, moving human being. He opened his mouth to speak, but didn't know what words to say. Instead, Martin spoke first.

"You really have ruined things, haven't you?" he said. It sounded like a scolding.

Vernon stammered. "I don't know what happened. I don't know what to do."

He could see Martin's eyes drop down. "Let me see where you are," he said quietly, as he checked the Vernon's GPS location. Then, with a solemn nod of his head, he said, "Wait there. I'm on my way over. Don't move."

The directive seemed ironic, since Vernon was the only thing capable of movement. He felt feverish as he placed his handheld back in his pocket. A corner store stood a few feet away. Vernon walked in, found the coolers at the back, and removed a bottle of beer. He then replaced it, opting for a six-pack instead. He debated whether to place some money on the counter, where the cashier stood, his arms raised in the air, evidently having an animated conversation when the interruption came. Maybe later, he decided, as he returned to the sidewalk, and sat on the curb.

It took three beers for Martin Cale to arrive. Vernon still felt agitated, but the alcohol had taken off a minimal amount of the edge. Martin strode quietly up the street, wearing the same blue suit he wore when they first met. He shook his head in disdain at what he saw around him, like a disapproving parent. Vernon remained seated, looking up with an expression of total desperation. "What happened?" he mumbled.

"I'll tell you what happened," Martin retorted sharply. "You evidently used the Stalwart system for something other than it's original purpose. Against my warnings, I might add."

"But – this man was going to die," Vernon replied. He related the entire story of how he had reverse engineered the system, discovered that Mike Carnahan was slated to die, and attempted to save him. "I couldn't let this happen," he said meekly.

Martin slowly shook his head. "I told you the system was completely accurate," he said. "All you had to do was work with it, and your insurance company would have been profitable beyond anything you could have imagined. All you had to do was let everything run it's course. But you had to go and interfere. And now look." He gestured with a sweep of his arm.

Vernon responded by waving his own arm. "But how did all this happen? What's going on?"

"If the system knew that this person – what was his name, Carnahan – was going to die today, and you prevented that from happening, then what did the system see, Vernon? There are millions of possible outcomes for any event

on any given day, but there is only one that will actually happen. If you prevent that one from happening, then you interrupt the fundamental passage of time. That's where we find ourselves, Vernon. This is what you get."

"All right, fine," Vernon replied, his voice weak from exhaustion. "But what can we do now? How can we fix this?"

"It's actually very simple," Martin replied. "Repair the passage of time."

Vernon looked confused. "How do I do that?"

"Throw Mr. Carnahan back in front of that train."

Vernon shook his head; his hands were trembling. "I can't do that!" he blurted.

Martin held his hands out in front of him, his palms facing upwards. "Then this is where we are," he said calmly. "Your choice."

Vernon didn't watch as Martin walked away and disappeared around the corner. Instead, he sat with his head buried in his hands, his palms pressed against his cheeks, staring at the dull grey pavement below his feet.

The police had concluded that the death of Mike Carnahan was accidental. Two eyewitnesses – the men in the brown overcoats – indicated that there was a struggle, but they did not believe anything malicious had happened.

Officials at Arcadium Life were not surprised when Vernon Grove requested a short leave of absence, given the trauma of what had happened. However, they were shocked to receive his resignation two weeks later. Even more surprising was the news that he had placed his condominium for sale, and had relocated to a small logging town in the mountains of Idaho, making the drive himself in a car he had purchased the week before. No one from New York saw him before he left, and no one paid any attention when he stopped on the Guiliani Bridge, and unceremoniously tossed the key from Stalwart Systems into the Hudson River.

Sam McAtry, P.I.  
And The Case of the Dead People

by

Melvyn R. Windham, Jr.

It was raining cats and dogs. Not literally, but still it was dark in the Really Big Insurance Company break room. A young actuarial student sat alone in a booth, watching the rain fall, asking himself, *Why?*

It was lunchtime, and there were others in the room, but none of them sat with Sam McAtry. Was it his pocket protector? Was it his disheveled hair? Was it the deodorant he always forgot to put on? He never knew why. He just came down to eat his lunch and listen to the saxophone playing slow jazzy tunes in the company's practice room next door. (Yes, they needed to soundproof that room, but the employees voted to soundproof the bathroom stalls instead.)

Pondering life's questions and the purpose of his own existence, Sam thought, *Who am I? Why am I here? Why do I pick LDFs all day long? Why am I still taking exams? Why do I get paid lower than the D.W. Simpson Actuarial Salary Survey range? Have I missed my calling somewhere?*

As if on cue, the TV captured Sam's attention. It was one of those Kibbles and Bits commercials. Man, those dogs were so cute! After that, the news came on. They were detailing another one of those unexplained deaths.

"We don't know how she died," said a doctor being interviewed. "She was perfectly healthy, then bam! She started coughing a lot. I mean really raspy. And then she died. It's just like the others."

"Yes," said the reporter. "The mysterious raspy coughing disease strikes again. This is the fifth death this week and sixteenth since the epidemic started."

"It's not a disease," said the doctor.

"Who died and made you the reporter? I have the mike, and I can call it whatever I want."

"There are no signs of germs, and none of these people knew each other. So, how could it spread?"

"Um," said the reporter. "Don't we have a commercial coming or *something?*"

A policeman walked in front of the camera, holding a piece of paper. He said, "This is just in!"

The reporter rolled his eyes and asked, "Is there anyone else who wants to do my job?"

"Here, we have some new information. Read this."

"Okay. We have new information," read the reporter.

The policeman interrupted, "I just said that!"

"That's what it says here in your note!"

"Well, keep on going!"

"We have found a link. All of the victims took out policies with Life & Death Insurance."

*Life & Death?* Sam asked himself. They were a small, local competitor.

“Yes, Life & Death Insurance. We don’t know what this means. Also, we found this note. What note? The one I’m reading now? That doesn’t make sense. If you’re writing a note, you don’t say you found that note. That’s stupid!”

The policeman gasped and said, “Oops. Sorry. Here it is.”

The camera zoomed in on the *other* note, which said, “I killed them all. TBA.”

“Okay,” said the reporter. “It appears that someone has been infecting these people with the raspy coughing disease. This has now become a homicide investigation.”

“No it hasn’t,” said the policeman.

“Give it up,” said the doctor. “I already tried.”

That was enough for Sam. He heard what he needed to hear. His lunch was done, and the saxophonist was packing up. Sam knew what he had to do. He just needed to muster up the courage to do it.

He had to talk to the big man: Arnold Fogarty, the Chief Actuary. He needed his experience and advice. However, Sam hardly saw him, as there were so many actuaries employed there. *Will he know who I am? I just have to tell him my idea. He’ll understand.*

At 4:30, when Fogarty was alone in his office, Sam knocked on his door.

“Yes? Come in!” he said in a rush.

Sam opened the door and saw the 70-year-old man rustling papers at his desk. He had his glasses on and he was buried in his work. When Sam didn’t say anything, he finally looked up and said, “What is it, kid? I don’t have all day.”

“Um, hi Mr. Fogarty. I need to ask you something.”

Mr. Fogarty flicked his glasses off and asked, “Do I know you?”

“Yes, I’m Sam McAtry. I’m an actuary.”

“I see. You’ve passed all your exams, then?”

“Well no, I ...”

Mr. Fogarty interrupted, “Then you’re not an actuary. How many exams have you passed?”

“Three, sir,” was Sam’s reply. *Shouldn’t he know already?*

“Okay, that would make you an actuarial analyst.”

“That’s not what I put on my tax forms. I say ‘actuary.’”

Mr. Fogarty laughed and said, “Just hope they don’t audit your taxes, son!”

“Besides, I don’t see the difference. Actuarial analyst. Actuary. They’re both the same.”

Mr. Fogarty suddenly stood up and said forcefully, “They are not the same! You are not an actuary until you’ve passed all your exams! Until then, you are just a student!”

“I do actuarial work, just like Fellows.”

“It’s still not the same! Can you sign actuarial opinions? Do you have letters after your name like this?” He pointed to the nameplate that took up the whole front of his desk.

“No,” answered Sam.

“Listen, kid. You’ve got a long way to go. You have no idea how many kids start taking exams, and then they give up. They become accountants or even worse – financial analysts. Those aren’t actuaries. Those are losers! Do you know how long I’ve been doing this?”

“Um, fifty years?”

“Close enough! When I was your age, we didn’t have fancy computers. We didn’t even have calculators. We had to do all our calculations on abacuses.”

“Abacuses? Yeah, right!” said Sam.

“I can’t even begin to tell you how many parts we used to have on each exam!”

“You’re scaring me.”

“I’m just getting started! When I began working, Sholom Feldblum published his first paper.”

“Which one was that?” asked Sam.

“Aha! If you were a full-fledged actuary, you wouldn’t have to ask! He was two at the time, and it’s called, ‘On the Stochastic Variations of Bottle Temperatures.’”

“No way! I didn’t know bottle temperatures followed a time series! Did anyone take him seriously?”

“Of course they did,” Mr. Fogarty answered. “That was when mothers began splashing milk on their wrists!”

“That’s impressive. You really have been around a long time! Shouldn’t you be retired by now?”

“No, that’s not for me. Ever since I saw that movie about actuaries, I’ve decided to work till I’m dead.”

“What?” asked Sam. “‘The Billion Dollar Bubble’?”

“No! ‘About Schmidt’! As soon as I retire, you guys are going to throw all my life’s work into the trash!”

“I’d never do that,” Sam lied.

“What did you come in here to ask me anyways? I have to get back to work!”

“Well, sir. It’s about those murders.”

“What murders?” asked Mr. Fogarty.

“The coughing death murders. I think we can help solve the case.”

Fogarty laughed. “What? Go on, kid, tell me why.”

“Haven’t you heard they’re all connected to Life & Death Insurance? We could use our actuarial knowledge to help them out.”

“Help them out? I don’t think so. If they go under, it’ll be more premiums for us. The way I see it, you need not worry about it. You’re busy enough as it is – taking exams and working for us. Let the police handle this.”

“But innocent people are dying,” insisted Sam. “I could speed up the process.”

Mr. Fogarty looked confused.

“Oh,” said Sam. “I mean the catch-the-bad-guy process, of course.”

“They’ll catch him. Don’t worry about it. Remember what that note said? TBA. That stands for ‘to be announced.’ Just a couple more murders and he’ll announce his identity.”

“If you won’t help, could I ask for one day off? That’s all it’ll take. I could have that case solved in no time.”

Mr. Fogarty seemed distracted. “Do you hear a saxophone, son?”

“Oh yeah. He plays downstairs at lunch. Should I ask him to go back to the practice room?”

“No, it’s kind of relaxing. Jazzy. Oh yes. I remember when they started that too!”

“Huh?”

“Listen kid,” said Mr. Fogarty. “You can’t have the time off. If you work for this company, you’ve got work to do. You know our company motto. ‘If it’s Really Big, it’s ours.’ You don’t have time to chase pipe dreams. Now, you’re coming into work tomorrow, or you’ll be working for Life & Death! They don’t pay as well. The only way you’re not coming in is if you’re sick or something, so you should just let it go.”

“Okay,” said Sam. “You’re the boss.”

*Unless I get sick? Hmmm. That gives me an idea.*

The next morning, Sam called his supervisor at 7:30. He said in his sickest voice, “Hey Bart. I’m sick today. I can’t come in.”

“Really?” asked Bart. “Do you have a fever?”

*He’s not going for it! Wait! I know!*

Sam faked a few raspy coughs.

Bart yelled, “No! You’ve got the disease! Don’t come in! Please don’t!” and he quickly hung up the phone.

Sam laughed. “Hee, hee, hee. I knew that’d get them. Now it’s time to get down to business.”

First stop was the home of the last victim, Diada Lass. The place was covered with cops. One of them stopped Sam.

“Excuse me,” she said. “Are you supposed to be here?”

Sam quickly flashed a fake badge, and then put it away, saying, “The name’s Sam McAtry, P. I. I’m here to talk to the husband.”

“Oh, he’s over there,” she answered, pointing to a broken man.

Sam approached, looked the man straight at his feet, held out his hand and introduced himself.

The man answered, “I’m Peter. What do you want?”

“I’m just here to ask you a few questions.”

“I’ve already answered tons of questions. Could you just leave me alone?”

“Sir,” said Sam. “I can solve this case. I’m a specialist. Not only am I an investigator, but I’m also an actuary.”

“Actuary? What’s that?”

“We work with math and statistics. We can do life insurance.”

“Oh, I see,” said Peter, pretending to understand. “You’re really one of these actuaries?”

Remembering what Fogarty said the day before, Sam answered, “Actually, I’m an actuarial analyst.”

“Wow! That’s better than an actuary!”

“Um, yes. I guess so.”

“Now that you mention it, I seem to remember an actuary joke. Something about an accountant?”

“Oh yeah,” said Sam. “An accountant is someone who wanted to be an actuary, but didn’t have the personality.”

“I thought it was the other way around.”

“It does go both ways.”

“I don’t get it,” Peter said.

“How about this one? There are three types of actuaries. Those who can count and those who can’t.”

After a long pause, Peter asked, “Okay, what’s the third?”

“That’s it! That’s the joke!”

“I don’t get that one either. Hey, do you have a light bulb joke? How many actuaries does it take to screw in a light bulb?”

“Oh,” said Sam with a groan. “You don’t want to go there.”

“I see. I think I’m starting to understand the personality joke.”

“Hey, we’ve got to figure out who murdered your wife. Tell me about this Life & Death policy. How long ago did she take it out?”

Peter thought about it then answered, “About five years ago.”

“How old was she?”

“When she died? She was thirty.”

“Are they going to pay the claim?” asked Sam.

“They say they are. There’s no way they can deny it.”

“Very interesting,” said Sam as he thought out loud. “Sixteen deaths, and Life & Death has to pay out all those claims. This must really be cutting into their profits.”

“Who cares about their profits?”

“I’m just trying to establish motive. I think the answer lies with Life & Death Insurance. That’s where we need to go next.”

Peter looked distracted. “Excuse me, but who’s that playing the saxophone?”

“Oh, him? How should I know?”

Peter shook his head and said, “I don’t know about you. Are you really a private investigator?”

“Sure. That’s why I’m here.”

“May I see your credentials?”

Sam took out the fake badge, flashed it, but Peter grabbed it before he could put it away.

“What is this? Did you get this out of a Cracker Jack box?”

Sam was busted. He answered, “Maybe.”

“Are you even an actuary?”

“Yeah, here’s a business card.”

Peter studied it, reading out loud, “Really Big Insurance Company? I see. And your name really is Sam McAtry?”

“Yes, that’s my name.”

“Does your boss know you’re here?”

“No,” said Sam truthfully. “If he knew, I’d lose my job.”

“Just a word of advice. If you really want to do this private investigating, I suggest you don’t use your real name. Also, you don’t want to be caught on camera looking like yourself. You need a disguise. Here, I have an idea. Use this.”

Sam looked at the object Peter gave him and asked, “What’s this?”

“It’s called a comb. Here, let me try.”

Peter combed Sam’s hair and then said, “There. Now no one will know it’s you.”

“I’m confused. Why are you helping me so much?”

“These policemen don’t know what they’re doing. You might be able to figure this out. Go get ‘em!”

Armed with a new name and a disguise, Sam marched on to Life & Death Insurance. As expected, there was a commotion there, complete with cops and reporters. The president of the company was busily fielding questions.

A cop stopped Sam asking, “Who are you?”

Sam flashed his fake badge quickly, (he was getting good at it), and said, “I’m Alma McLyst, P. I.”

“Oh, and who’s your friend?”

“The saxophone player? I don’t know. He keeps following me.”

“What is with you private investigators? Why do you always insist on having your own theme music? You know, we cops have our own music too. Hey George! Come over here.”

A man came over carrying ... “Bongo drums?”

“Yes. You know. Bad boys, bad boys. Watcha gonna do?”

“That’s not bongos,” said Sam. “That’s reggae.”

“Really now? Listen, the bongos stay, or your friend’s out of here. At least I know my musician’s name!”

Sam had no room to complain. The bongos had to stay. George and the saxophonist just stared at each other. How awkward! Then again, Sam didn’t have time to worry about it. He had a case to solve!

The cop said, “Well, I suppose you’ll be wanting to ask the president questions.”

“Sure. What’s his name?”

“Leif N. Surants. Now’s your chance. Hurry before someone else grabs him!”

Sam wasted no time and approached the president. “Excuse me, Mr. Surants. May I ask you a few questions?”

They introduced each other. Sam couldn’t help but notice how nice and pleasant the man was compared to Fogarty. *I’ll have to keep this place in mind for later. I could see myself working here.*

He just had to ask him, “Do you guys happen to have a company motto?”

“Sure. ‘If it’s not alive, it’s dead.’”

Sam fought back a chuckle, then said, “Now, that’s interesting.”

“I made it up myself,” said the president. “It’s so hard these days to come up with a good company motto. You don’t want to offend anyone, and as you know – dead people are dead, so they can’t be offended. It’s also a double-entendre. People can be alive and dead, but so can ideas! If an idea dies, just let it die! Isn’t that clever?”

Nodding his head, Sam answered, “I can see that. Wow!”

After a few more niceties, Sam cut to chase and asked, “Could I see your records on the sixteen who’ve died?”

“Sure thing. Come with me.”

Sam and the others followed. They entered a sterile room – all enclosed with white walls, white flooring, no windows, and no decorations. Some ten white-shirt-clad persons typed away at their computers. It was strangely quiet and eerie – like in that “Birds” movie.

Mr. Surants said, “This is our actuarial department.”

“Hi,” said Sam with a wave.

They all waved back in response, looking at Sam’s feet.

*Wow! Extroverts like me! This place is great!*

“You’ll have to excuse them,” said Mr. Surants. “They’re not taking this too well. You see, if this keeps up, we’re going to have to raise our premiums or go out of business.”

“In other words,” said Sam, “you’re going to have to go out of business.”

“Exactly. That is if we can’t figure out where this disease is coming from. Here you go. Files on the deceased.”

He handed Sam sixteen folders. Sam studied the contents, which didn’t make sense. “They were all young and healthy,” he said. “They should have lived much longer.”

“Yes. Can you imagine having to pay out all these claims without having the premiums built up over time?”

“Hey, wait just a minute,” said Sam. “I believe I see a pattern. I need a calculator.”

Several actuarials (that's what you call them when you're not sure if they're Fellows or just students) held up calculators.

Sam said, "I need a *financial* calculator."

Someone held up an HP, but Sam said, "No, does anyone have a BA-35 Solar?!"

A student handed over one. It had the SOA and CAS logos on its back. Sam punched away until he saw some of the keys weren't working.

"Alright now," he said. "Can I have a BA-35 Solar that actually works?!"

The president pulled one out of his briefcase. He said, "This may be the last working model in the state. Please go easy on the buttons."

Sam punched away, doing all kinds of calculations. When he was done, he said, "Just as I thought. These files are incomplete."

"What do you mean?" asked Mr. Surants.

"These files don't contain their current health records."

"Of course they don't. We only consider those at the time they take out the policies."

"Would you mind looking up info on this Diada Lass? Check to see what table pertains to her."

"It says here in the file. She was a young healthy 25-year old woman."

"No," said Sam. "I mean to check and see what table applies now – in your computer system."

Mr. Surants looked confused, but he still had an actuary pull up the information. (This actuary was a Fellow, so we can call him that.)

"This is strange," said the president. "She's not on the healthy table. She's on a terminally ill table."

"Terminally ill *and smoking*," corrected the actuary.

"That would explain the raspy cough," said a cop.

Mr. Surants asked, "What are you talking about? That doesn't make any sense!"

"Here," said Sam. "Check some of these others."

The actuary pulled up five other names, and the results were the same. Each one was on a terminally ill and smoking table.

"This is impossible," said the president.

Sam explained, "At least we can see what happened. Somebody must have moved your policyholders' names to terminally ill and smoking tables, which caused them to die a short-lived life."

"There's just no way this could happen! When we write a policy, everything is locked in place. How could somebody switch tables in the systems without it being reflected in the annual premiums? Even then, how could switching tables ...?"

Sam interrupted, "Only a computer genius could have accomplished this! Every system has its weaknesses, and this person found and exploited yours. We're looking for someone who spends all his time on the computer. I believe I know who that person might be."

"Who is it?" asked the cop.

"Bring me that note where he said he killed them all. Then I'll tell you who it is."

The cop brought the note to him. Sam closely inspected it and said, "Aha! What is this here? I see a little dust on this note."

He brushed the dust away and showed everyone what it really said: "I killed them all. TDA."

"TDA?" asked the president.

“Yes,” answered Sam. “That stands for ‘The Drunken Actuary.’”

“The drunken who?” asked the cop.

“Actuary!”

“Oh, what’s that?” asked the cop.

Half the people in the room groaned. Then they went on, ignoring the question.

Sam explained, “He’s an internet personality. He posts on the actuarial forums.”

“Who is he?” asked Mr. Surants. “Why would he sabotage my company?”

“No one knows who he is, though there are many who wished they did.”

The cop, now irritated, said, “Hold it! You said if I brought you this note, you’d tell us who it was. Now you say you don’t know?”

“Hold your horses,” said Sam. “We’ll find out soon enough. I need to make a phone call, first.”

He took out his cell phone and dialed a number.

“Hello, Traci? I have a question for you. ...” (He paused while listening.)

“No, I haven’t read your book yet. It’s in the cue, though. ...”

“Yes, it’s about TDA. ... Yeah, that’s him. ...”

“You don’t think he’s really an atheist? Well, he’s got me convinced. ...”

“Actually, I was hoping you could tell me who he was. ...”

“Well, he’s been somewhat of a naughty boy. He’s killed a few people and ...”

“You’re kidding! ...”

“You don’t say! ...”

“Yeah, we’ve got cops here and everything. ...”

“Okay, thanks for your help. I’ll let them know. ...”

“Sure, bye.”

He closed his phone and the cop asked, “What did she say?”

“She didn’t say,” answered Sam. “She’s not allowed to reveal any of the forum member’s identities.”

“Why that ...,” said the cop. “I’ll subpoena her ...”

“There’s no need for that,” said Sam. “We have other ways of determining TDA’s identity. Think about it. This had to be an inside job. No matter how good you are at computers, you still have to know the inner workings of the company. We’re looking for a former employee who had a grudge against Life & Death. Mr. Surants, do you recall any of your employees being fired for what could be seen as unjust cause?”

The president thought a little then said, “I can’t think of anyone. We’re always fair to our employees, and we hardly fire anyone.”

“Could you take me to HR and show me some of your prior employee files?”

“You’re in luck, because in this small company, the actuarial department doubles as the HR department.”

“You don’t say!” said Sam.

That same actuary produced a list of former employees, indicating which ones were fired.

“So,” said Sam, “you say you’re fair to all your ... whoa! I can’t believe this! You fired Prakash Naor?!”

“Did you know him?” asked Mr. Surants. “He was a real jerk. We had to fire him for everyone’s sanity. He went ballistic when we wouldn’t give him free tickets to the fair. I kept telling him it was company policy. He just wasn’t with us long enough to get the tickets!”

“Dude! This could be our guy!”

“I doubt it. After we fired him, he killed himself. He wrote some kind of suicide note on the internet and bam! He’s not alive, so he’s dead. You know?”

“Hmmm. And none of these other names ring a bell?” asked Sam.

“No. These are all gentle-natured people. I can’t think of anyone who’d hold a grudge against us.”

Sam thought about this and said, “Wait a minute. I’ve been approaching this the wrong way. This couldn’t have been someone you fired. No one could have accomplished this from the outside.” He then whispered to Mr. Surants, “Whoever did this still works here.”

The president looked around and said, “Oh my gosh! He’s missing!”

“Missing?” asked Sam. “Who?”

“Hüdy. He was here when you came in, and he’s not here now.”

“Hüdy?”

“Yes,” said Mr. Surants. “He’s a Swedish import. Hüdy Büdy van Mørk deMüdy.”

“Yep,” said the cop. “That’s gotta be him. With a name like that, I’d be drunk all the time, too.”

“I should have seen it!” said the president. “He was a Fellow in his country, but we wouldn’t recognize him here. It wasn’t our fault, but we told him he had to take the US exams. He couldn’t pass them because they were much harder.”

“That’s too bad,” said Sam, who could guess what he went through.

“Lately, he’s been bitter and withdrawn. I never knew he’d take it out on us.”

“Okay,” said Sam. “I believe we’ve found The Drunken Actuary! Now, where is he?” Nobody saw where he went.

“Think!” urged Sam. “We’ve got to find him now, before it’s too late! Do you realize what’s happening, Mr. Surants? Do you have a policy taken out with your company?”

“Of course I do. All upper management supports their ...”

“You don’t get it! Your life is in danger!”

“Oh!” said Mr. Surants. “My life insurance policy! He’s going to switch tables on me!”

“Yes! And gain ultimate revenge! He blames you for making him retake those actuarial exams. He’s desperate, and now he’s doing whatever he can before they catch him!”

“I still don’t see how switching tables can ...”

“You don’t have time!” interrupted Sam. “Think! There ought to be very few places in your company that have access clearance high enough to pull this stunt.”

“Let’s see,” said the president. “This room has the highest clearance. There’s nowhere else except my office, which is locked, and ... Oh no! The receptionist’s desk!”

“That’s where he is!” yelled Sam. “Run!”

They quickly ran to the receptionist’s desk next door and found the receptionist unconscious. Hüdy Büdy, no make that TDA, was typing away at the computer. Sure enough, Mr. Surants’ name was on the top of the screen, and TDA was about to push the button, but it wasn’t meant to be.

The cop jumped on the culprit and knocked him over.

The president walked over to the computer and carefully backed out of the screens that were meant to kill him. He said to one of the actuarials, “I want this loophole fixed immediately! We don’t need any more innocent lives lost! Get IS on it right away!”

The actuarial answered, “Sir, we *are* the IS.”

“Oh, oh yeah.”

Hüdy Büdy regained his composure enough to say, “Oy! Don’ta hurta me!”

Everyone laughed. The case was closed.

The very next day, Sam McAtry was back in the dark break room, watching the rain fall, eating his lunch and listening to the saxophone play. Only this time, there were bongos, too. At least someone made a new friend.

Sam watched TV as they told the news of how a crime spree was halted by one Alma McLyst, P. I. No one at work knew the difference. Peter was right. The disguise had worked. Sam couldn't help thinking that he missed his hair being straight, but he didn't dare comb his hair now, as people would recognize him.

Sam received no reward, nor any kind of payment, but he knew he had done well. In a world that holds its life expectancies secret, he found a way to make that world a better place to live. With that, he smiled as he counted the number of sick days he had remaining.

## THE CALCULATOR

By Beverly J. Orth, JD, FSA

Ellen picked up the cell phone, hesitated, then put it down on the desk. She took a deep breath and reached for the phone again. “Connie, pick up, pick up!” After three rings, Connie answered.

“Connie here. Is that you, Ellie?” The sound of Connie’s slight Southern drawl made Ellen relax a little.

“Connie, can you get over here right away? I have to show you something.”

“What is it, babe?”

Ellen held her breath for a moment. “Can’t tell you over the phone. It’s too big, too strange.”

“Ellie, I don’t want to see another dust bunny. The last crop you showed me was too awful.”

“No, not dust bunnies. You’ll just have to trust me. I can’t discuss it on the phone.” Ellen’s hand was shaking so hard, she had trouble holding the phone.

“OK, babe. But it will be 20 minutes or so. I have to get dressed. Is Josh there? Do I have to look decent?”

“No, Josh is at the office. The IPO, you know. I’ve barely seen him the last two months.”

“All right, hon. Don’t do anything crazy until I get there. Bye!”

Ellen set the phone on the desk again, then stared at the computer screen in front of her. Three months of data, three months of patterns, staring back at her. Could it really be true? Connie wouldn’t grasp the significance, but she could be trusted. She was level-headed and practical. She would help Ellen figure out what to do.

Ellen pushed her chair away from the desk slowly, as if a sudden movement might alter the figures on the screen. She almost hoped they would change, turn into random digits that made no sense. But they remained, immutable on the screen.

Looking at her watch, Ellen saw that 25 minutes had passed since her conversation with Connie. “Where is that girl? What is taking her so long?” She stepped to the window and saw Connie and her auburn curls bouncing up the steps.

“Ellie, I’m here! Let me in!” Connie’s voice sounded muffled through the front door. Ellen opened the door wide, looked up and down the sidewalk, and pulled her friend inside.

“Ellie, why are you so nervous? It’s only me.”

Ellen stared at the young woman before her. She knew that explaining the data and her theory to Connie would not be easy. Where to begin? She walked to the wine cabinet and put her hand on a bottle. “You like zinfandel. Let’s start with this nice 2003.” Ellen picked up the bottle and moved towards the kitchen. Connie followed her, a slight frown creasing her brow.

“Ellie, I didn’t come over here to drink wine. It isn’t even noon yet. I appreciate the gesture, but just tell me what is so important.”

Ellen poured two glasses and held one out to Connie. “I will tell you, but it’s complicated. If I tell you too fast, it won’t make sense. The wine will slow me down. If I start talking too fast, just tell me to breathe, OK?”

“Sure, babe. It’s OK. Take your time. Now that I’m here, I plan to stay for awhile. Whenever you’re ready, I’ll listen.” Connie sat down on the sofa and sipped her wine.

“Not there. You have to come to my office. It’s on my computer. You need to look at what I’ve found.” Ellen grasped her friend’s hand and pulled her down the hall. “Sit here. I’m too nervous to sit.”

Connie sat in the desk chair and looked dutifully at the screen. “I see a lot of columns with the same numbers. Big deal. Just a lot of numbers. And every column is the same.” Connie looked at Ellen and tilted her head. “Is it supposed to mean something?”

Ellen ignored the question. She paced across the room and back, set down her glass, put her hands on the desk next to Connie, and leaned forward.

“I’ll start at the beginning. At least, it was the beginning for me. You remember when we went to Santa Anita a few months ago, when Josh couldn’t go with me and I dragged you along?”

Connie nodded. “Yes, of course. I lost \$120 and then had no money to buy lunch at work the next two weeks and had to bring sack lunches from home. How could I forget?” Connie tossed her curls and shook her finger at Ellen.

“And you remember I found a horse race calculator in the trash can as we walked to the parking lot?”

Connie nodded again. “I told you to leave it there. Someone probably threw it away because it didn’t work. Was I right?”

“Sort of. When I got home, I looked up the manufacturer’s Web site and downloaded the instructions. It looked like it would be fun to try it out, so I went back to Santa Anita the next weekend. Remember, I asked you to go with me again, but you were still mad about the \$120 and said no. Anyway, I went by myself and tried the calculator.” Ellen paused for breath. “I put in all the data from the Racing Form for each race and placed the bets it said. But it didn’t work. I usually come out ahead when I do my own handicapping, but the calculator’s picks were kind of bad. So the whole day seemed like pretty much of a waste.” Ellen paused again.

“So that’s the story? What does the calculator have to do with these numbers?” Connie asked gently.

“After I got home, I debated whether to even keep the calculator. Like you said, someone had already thrown it away. It didn’t seem worth keeping. But I kind of played around with it for a few days. And I discovered that it had two basic functions, a handicapping function and a probability function.” Ellen paused again.

“I don’t even know what that means. Can you explain it in simpler terms, please?” Connie pleaded.

Ellen thought for a moment, then continued. “Handicapping is where you take into account the horse’s ability and its record in racing against other horses. Probability reflects the randomness in the world. Like which numbers will turn up in the lottery. That’s supposed to be completely random.” Ellen emphasized the word “supposed.”

“I sort of get it. Why does it matter, if the thing didn’t work?” Connie asked.

“Because part of the calculator does work. At least I think it does. But it works in a phenomenal way. I can’t believe what it’s actually doing, and that’s why I have to tell someone,” Ellen replied in a hushed voice.

“Why are you being so mysterious? Haven’t you told Josh already?”

Ellen stared at her and replied solemnly, “No. He would laugh at me. He wouldn’t take it seriously. You’re the only one I can tell, at least for now.”

“I feel privileged, but if it involves numbers, I’m not your gal. You’re the actuary, I’m not!” Connie insisted.

“That’s why I can trust you. You won’t go running off and blabbing to people. It’s so scary, I don’t think anyone should know. At least, not yet,” Ellen warned.

Connie pointed at the computer screen. “Do these numbers have something to do with the calculator?”

“Definitely. But I have to tell the story in the right order. As I said, the calculator has two functions. I figured out that I could suppress the handicapping function by putting in the same historical data for every horse, for a mythical horse, if you will. Then only the probability function operates. If you put in data for 14 mythical horses, all identical, the results are purely random. Only the probability function is operating. So I used it to predict the lottery results, and it worked! For a whole week, I got the winning numbers for the lottery. By putting in 42 mythical, identical horses, it told me the order of winning. The first six finishers matched the next day’s winning lottery numbers.” Ellen stopped to see Connie’s reaction.

Connie stared at her. “You mean you won the lottery three times that week?”

Ellen shook her head. “I didn’t actually play the numbers. I just recorded them in this database.” She pointed at the computer screen. “Then I tried something else. I went online and discovered I could get lottery results from other states. And I found that the calculator could predict those results, too! I only had to change the number of mythical horses, depending on that state’s lottery system. See, I put those results in the database, too. You’re looking at a sample. See how all the numbers match up? This is showing you the results from March from five different lotteries. They match, except there is a lag. This column is from California, March 3. The next column is from Indiana, March 7. And the third column is Washington, March 11.”

Connie’s brow furrowed as she studied the screen. “Very weird. But probably just some odd coincidence. I wouldn’t be concerned about it.”

“That’s just the beginning. I’ve been tracking lottery results for three months. Then I started looking at other seemingly random occurrences. Snowfall in every major city. Rainfall. Wind speeds. Earthquake magnitudes. The calculator can predict them all! I only have to vary the number of mythical horses and look for lags. I wrote a little program to sort the data that I pulled off the Internet. It matches up the calculator results with the data, voila, this is what you get!” Ellen waved her hands toward the screen.

“What do you mean? I only see numbers, meaningless numbers,” Connie complained.

“But each column has the same numbers. That’s the point.” Ellen pulled up an Excel workbook on the screen and tabbed through the pages. “These are lottery results for 10 states. These are rainfall amounts for ten cities. These are earthquake magnitudes worldwide for the same week. All the numbers are the same!” Ellen’s voice was tinged with awe. “Seemingly unrelated events appear to be related. I can’t even fathom what this means,” Ellen’s voice faltered.

Connie stared at the screen. “Well, for a start, you could be rich. You could wait until the lottery pool gets really big and you could buy a ticket with the winning numbers,” Connie urged.

“It’s bigger than that. Yes, I could get rich with one big win. But it’s so much bigger. This could transform the whole theory of probability.” Ellen looked towards the ceiling and dropped her voice. “This could make me really famous. Maybe even a Nobel Prize, except there isn’t one in mathematics. What would it be like, to be famous for finding a whole new realm of mathematical relationships?”

Connie scratched her head. “I have no idea. I’m only a journalist. Numbers, probability, it’s a completely foreign world to me. But if this is really big, would you let me write about it? Maybe a little fame would rub off on me. My editor might get kind of excited about this.”

“It’s not ready to publish yet. I have to do more research, more checking. Maybe I made a mistake in setting up the database. Maybe I made a programming error. I need to confide in someone who can check my work, but who? Who can I trust with this?” Ellen demanded. “And what if it’s not the results that match, but something strange about the calculator that makes it look like they match? I don’t even know what I’m saying...” Ellen’s voice trailed off.

“Babe, don’t get distressed. We’ll figure it out. Have you said anything to Josh yet? I thought you told him everything.”

“Usually I do. But he’s been wrapped up in this IPO thing at work. I’ve hardly seen him for months. I’m not sure he would actually get it. I’m not sure I get it. Maybe I should talk with another actuary.”

“Doesn’t Josh have a degree in math, too? Why couldn’t he review what you’ve discovered?” Connie asked.

“He hasn’t used much math lately. Our mathematical paths diverged years ago when he went into finance and I started down the actuarial route. I doubt that he even remembers what a probability distribution function is. And if what I think I’ve discovered is true, all the books on probability need to be rewritten. Random events aren’t random; all actions are dependent, but dependent on what? What ties all these unrelated things together? What do lottery numbers have to do with earthquake magnitudes?” Ellen pounded her fist on the desk. “This is driving me crazy! Now you see why I had to tell you?”

“I sort of understand, babe, but not really. You need to talk with a math nerd, not with me. I think you should just take the lottery win and retire rich. Let someone else publish and get famous. In my book, money trumps fame any day.” Connie swirled the wine in her glass and stared at it, as if the answer lay hidden under the burgundy liquid. “Even if Josh isn’t a math nerd any more, he can be objective about this. You really should talk to him, babe.”

Ellen sighed and tapped her fingers on the desk. She and Josh had been together for ten years. At the start, they had shared a passion for math, but their careers had pulled them

in different directions. If she tried to discuss her discovery with him, would he take her seriously or just brush her off? She wasn't sure she still understood his mind any more.

"You know, this could be a sort of test for me, for Josh and me," Ellen confided to Connie. "I could try telling him about my numbers and see how he reacts. If he shows an interest, maybe there's some hope for us. As a couple, I mean." Ellen paused.

"I know, hon. You've been worried for a while, haven't you?" Connie said gently. She waited for Ellen to respond.

Connie nodded, walked across the office, and stared out window. "I haven't told you anything because I have this fear that saying there's a problem will make it true. But the rift between us is growing larger, I think. There's no specific moment or event I can point to and say that's when it started. But there have been subtle, gradual changes in how we relate to each other, how we are when we're together. Plus there's the fact that we are hardly together any more. We share the same dwelling, we say hello and goodbye, we talk on the phone. Is that being together?" Ellen queried, more of herself than of her friend.

Connie responded by shaking her head. She set down her now empty glass and joined Ellen at the window. Grasping Ellen by the shoulders and looking in her eyes, Connie offered encouragement. "You two still love each other. You're just going through a rough period. You'll get past it, and find yourselves and each other again. I'm sure of it. You're so perfect for each other. It's like you have a secret language, a silent language no one else understands. I'm always jealous of you two when I'm around you. The bond is still there, it's still strong. You'll see, when the IPO stuff is all behind you and your lives get back to normal, you'll be your old selves again." Connie took a step back and smiled. "I've known Josh just as long as you have and I know his character. He's a little distracted right now, we both know that. But he's there for you. I'm sure he would spend an hour looking at your numbers if you ask him to. Just give him the chance, OK?"

Ellen took a deep breath and nodded. "OK. Yes, OK. I'm being silly, I guess. I've been so distressed with my database. It's affecting my judgment, my perspective. You're absolutely right." She took another deep breath and exhaled slowly. "Josh said he would be eating at home tonight. I'll make his favorite, the coq au vin recipe that takes all afternoon. And I'll explain my findings while I have him captive at the table." Ellen nodded, more to herself than to Connie.

"Babe, that's perfect. I don't think you need to knock yourself out with the cooking, but I'm sure Josh will appreciate it." Connie nodded back and smiled again. "I told you we would figure it out. At least the first step. And it will be all right, you'll see. Your database is wonderful, Josh is wonderful, your fame will be wonderful." Connie paused for a moment. "Will you be too famous to be friends with me?" she demanded.

Ellen laughed and hugged her friend. "Never too famous for that!"

They both laughed. Connie moved towards the door. "I've got to run now, Ellie. I told my sister I would help her with her wedding planning stuff this afternoon. And you have to get busy with that chicken you're fixing."

Ellen nodded and grabbed Connie's hand. "Thanks for coming over. And for being such a good friend. I don't deserve you!"

"Yes, you do, babe. And you deserve Josh, too. Now get busy, and call me tomorrow. Love you!" Connie waved and disappeared through the door.

Ellen carried the two empty glasses to the kitchen and placed them carefully in the dishwasher. Feeling much lighter in spirit than she had in weeks, she gazed about the kitchen. It had been at least a year since she had cooked coq au vin. Where had she stored the recipe, she asked herself. It might be in the accordion file on the cookbook shelf. She shook her head. No, more likely it was in the shoebox of recipes she had clipped from newspapers but never filed. As she reached for the shoebox, the phone rang.

Ellen turned to pick up the receiver. "This is Ellen," she said brightly.

"Hey, sweetie! Just me." Josh's voice greeted her. "I'll be home about 6:30 or 7:00. Didn't want you to think I forgot about dinner tonight. Maybe we should go out? We haven't done that for a while."

"No, I feel like cooking, if you don't mind."

Josh laughed. "OK by me. As long as it's only the two of us. I want you to myself tonight."

"Sure, just the two of us. How is it going today? Getting lots accomplished?"

"Not bad. I think the lawyers have all signed off on the fifteenth draft of the prospectus. That's a major hurdle out of the way. What has your Saturday been like? Still noodling over that database? What is it you've been working on, anyway?"

Ellen caught her breath. "Something kind of interesting. I'll tell you about it tonight."

"Can't wait. It will be nice to hear about something other than SEC filings and legal disclaimers. By the way, I saw something on the Internet this morning that should interest you. A couple of mathematicians from Sweden announced that they discovered some new theory. Let's see, what did they call it, exactly? Oh, yeah. Something called a Unified Theory of Probability. Sounded really bizarre. Something like all randomness being connected. Doesn't make much sense to me, but you'll totally get it. Bye, sweetie. Love you! Sweetie? You still there?"

## The Camel of Emotion

By Daniel P. Johnson  
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Manny smiled as he moved along the low cubicle walls towards the mail station, bobbing and turning as he looked at who else was moving around the office. He had enough sleep, his pet cat had graciously allowed him some petting time during breakfast, and the commute to work had been light and free from road rage.

He checked his headsup display. The cubical traffic flow map showed red ahead of him. A closer examination showed why- Helen, the receptionist, was having a very bad day. Her emoticon was flaming red. His smile widened. He called up for more detail, fingers flickering in the air ahead of him over his virtual handsup keyboard. Her health monitors showed edginess and her trend indicators showed a lack of caffeine levels when compared to her historic levels.

It was time to bring in the Minstrel, that magical being whose job it was to keep the Court in good spirits, in good times and bad. After some preparation, Manny plunged into the red zone, colleagues making way before his determination. He arrived in front of Helen's desk and held out a cup of coffee.

"There you are, Helen. Black with two sugars."

She stared at the cup. "So the company is providing us with cupholders, now?" she asked coldly.

His smile turned a little grimmer, but remained in position. He motioned with the coffee cup. She shrugged and took the cup. "You need something?"

"No, not really."

"Then why am I working when you're not?" she said. He grinned at her and left the desk.

He checked her emoticon. Still red, but he thought he could see a deeper orange lurking. He hummed. The Minstrel had done it again, he thought, lightening the mood of the Court. His fingers flew and he looked over the colors of the office health monitor map.

"You cannot do it, you know."

There was a man sitting in Manny's headsup. He was distinguished, just a little grey, in an elegant overstuffed leather chair. Another popup, Manny grumbled to himself. Wasn't his company blocking those?

"Close, please."

The man continued to sit, then spoke. "My name is Reason, and you have been assigned to my case load. Your insurance company has gotten worried about the readings from your meter. You have been increasingly agitated and uncalm lately. It raises your potential for injury, illness, and missed work."

"So you're here to see what's wrong with me?"

"Oh no, we already know that from your health monitor."

With the use of implanted wireless health monitors common, Congress had finally given up on the privacy of health information after scientists discovered the gene that controlled whether males left the toilet seat up. The resulting controversy over whether Congress needed to require mandatory reporting to potential spouses finally exhausted Congressional patience, and they made everything completely public. Insurance companies were particularly pleased since they could now underwrite accurately, and health insurance rates plummeted.

It was only three months later that information from everyone's wireless health monitors was made available freely on the web. Emoticon mapping went live 48 hours later as three web company titans collided in their eagerness to be the first to provide a new web service.

"And what's my problem, Reason?"

"You seem to think that you can improve everyone's emotions," the virtual said.

"What is wrong with that?"

"You are adding stress by attempting to do something that is impossible. You cannot do it. Emotion is a function of simple biology and genetics."

"Yes, I can. I can make people happy. I give someone a chocolate and it makes her happy."

"It is the endorphins. She eats the chocolate, and it raises the endorphins and she is happier."

"She's happy before she eats the chocolate. Because someone gave it to her. Me. Go away. You're making me unhappy."

"You were already unhappy. Check your universal health monitor. I am just trying to help you accept your unhappiness."

"I'm unhappy now, but I wasn't so miserable before you showed up."

"We'll talk later." And his image popped out of Manny's headsup. Manny returned his attention to the cubicle map. It was time for the Minstrel to work his magic again.

Tamara sat calmly in her cubicle. Her emoticon was green, but as always it was the most neutral shade of green Manny had ever seen. A steel green. A green worth painting on a battleship with armor thick enough to resist shot the size of a man. But she hadn't counted on the Minstrel.

"Hi Tam."

She grinned at him. "Hi Manny. What's up?"

"A bunch of us are going to go walk on the bridge this noon. Would you care to come along?" As of right now, the bunch consisted of Manny alone, but he was confident in his ability to recruit more in the course of the morning.

"The bridge? That old rusty thing down the block across the river? Didn't I hear they were condemning it?"

"That old thing is almost a hundred years old! It's historic!" Manny was offended. He loved that bridge. Now that she mentioned it, he did remember hearing something of the sort.

"Sorry. Reports to do."

"Maybe next time." Manny walked away. Her emoticon hovered serenely, changeless and mocking in his headsup.

"That was not particularly effective." It was Reason, back again in Manny's headsup. He was sitting in the same chair, but with his back to Manny, taking notes in a notebook.

"Why can't you just leave me alone, Reason?"

"You have been assigned to me. "

"Are you human, or artificial?"

"It does not really matter. Studies show that artificials are just as effective as reals in 85% of routine cases, as long as the patient does not know they are artificial."

"What happened to 'the complete disclosure of all health-related information'?"

"Not when the disclosure would compromise the effectiveness of the treatment. It is one of the exceptions, along with national defense, sealed court hearings, and outing the outcome of a reality show before the air date."

"And what is the treatment?"

"Therapy. Counseling. To help you accept the immutability of emotions."

"What do you mean?"

"We have proven that mood depends on biology, and that people are powerless to influence them significantly. Emotions are the byproduct of the mediation of the amygdala and hypothalamus and the secondary coordination centers as they attempt to coordinate decision-making with the different fine-focus visualization and sensory-reduction regions of the brain."

"Could you try that explanation again, with fewer words?"

"Fine. Mood is a wildly swaying tourist on top of a moving camel. It cannot change the swaying or motion of the camel, it can only ride along. Simple enough?"

"If emotions are biologically determined, why assign me a therapist to help me manage them?"

"Your emotions are fine. It is your thoughts that are bothersome."

"And what is so bothersome about them?"

"You are demanding the impossible. People cannot change their own emotions. You cannot change them either. It is like a boy teasing a large dog. The dog does not understand that it is being teased. But in its misunderstanding, it might attack the boy."

"There, a perfect example. If the boy teases the dog, the dog gets angry and attacks the boy. Cause- boy. Effect- anger."

"It was only a metaphor." Reason popped out. Minstrel smiled. Now, he was happy.

The morning progressed, but not grandly. After dropping into three more cubicles to chat up the inhabitants with what even the Minstrel accepted was minimal success, Manny finally sat down at his desk to collate and process the service claims that were his responsibility.

By the end of the morning, the virtual stack of claims had defeated him. Each claim had been notable for its omissions, errors, and exceptional conditions. He sighed, and moved the stack to the corner of his virtual desk. He started sorting through the emoticons of his fellows. It had been a tough morning for many of them also-- lots of yellows, some oranges and reds, even one purple that called out to the Minstrel, called for his belled hat and puffy juggling balls with fringes.

"So you are going to give up trying to achieve a real success and go back to herding emotions?" Reason was back. Manu pushed his thoughts of the Minstrel aside.

"It's lunch time. And aren't you supposed to listen to me, instead of lecturing me?"

"What do you mean?"

"That's more like it! You keep correcting me and arguing with me. Shouldn't you be listening to me nonjudgementally, and letting me work out my problems?"

"Studies show that active intervention yields better results in the first 24 hours."

"What about the second 24 hours?"

"That is where the study ended."

"So why use it?"

"Because your company health insurance only includes 24 hours of mental therapy."

"So I only have to tolerate you for one day."

"24 hours of actual therapy compute time, not including conversational upload and download, and assuming an artificial therapist.. So far, you have consumed 354 milliseconds of billable time."

"So you are artificial."

"Human therapists bill according to the same billing schedule as artificials, but generally charge more per millisecond. Also, an hour of casual human conversation is billed at 60 milliseconds, more for discussions of substantive issues requiring more compute time."

"You're billing this as if we had been talking for six hours?"

"The preliminary analysis did take a little longer than normal."

"I'm going for a walk."

"By yourself?"

"You're being very sarcastic." Manny was walking out the door, talking to the air where the virtual therapist sat, much like the other people also crowding the entranceway. The day outside was clear, warm, and sunny. Manny picked his way along the sidewalk, stopping briefly for a hot dog before resuming his journey to the bridge.

"It's not healthy wolfing your food like that."

"You are sounding more and more like a nag, and less and less like a counselor. Are you really a therapist? Maybe you are just a random pop-up. Going to start showing me porn sites to improve my mood?"

"I am Board-certified. Do you want to validate my signed digital certificate? I qualified against both the Freud and Jung artificials! After my therapy, the Einstein artificial felt so validated that he stopped working on his grand unified theory!"

The crowd on the streets was happy and excited. A river of green and blues surrounded the Minstrel as he headed towards the bridge. Manny felt the heavy mood of the morning start to lift. What did it matter that his office mates' moods were uniformly glum, that his work was also glum, and that he had a free-riding therapist who didn't approve of anything he enjoyed.

The grand old bridge lay ahead. All old steel and cables, it had stood over the river for almost a century. There was only a small walkway besides the cars and truck, but vendors lined the streets, and he was free to treat it like a wonderful city park overhanging the surging river below.

A wonderful city park with really rusty fences. He winced at the sight of the old cables. He noticed other people wincing, too. In fact, he started noticing lots of people wincing at the cables. More and more people, pouring out of the office buildings, heading to the old bridge, and wincing at the cables.

He checked the local map. The river of green and blue had changed into a seething mass of sparks of pink and white. Anxiety, lots of it, free-floated through the crowd. And it was focusing on the old bridge. He turned away, but there were people close behind him. He couldn't make his way against the flow.

"What's wrong?" he asked.

A rather large and florid woman lectured him. "Haven't you seen the blogging? The city hasn't been keeping up the bridge. It's unsafe!"

"It's going to fall right when I'm driving across it," a large red-haired man spoke urgently in Bob's face, "We have to take a look at it, and see how rusted it is. You can't ignore it."

"It's okay!" he spoke back, "the bridge is okay! It's stood for a hundred years!"

"No, it's not okay! I don't feel okay. You don't feel okay. Don't ignore it! We have to deal with it. You have to confront the source of your anxiety." The people around Bob took up the chant, "Confront the source! Confront the source!"

"But I'm rational!" he shouted. "I can look at the overall situation and come to a balanced conclusion! Too many people on the bridge will cause it to collapse!"

The crowd would have none of it. The waves of anxiety pounded through the emoticons and through the hundreds of health monitors. Manny was being dragged along with the crowd surging onto the old bridge. The bridge started to sway, more than Manny had ever felt it sway before.

"Manny, don't panic!" It was Reason, back in his headsup, standing now and leaning to Manny, showing his concern.

"I'm not panicking! I'm calm, collected, and rational." He was shouting, shouting uselessly at the frantic crowd. But they wouldn't respond, too caught up in their free-floating anxiety to acknowledge his deliberate peace as he got battered and pushed by seething shoulders.

His noise-cancellation was up as high as it could go to hear Reason. "You can't argue with anxiety," cautioned Reason, "it's just the way it is."

"I'm not trying to argue with it, I'm trapped in it!" yelled Manny.

"Are you sure you're not anxious, too?" asked Reason, "the anxiety bar on my conversation analyzer is way high."

"It's must be bleedover from this crowd," yelled Manny, "I'm ... very... calm!" He was gasping for breath from the press of the crowd.

"Get out of there!" shouted Reason.

"I can't. I can't." Manny slumped. There was nothing he could do. They were right, all of them, Reason included. You cannot fight emotions, he thought. The camel goes where it wants, and you just have to hang onto the hump. The Minstrel took off his hat of many bells, and folded it into his pocket.

"Manny, climb up here!" What was that? A voice, a voice from above? He looked up from the edge of the bridge as the mob surged into the narrow walkway. Was that Tamara, she of the steel emotions? And a little ladder of steel cross-pieces on the back of the huge struts of the bridge?

He grabbed the rusty little pieces and climbed up, out of the mob, into the blue sky, until he came to the cross girder where Tamara sat grinning with the brightest green emoticon he had ever seen.

"But you said you had reports to do," he said.

"I can't tell people I climb up the bridge to look at the sky, can I? They'd think I wasn't responsible!"

They looked down at the riot. The police had finally arrived, and the fire department with their new green foam trucks, pouring fire-resistant and drug-infused foam onto the crowd. Fire fighting and crowd fighting in the same efficient package. The spreading beige across the bridge and roads lent a certain air of festivity and order to the view.

"But I guess I need to get more involved with other people," Tamara continued. "I try to treat them so rationally. But reason is like a tourist riding on a wildly swaying camel of emotion."

Manny looked at Tam. "They assigned you to a therapist, didn't they?"

Tam laughed. "You too? Mine insists that I call her Emotion. What's the name of yours?"

"Reason."

She laughed. It was a natural laugh, and Manny did the next natural thing and took her hand. She smiled and looked at him, studying his face.

Manny's insurance agent, Chen Gong, popped up in his headsup. "You need a new rider on your policy, I see," she said, looking at some unseen data in his own headsup.

"What kind of a rider?"

"Paternity, I'd say."

"But we haven't even dated yet."

"The monitor shows that the probability of paternity is going up even as we speak. Wait too long, and it will be a pre-existing condition that we can't insure. Better get it now while it's still uncertain."

"Fine, go ahead." He snapped off a quick response with his fingers flying in the air. He noticed Tam's fingers flying also. "Maternity?" he asked. "Yes." She blushed. "Paternity," he said and pointed to himself, blushing also. She reached out and turned off his headsup access, even as he turned off hers.

The Minstrel took out his belled hat out from his pocket, and offered it to the Maiden. The Maiden laughed and put it on, shaking the bells in his face. Then they sat quietly on the bridge, looking over the world that lay ahead of them, and marveled.

--Fridley, MN 2007

# The Campaign

By Stephen Brady

“This song is called...”

Willy Jo paused and adjusted his guitar strap. He felt funny. He felt...nervous? Could he be nervous? No way! He's Willy Jo from Greek Day. Greek Day had rocked every stadium, arena, and civic center in North America, and Willy Jo hadn't been nervous before a show in probably ten years. But this show *was* different. This was just Willy Jo, no Greek Day. It was also different because in the audience were Mr. Takamoto and his associate Ms. Swan. Willy Jo wanted Takamoto to be his new manager. And he knew that if he laid them out with one song, he could get signed. He smiled. *Rock and roll*, he thought.

“This song,” he started again, “is called ‘Death Claims Log’”

Willy Jo launched in with a dirty, distorted guitar:

*ba-DA ba-DA ba-DA wicka weah wah*

He stumbled and writhed, controlled by the music. He stomped his feet like he might kick through the floor.

*ba-DA ba-DA ba-DA wicka weah wah*

Willy Jo closed his eyes and screamed:

“Drowning!!!”

*ba-DA ba-DA wicka weah wah*

“Lung cancer!”

*ba-DA ba-DA wicka weah wah*

“Stroke!”

*ba-DA ba-DA wicka weah wah*

“Pneumonia!”

*ba-DA ba-DA wicka weah wah*

“Motor vehicle collision!”

*ba-DA wicka weah wah*

“Cardiopulmonary Arrest!”

*ba-DA wicka weah wah*

“Metastatic transitional cell cancer of the urinary bladder!”

*wicka weah wah*

“Lost at sea!  
No body was found!  
Re-file in seven years  
Re-file in seven years  
Re-fiiiiiii-yell!!!  
...In seven!  
...YEEEEEEEEEEEEARS!!!”

The guitar rang out its last note. Willy Jo’s chest heaved up and down. Under his suit jacket, his shirt and tie were drenched in sweat. As the guitar faded out, he listened for the reaction of the audience, but he was met with silence. An uneasy silence. Then, softly, in the distance, a phone rang. From a cubicle somewhere, the faint tapping of typing could be heard.

Neither of the two audience members spoke. Willy Jo thought, *At least Takamoto’s smiling*. Takamoto did seem impressed. Or was it puzzled? Willy Jo couldn’t tell. Swan was avoiding eye contact. She blinked out the window at the sun reflecting off the buildings downtown. No one in the conference room spoke.

*Come on, Takamoto, say something*, Willy Jo thought.

*Come on, Takamoto, say something*, Takamoto thought, but his mind was blank. Takamoto thought back on all his years as an actuary, all the job interviews he had conducted. Before Willy Jo had applied, no actuarial candidate had ever done anything like this at an interview. He looked at his legal pad at the last question he had asked.

*#6. Give an example of a time where you have used creativity in your actuarial work.*

Later that afternoon, Takamoto and Swan stood in Takamoto’s office, discussing the interview.

“What do you think?” Takamoto asked.

Swan was staring off. She responded slowly, “I think... our *world* is changing.”

“No, I meant what did you think of...?”

“And I think it’s that... campaign,” Swan continued.

“The Image of the Actuary Campaign?” Takamoto was confused. “What does that have to do with...?”

“It sure got results, didn’t it?” Swan said to the wallpaper, “But you might say it missed the mark, don’t you think?”

Takamoto corrected her, “The image campaign was considered a *huge* success. The profession is getting unprecedented exposure and attention.”

“Look,” Swan said directly to Takamoto, “Can I tell you something unusual that happened to me? I was at a party a few months ago, and it came up that I’m an actuary. So this guy says, ‘Actuary? What’s an actuary?’”

Takamoto interrupted, “That’s happened to me *dozens* of times.”

“Yeah,” agreed Swan, “that’s not the unusual part. The guy says, ‘What’s an actuary?’ and before I can answer, everyone in the room bursts into laughter. The guy who asked the question is grinning all smug and getting slapped on the back. They’re yelling, ‘Good one!’, ‘Yeah, right!’ as if, well, who *doesn’t* know what an actuary is.”

“That *is* unusual.”

“Yeah. That’s not all,” continued Swan, “Then, I spent the next two hours getting grilled for advice. Insurance advice, investment advice, retirement advice. But it didn’t stop there. People asked me for career advice, relationship advice. After they found out I’m an actuary, I was suddenly the village sage. One woman asked me where her daughter should go to college. One guy asked me how to make guacamole.”

“Hmm,” Takamoto furrowed his brow, “I see what you mean about the campaign missing...”

Just then a coworker walked in grinning, “You two are gonna wanna see this.”

Takamoto and Swan followed him to the break room where a few people were watching the TV. In the top right corner of the screen was a picture of the football star Tyrell Lowens. A sportscaster seated at a desk was talking,

“...flamboyant wide receiver has made headlines again for yet another off-the-field incident. The team announced today that Lowens has been fined \$20,000 for – quote – not participating in a team meeting – end quote. A source close to the team said that Lowens *was present* at the meeting, but inside his playbook were *actuarial exam study materials*. That was neither confirmed nor denied by the team or by Lowens. Coaches would not comment on the incident, and Lowens would only say that he will be taking the first actuarial exam in the spring.”

The TV then showed Tyrell walking to his car after practice. Well, more of a swagger than a walk. He was wearing diamond earrings and shades (in the parking garage). Reporters walked on all sides of him, holding out microphones and all asking questions at the same time. Tyrell was saying, “Yeah, I’ll be taking Exam P in the spring.”

“Hey, Tyrell!” one reporter shouted, “Do you really think that you can get even the *minimum* score needed to pass one of these actuarial tests?”

Tyrell smiled, “Babe, every Sunday, I get *tested* and I *score six*.”

He opened the door to his Escalade and got in.

A reporter shouted, “Tyrell, you’re getting a reputation around the league as a distraction to any team you play for. Don’t you risk cutting short your football career?”

Tyrell chuckled, and just before closing the car door he answered, “Risk? Risk is opportunity.”

The TV switched back to the anchor, “When we come back, basketball in the...”

Everyone turned with raised eyebrows and looked at the two actuaries for their reaction. Takamoto smiled uneasily and shrugged.

Swan looked at her watch. It was after five. She quickly turned to Takamoto, “I have to go. Look, let’s talk tomorrow morning.”

“I’m proctoring tomorrow morning.”

“Oh yeah. I forgot. How about before the exam?”

“Sure. Well, maybe,” Takamoto hesitated, “Tomorrow’s exam, umm. I have a feeling that I’m gonna be busy before it. Just today, a candidate was added to the list, and I have a feeling that this candidate is going to require some special...”

“Well, I’ll stop by. If you’re there, we’ll talk.”

The elevator dinged. The doors opened. Takamoto stepped out into the parking garage. As he started towards his car, he remembered what Swan had said. “*Our world is changing.*” Takamoto wondered, *Could she be right?* It did seem like suddenly actuary was a glamorous profession. Rock stars and pro athletes wanted in. Takamoto smiled to himself. Back in 2007, none of his friends even knew what he did for a living. Even after he had explained it to them. Now, actuarial work was hot! In his head, he practiced saying *Hi, I’m Michael Takamoto. I’m an ACTUARY.* It sounded so smooth.

Takamoto stopped. *Who’s that?* Hanging out by Takamoto’s car were two young men, mean-looking men, with stubbled faces and baggy jeans. One had his baseball cap on backwards, the other sideways. *Uh oh.* He thought of getting back in the elevator, but the doors had already closed. *Where’s security?* The two men saw Takamoto and approached briskly. *Oh great! This is fame and fortune, I guess.*

“Mr. Takamoto,” one of them said, as he reached into his jacket. *Oh no!*

The young man pulled out a pen, “Can we get your autograph?”

Takamoto was confused, relieved, and bewildered.

“I’m a big fan, Tock. Can I call you Tock?” The young man continued talking faster and faster. “You’re at my fantasy company. When you made the switch to principles-based, ho, that won me the market. Thanks, brother. Would you sign this?” The man handed Takamoto a mortality table.

“This table is out-of-date,” said Takamoto, “I can get you the 2001 CSO, if you want.”

“Ha! Out-of-date,” laughed the young man, “Nah, man. It’s retro. That’s the table you used to price the universals back in the 90’s”

The second man carefully removed a study manual from a plastic cover and asked nervously, “Could you sign this please?”

Takamoto looked at the signatures already on the cover. It was a veritable who’s who of the actuarial profession: Kellison, Shao, Wat, Schobel...

Takamoto signed it and chatted with the young men. They explained to him fantasy insurance markets. He in turn told them about the new regulations. The two men had never taken an actuarial exam, nor did they plan to. They had read a couple of books on risk and apparently that gave them license to begin and end sentences with “actuarially speaking.” Takamoto thought of them as “armchair actuaries” or “Saturday evening actuaries.” Takamoto wondered if men like this would soon be found at water coolers and cocktail parties everywhere, actuarially speaking.

The next morning, Takamoto was standing by his desk counting number two pencils, when a perplexed Swan walked in. “Where will it end? That’s what I want to know.”

“Oh, Good morning. Umm, hey, I’m sorry,” Takamoto apologized, “but actually, I have to go proctor.”

Swan kept going, “Well, just listen. This Image of the Actuary Campaign has attracted a lot of new people to the profession. Yesterday, we saw a lead singer, a wide receiver. Guys who are more about ‘image’ than they are about ‘actuary.’ I’m wondering what other attention-seekers will switch to the actuarial profession. Movie stars? Supermodels?”

Just then, a clean-cut man in a grey suit appeared at Takamoto’s door. He was wearing an earpiece. He mumbled something into his wrist and then fixed his gaze on Takamoto. “Sir, the president is ready for you.”

# CompAct – Technology Section Newsletter

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February 2086

**Zaphir Strakes is a past Chair of the Technology Section of the Society of Actuaries.**

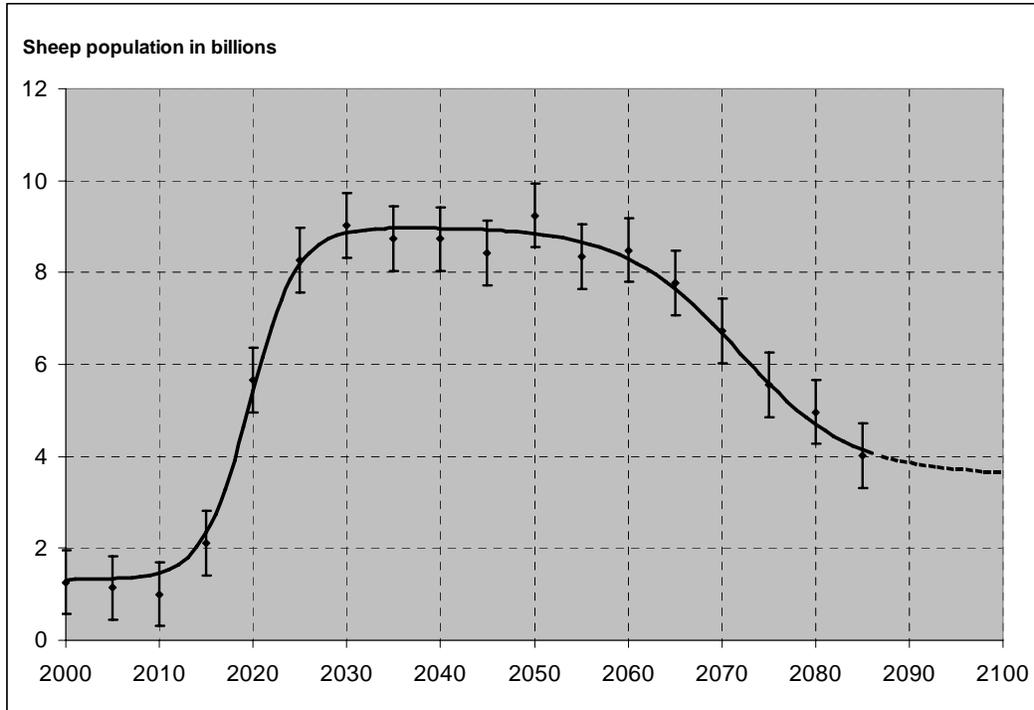
**Zaphir is AVP of Livestock Insurance for New Order Capital, and is a member of the executive committee of the Academy of Animal Demographers.**

## **The Demography of Sheep, by Zaphir Strakes**

People have been raising sheep for thousands of years, and for most of that time the sheep population was relatively stable. The twenty first century has seen large fluctuations in the demographics of sheep, and Actuaries may be interested in this distillation of more recent developments.

The chart below shows the recorded sheep population, as estimated by in the WLO (World Livestock Organization) and the population fitted by the formula:

$$N = [3.987 + 2.97 * \tanh(0.201 * (T - 2019.6))] * [0.904 - 0.388 * \tanh(0.0822 * (T - 2071.75))]$$



Back in biblical days, shepherds controlled their flocks with their voices, or by carefully aiming slingshots to turn the leading sheep in the desired direction. Then all would follow. Just like sheep, you might say. Innovations came slowly. Affixing a bell around a sheep's neck would cause all the other sheep to know where that one, more tractable sheep might lead, enabling a shepherd to control a larger flock single-handed. Horses made the shepherd more mobile, again increasing the maximum flock size. Electrical sheers came to replace their mechanical counterparts, reducing the time it takes to gather wool. But in most respects, a shepherd in the twentieth century ran a similar practice to shepherds of old.

So when was it exactly that the practice of shepherding changed to become so *hi-tech*? Perhaps you could trace it to the late 20<sup>th</sup> century innovations in early pregnancy detection and optimal feed mix calculations that arose at that time in Israel. A little background may be in order.

In those days, sheep's milk cheese was a Mediterranean delicacy, fetching high prices. Flocks of sheep were established for milk production, and the agricultural scientists at Alfa Laval adapted their cattle milking machinery to meet the demands of sheep farmers. Male lambs would mostly be fattened up and sold for mutton leaving just a few to develop into stud-rams while the females would be reared for breeding and milking. Just as a pregnant woman benefits from a special diet rich in protein, so does a pregnant ewe. The earlier you can make the determination that the ewe is pregnant,

the sooner the diet can be adjusted, and the better the average birth weight and the health of the ensuing lambs. Skilled Bedouin shepherds could tell by feeling the ewe's around the tenth week of pregnancy, but by using the same ultrasonic testing machines that were introduced into maternity hospitals in the early 1970's, detection could be advanced to the fifth or sixth week of gestation.

The second innovation was the application of Operational Research techniques, more specifically linear optimization. Farmers were able to set out all the dietary requirements for the various stages of the ewe's lifecycle – the early growth stage, pregnancy and milking. By specifying those requirements in terms of calories, carbohydrates, fat and protein and then detailing the composition and cost of the various available feeds, factoring in certain additional constraints such as the availability of pasture, mathematicians at Haifa's Technion employed the Simplex Method to calculate optimal diets. It may interest the reader to know that this development was spearheaded by an actuarial student, fresh from his FSA examination paper in Operation Research and Statistics.

This may well have marked the marriage of science and sheep rearing that has continued to the present year, 2086. Could anyone in the early part of this century have envisaged the progeny of this marriage? Who knew then that bird flu (Avian Influenza A – H5N1) would decimate the poultry industry in 2008, or that Mad Cow disease (Bovine Spongiform Encephalopathy - BSE) would spread uncontrollably in 2011-12, effectively wiping out the cattle industry on five continents? Fortunately, sheep proved impervious to this dreadful affliction, and so became prized not just for the mutton but also for their milk. As prices for mutton and sheep's milk rose dramatically, interest peaked in improving the supply chain. Sheep farming would now become a major industry since so much of the world would depend on mutton and sheep's milk for nutrition to replace the deficits in beef and poultry.

After these two crises, the great North American animal research institutes at Cornell and Guelph, and various other facilities around the world devoted greatly increased their research into improving the efficiency of sheep farming. The first great breakthrough came from an unexpected source. Following the merger of Guelph University and the University of Waterloo in 2011, dual degrees in Animal husbandry and Actuarial Science became possible for the first time, and a strong cross- pollination of skills and ideas developed between the two faculties. Professor Chang Tai published a paper on The Inverse Demographics of Sheep in England and Wales in 2013. This paper, which recorded the full birth, mating and death statistics for 7 large flocks of sheep over a 17-year period (1995-2012), went more or less unnoticed. Then in 2015 Johannes Plethner, a doctoral student at MIT, published his pivotal paper re-analyzing the data in Tai's original paper and connecting the dots in a way Tai had been unable to do.

The key point of this paper, which is obvious to us today but which had gone unnoticed for millennia, was its revelation about twinning. We refer to sheep as dumb animals, but it is important to understand, as does Gabriel Oak, the shepherd in Thomas Hardy's *Far From the Madding Crowd*, that the ewe is often blind to a second or third lamb born together, and will leave such lambs to die. You can't get much dumber than that! With skillful intervention it is possible to foster such lambs onto another mother who has lost her lamb, but such methods are labor intensive and prone to failure. Plethner's analysis showed that when the ram that inseminates the ewe is a maternal cousin to the ewe in question, the ewe would be almost three times more likely to accept a second and third birth as her own.

Combining this knowledge with what we already knew about the relationship between diet, body weight and multiple births from Tai's original paper, we have a recipe for successful breeding that has brought about a revolution in sheep rearing. The study of demographics, so carefully nurtured by generations of actuaries, finally solved the problem of how to increase the world's sheep population while at the same time satisfying the huge and ever increasing demand for mutton and milk. At first, manual intervention was used to mate rams with their first cousin ewes, but this process was replaced over time by one of two techniques. Farmers could use artificial insemination to make sure the right sperm fertilized the egg, or could install the lattice sieve, a system of electronic gates and pens that could read the genetic tags embedded in each sheep's ear and route them to the correct mini-pen for mating.

Yet each of these methods proved expensive and time consuming. It was not until 2022 that a much more radical solution to the problem was developed. The original idea came from the birth in 1996 of the sheep "Dolly", the first cloned animal. Dolly died in 2003 from progressive lung disease, a malady that normally affects only much older sheep. Researchers at the time speculated that in some way, Dolly's cell structure at birth was not like that of other newborn lambs. Dolly's cells at birth were akin to those of a mature sheep. Ethical considerations halted further experimentation in the civilized world. However, these matters did not affect a nation that was by 2019 one of four so called "outlaw" nations, neither a member of the United Nations nor a CETA (Countries for the Ethical Treatment of Animals) signatory. That country, Spesteria (formerly Italy) had parted terms with the rest of the civilized world following the Trivic war of 2013 and had yet to reclaim its rightful place amongst the nations. Spesteria had no trade with other nations and operated under conditions akin to those of North Korea before the massive earthquake that sent it cascading into the sea in 2008.

Spesterian scientists, struggling with the threat of mass starvation, turned in desperation to cloning to augment the meager food supplies available. They introduced the results of stem cell research into their cloning experiments, even though this too was a forbidden science in the developed world since the merger of the world's three great

religions in the forties. By seeding the parent's cells with stem cells taken from the placenta of sheep, the cell age problem was solved, and the researchers could turn their attention to developing a mass production process for the successful lab experiments. It took many years and a large proportion of the total Spesterian R&D budget, but by the early twenties, the process was mature, successful and surprisingly inexpensive. Mass cloning and the adoption of the cloned sheep onto maternal cousins was a winning combination, and soon Spesteria had food enough for all, and a bargaining chip with which to prize open the doors to membership in those august international bodies who had shunned her for so long.

All this is of more academic interest today, now that the beef industry has recovered and hyper-resistant poultry are making inroads into the market for protein rich food. Flocks are being scaled back and sheep farmers are facing a new challenge in the law courts over liability claims from the increasing number of people allergic to wool.

For the statistically inclined reader, using the sophisticated modeling tools and curve fitting algorithms at my disposal, I have been able to calibrate a demographic formula for the world sheep population which holds well for the 21<sup>st</sup> century so far.

# The Price

By Erik Anderson

I thought I had it made. I got through the second exam and figured I'm cruising to the Promised Land. Do you know the reward for being a two-examer? It's not as glamorous as you'd think. It's rate filings.

That's right – rate filings. Breakfast, then rate filings. Coffee break, more rate filings. Eat lunch at my desk, do some more rate filings. Stay late working – to finish the rate filing. Need a rate filed? I'm your guy.

Don't want to talk to the Department of Insurance yourself? Hand the rate filing to me. That's me, Mr. "Turn Insurance Company Gibberish into DOI Nonsense."

And it's fascinating work. I send the filing in and wait a month. Eventually, I get seven questions back. It takes me a week to answer the questions and I send the filing in again. In another month, I get five more questions, but they are completely unrelated to the first set.

If they reject this rate filing one more time, I'm going to break something. I swear, the DOI actuaries are here just to torment me. The response letters are starting to smell like sulfur.

I shut down my computer at the end of the day wondering what is so great about actuarial science.

Oh goody, I'm about to find out. Here comes Marie. Good ole Marie - former classmate at the University and now a near-FSA. I heard she's the front runner for the product manager job. That just about tops it all off.

I hate taking exams. I've taken the third exam three times. If I don't pass this time, I'm going to lose my job. Although ... "no more rate filings" does have an appeal. Or ... if I pass, I can move up the ladder and shove them onto some other schmuck.

I have to pass.

My luck has to change.

I'll drown the stress at the Crossroads bar.

All I wanted was one beer and then to go home, but I guess the Crossroads is now the "actuary" bar. That slime Louis is across the way drinking red wine or something. Twenty-four and drinking wine? Two years younger than me, an FSA, and practically a partner at that stupid consulting firm. He passed each exam first time, starting when he was a sophomore.

Looks like I'm going to have to talk to him. So much for my luck changing.

"Jesus Lou, how did you do it."

"What?"

"Get through these damn exams. I don't know if I can do it anymore."

"I can get you through them if you really want."

"What do you mean?"

“You’ll owe me big.”

“What are you talking about?”

“I thought you were talking about passing exams. I can help you. Do you want to pass or what?”

“Yeah, but I’m not going to ... whatever.”

“Dude, you are competing against people who do ... whatever.”

“What do you mean?”

“You know Marie?”

“Come on! Bullshit! She wouldn’t...”

“I’m just saying, if you want to pass, I could help you out. But, you will owe me.”

“What do you mean?”

“I’ll get you through the exams, no problem, and then you owe me one big one.”

“One big one.” Those three words seemed to echo through the crowded bar.

“What’s a big one? A thousand bucks?”

“No, not money. You know I’m in consulting. I do things for people, I owe people favors, people owe me. I put them together. I make it happen.”

“What? Will it be illegal?”

“Not illegal, but not trivial. Man, you are going to be an FSA. All your prayers will be answered. You want it or not? All the way through the exams with no more studying, no more worry, nothing? Just one favor to me.”

“I’ll have to think about it.”

“That’s your problem little man. A lot of thinking, not much action. This is a tonight-only offer. You want it. Take it now. You want to keep grinding away, maybe you can get a position working for Marie. She probably needs someone to do the rate filings.”

It hung there. To be all done. Forever. No more studying. No more staying in while everyone else goes out. A Halloween party for once. A Christmas without worrying. A spring outside, not sitting under fluorescent lights reading the same note cards over and over.

“ok” It came out a whisper.

“What?”

I cleared my throat. “I’ll do it.”

“You sure?”

“Yeah, alright? What do you want me to do, sign in blood?”

“No, just have a drink with me.”

Done.

I didn’t trust the deal completely, but I never forgot about it. It was always in the back of my mind while I studied that session. I ran into Louis a couple times that summer and he would always give me a knowing wink. But in the end, it was just like he said. No problem. Louis called me the night before the exam and outside my apartment

door was a little box. Inside the box, a little, flesh-colored earpiece. It slipped in my ear and was basically invisible. During the exam, all I had to do was tap a problem with my pencil and the answers came through loud and clear. I probably would have passed without the help, but I got a ten with it.

I didn't even study for the exams after that. Instead of taking study time, I went over to the gym. I partied every weekend and even hooked up a couple times. (Aside to my wife - That was before I met you, honey.)

The best thing - no more rate filings.

After cruising through the exams, I have a shot at Vice President and it looks like Marie will report to me.

I don't even know the name of the kid doing the rate filings now.

Or maybe I should say that I "had" a shot at VP and Marie "was" going to report to me. Louis has other plans. The little box showed up in front of my apartment door again. But instead of the earpiece, it had a slip of paper with a phone number.

It didn't say much, just "Call 666-2876". It was signed by Louis.

It looks like Louis wants his favor now.

I'm not one to dodge out on a deal. And even if I were, I don't know if it would be possible. Let's just say I got an offer I couldn't refuse.

It's not a bad gig, all-in-all. I actually have a few people reporting to me and I get every national and state holiday off. The title's not too bad either - Chief Actuary of the Department of Insurance.

# The Time Value of Money

by  
Joe Kincaid

A police detective, a theoretical physicist, and an actuary walked into a bar. The physicist was actually the first to arrive. He hesitated at the door allowing the detective to walk past him with a purpose. The actuary came in a few moments later and joined the other two men. None of them had met before.

The three men sat in silence for several minutes after the bartender served their drinks. The detective, sitting in the middle, was the first to speak. "Life stinks."

The actuary thought about the laptop and the papers in his briefcase and the work he had to do before Monday. He had to agree. He had to evaluate the risks associated with companies in two particular industries so that he could recommend a diversification strategy for a technology portfolio. Normally that would be a task he would enjoy, but this time his boss had heard a tip "on the elevator" and was sure that the fund had to move quickly to take advantage of the timing. It would mean long hours for not very meaningful or valuable results. He shook his head.

The physicist chimed in. "Tell me about it" he said, nodding towards a corner of the bar. "That man is sitting in my booth. Name's Sam. I'm a regular here and that's my booth."

The actuary looked at the man in the booth and then back at Sam. He looked at the detective and then again back at Sam. "I guess that would stink, Sam, but I think our friend here has more on his mind than where he's sitting. Name's Hal, by the way." Hal couldn't believe what Sam's biggest problem was.

"Nice to meet you, Hal. But that's my booth. No offense, but I wouldn't be here at the bar now if he weren't sitting in my spot. Everyone knows that's my booth. It's not fair."

Hal looked at the man in the booth again and felt sympathy for Sam despite his childish attitude. He would rather not be at the bar either. In fact, he wouldn't be at the bar at all except for a bizarre chain of events.

“Damn right, I do.” Hal's thoughts were broken by the detective's voice. He finished his drink with a flourish and waved at the bartender for another one. “Helen Raymond died this morning.”

The other two men looked at each other and then back at the detective. “Helen Raymond?” they said together. Then Sam was quicker. “Isn't she the CEO of Novitron?” Hal answered the question while the detective took another drink. “Not just CEO, but founder and main pioneer in the field. Her RFID hardware and software patents have led to several new products for the company and their stock has been growing steadily since people have come to realize their enormous potential.” Hal turned to the detective. “Why is this such a big deal for you? Do you work for her?”

“No, that wouldn't be near as bad. I'm the lucky detective assigned to the case.”

“Was she murdered?”

“Impossible. It was a freak accident. This couldn't happen again in a million years.” The detective glanced up at the TV behind the bar. “Hah! What a coincidence. I'm telling the story in two places at once.”

Although the TV was muted, the subtitles were on and Sam and Hal saw what the detective meant right way. The subtitles were displaying “This couldn't happen again in a million years.” Their new friend was being interviewed by a reporter about the death of the local celebrity.

“Can you describe exactly what happened, Sgt. Zebatinsky ?” The reporter's question jogged something in Hal and he looked at the sergeant recognizing him fully for the first time that evening. This was not the first time Sgt. Zebatinsky had been in the media. About five years ago, many people knew the name and face of Pat Zebatinsky as the man assigned to investigate the death of John McDowell. Hal remembered that McDowell was

also head of his company and died in a freak accident, but it was the impact McDowell's death had on the company's stock that he really remembered.

"Ms. Raymond died this morning at about 9:52 am. She was reportedly driving an open convertible past an overturned farm truck on 151<sup>st</sup> Street on her way to the beach. Witnesses say that the farm truck had spilled a load of peanuts on the road and the traffic past the accident before she arrived had crushed many of the peanuts and kicked up a large cloud of peanut dust. People who know Ms. Raymond have told the police that she is highly allergic to peanuts and carried medication with her in her purse. Unfortunately, her purse was found in the back seat and police suspect that she may have tried to reach it, but was unsuccessful before she began to swell and break out in hives in several places. Witnesses report that Ms. Raymond appeared to lose control of the vehicle and swerved wildly around the road before the car crashed into the embankment. She was pronounced dead on arrival at Mercy Hospital."

"Yes, and was anyone else injured in the accident?" The reporter seemed anxious to get through the stock questions so that she could get to her real question.

"No, this was a single car accident. There was no one else in the vehicle with Ms. Raymond."

"What does her death mean for her company?"

"I'm afraid I can't answer that question, ma'am."

"Do you feel that there is any connection between Ms. Raymond's death and the death of John McDowell, CEO of McDowell Distributors, who died accidentally five years ago?" The reporter's eyes were gleaming. Whether or not there was a connection here, there would certainly be a story in the similarity between the two victims and the bizarre nature of both accidents.

"I don't see how there could be a connection, ma'am. Mr. McDowell died five years ago. The two deaths were both obviously accidents. Their companies have nothing in

common. Whether you would be talking about means, motive, or opportunity, there really isn't anything linking these two accidents."

"Surely you can't discount the fact that the two accidents were extremely bizarre?"

"Yes, ma'am, I do recognize that the accidents were bizarre. Mr. McDowell died when a fire alarm was pulled by some kid in a restaurant just as he started choking. Everyone was evacuating the building and he was left at his private table in the back with no one around to help him or even check on him. But as a police officer, I can't base a case on bizarre. I need hard evidence of a crime before I can arrest someone, press charges, or even open an investigation. Frankly, I don't see any connection between peanut dust and chicken bones."

"Thank you, Sgt. Zebatinsky . There you have it, Bill. Another CEO, another freak accident, but just another roll of the dice in the game of life to our boys in blue. This is Moira Stefan, WXYZ news, Pensacola."

"Just change the channel, would ya?" The detective was obviously not pleased with the interview or with the general situation he was in. "Bring me another one, Henry."

Hal looked around the bar, a little nervous himself. It wasn't the bizarre accident that was bothering him, though. It was the work he was bringing home for the night. He no longer cared about the workload. Nor did the meaningless results bother him any more. Novitron and McDowell Distributors were each in one of the two industries he had been asked to analyze. Hal shivered.

Novitron's innovative work in radio frequency ID tags made them a huge player in miniaturization technologies. Complex machines that traditionally required a lot of moving parts or electric wires could now be developed as independent components that communicated with each other via RF tags. The amount of intelligence required of a single component was now much smaller because together the machines created a hive intelligence. Hal had even heard of efforts to use the RFID tags to monitor behaviors for insurance purposes.

McDowell Distributors had always had an incredible ability to anticipate consumer tastes in the electronics market. Their CEO's visionary nature enabled them to negotiate very lucrative arrangements for consumer electronics products before they were released to the public. He was always on target with his opinions of what was going to dominate the market in the coming year. But when John McDowell died, the stock of McDowell Distributors plummeted. Without their founder, they were guessing as badly as everyone else. At one point, the company spent a lot of money to distribute a data analysis tool that utilized virtual reality, but only universities and insurance companies ended up purchasing it. The company just couldn't keep its focus after that. It lost its direction and ended up dying just as surely as its CEO. Within three years, McDowell Distributors went from leading edge trend setter to bargain bin electronics gadgets. Something similar had now happened to the CEO of Novitron. What would be the fate of that company?

"Hey, I've heard of McDowell Distributors." Sam was suddenly getting interested in something besides his booth.

"Most people have." Hal sipped his drink again. He understood how the detective was feeling. He had, or would soon have, two deaths on his hands, too. His deaths were companies, not people, but he needed to understand the means, motive, and opportunity just as surely as Sgt. Zebatinsky did if he wanted to make a solid recommendation for portfolio diversification. You can't prevent random events, but you should be able to spread out your eggs so that if one basket gets crushed, the others are still safe.

"No, I mean just recently." Sam moved to a new barstool so that he could talk to Hal without shouting. "A guy I work with at the lab was talking about them last week, Steve Konecky. Something about his stock investments. Poor Steve." Sam shook his head sympathetically.

"Did he lose a lot of money when McDowell tanked?"

"No, that's just it. There was some glitch in the online trading software. He said there was a trade that went through on his account while he was on an island in the Caribbean. He was totally disconnected from civilization, but somehow a trade order went in on his

account to sell off all of his shares of McDowell Distributors and put them all into shares of Argyle. He made a lot of money when Argyle stock jumped. He tried to rescind the order at first, but the broker wouldn't have any of it. A trade order is a trade order. Steve couldn't prove it wasn't valid, so eventually he stopped trying and just lived with his windfall."

Hal stared at Sam. The pieces were almost coming together. "Why did you say 'poor Steve'?"

"Oh, yeah. Steve's in a coma. There was an accident at the lab and he got banged up pretty badly. We're not sure he's going to make it."

"Did the accident involve peanuts or chicken bones?" Hal and Sam turned to look at the detective. He'd been quiet since he'd asked Henry the waiter to turn off the TV except to order more alcohol. He was getting pretty far along.

"Sergeant, do you really think this was an accident?"

"Hell, no. There are a lot of coincidences in this world, but this one is going too far. These two are going too far. But I've got nothing. No suspect. No means. No motive. No opportunity. Nothing."

"I think I have your motive at least. Sam figured that out, thanks to Steve."

"I did?"

"Sure. In the McDowell case, all the conspiracy theorists were looking for enemies of John McDowell. He didn't have any so they stopped looking. There wasn't anyone who would want to eliminate him. But there were people who would profit from his death: the people at Argyle."

"You're saying this was industrial espionage?" The detective's words were slurred, but they could still be understood. "That's pretty far-fetched. And what would this have to do with Novitron?"

“I’m guessing that the same people or the same holding company has interests in both Argyle and MiniRF, Inc. They’re a competitor of Novitron who is just starting to get a foothold in the market. They did their IPO just a few months ago and it fell flat. Not many people or funds are investing in it right now so a list of the top stockholders will include just about everyone with an interest in the company. If my guess is right, one or more of those investors will also own stock in Argyle. Find that company and you’ll have your motive and your suspects, too.” Hal opened his briefcase and started flipping through the papers. “You’re lucky I’ve got these reports with me. It’s just coincidence that I was working on this analysis in the first place.”

“It’s a bizarre coincidence that got me into this,” started the detective. “It’s only right that a coincidence gets me out of it.”

“Now that’s weird. That can’t be right.” Hal put away the papers and opened up his laptop. “Let me check this again.”

“Yea, it is weird, but I was just saying it to be funny. You don’t have to snap at me.”

“No, no. Not you.” Hal rubbed his chin and scratched his head. “Sam, what was your friend’s name again? The one in the coma?”

“You mean Steve?”

“Yeah. Is his last name spelled K-o-n-e-c-k-y?”

“Yeah. Why?”

“I’m looking at a list of owners of MiniRF stock. One of them is named Steve Konecky and he lives here in Pensacola. In fact he owns almost half of the company as of two days ago.”

Sam, Hal, and Sgt. Zebatinsky looked at each other as if trying to decide whose jaw had dropped the farthest.

“But that’s impossible!” Sam broke the silence but created a new one as the entire bar stopped to stare at him. He lowered his voice. “Steve’s been in a coma for five days now.”

“No, it’s not impossible. There are many trading techniques that can trigger shares being bought or sold automatically. For example, he could have put in an order to buy the stock if the shares fell to a certain price. He wouldn’t have to actually be involved after that point.”

“You don’t know Steve. He’s like me. He’s caught up in his work and only checks his stocks when things are really slow. He doesn’t care about the financial market. His only interest is Lorentzian manifolds. He tried a little day trading before the Argyle money came in, but after that, he figured he didn’t need to. He had enough money to stay buried in his work. It must be a different Steve Konecky.”

“Or there could be someone impersonating him. Or using his account.” The sergeant was sobering up quickly. He gave Sam a curious look.

“Are you accusing me?”

“I’m just saying that someone who knew Steve was in the Caribbean and who now knows that Steve is in a coma could be using his account to trade stocks and make a lot of money.”

“Look, Steve’s a fanatic for data security. He changes his password on everything every month like clockwork. He says he uses a formula based on the month and the year to generate his passwords. I know Steve, but I don’t know his formula. No one could crack that formula.”

“What about his wife?”

“He’s single. Always has been.”

“Other family?”

“He’s never mentioned any other family. He’s not the type.”

“OK, OK, slow down, guys.” Hal took a deep breath and tried to take stock of the situation. “Maybe we’re wrong about Steve. After all, this is just circumstantial evidence. I thought I was onto something when I saw his name, but maybe not.” Hal waved to the bartender for another drink.

“Besides,” said the sergeant as he called for a refill for himself. “You’re forgetting the million dollar question.”

“What’s that?”

“Where did he get all of those peanuts?”

Sam and Hal looked at each other. Then Hal looked back at the name on his laptop screen. Two CEO’s dead. Peanuts. Chicken bones. The market takes a turn. RFID tags. Virtual reality data analysis. Someone somewhere profits. The Caribbean. And now a coma. The perfect alibi.

“Sam,” said Hal slowly. “What kind of work did you say you did?”

“Oh.” Sam was glad to change the subject. “I’m not sure that I did. I’m a physicist.”

“And Steve is also?”

“Yea, why?” Sam was no longer sure that the subject had changed after all.

“What kind of physics do you do?”

“Theoretical, mostly. We write out equations for Cauchy surfaces and try to find stable solutions that could be experimentally verified. We’ve made some progress lately on CTC’s that could be present in compounds larger than a single atom. We still have some work to do to demonstrate stability, but I think we’re making good progress.”

“Help me out, Sam. What’s a CTC?”

“A closed time-like curve, of course. We’re studying anomalies in the space-time continuum.”

Hal looked at the sergeant. The sergeant waved his hand horizontally over his head from front to back and gave Hal a blank look.

“Sergeant, Steve’s your man. I’m sure of it. But you can’t arrest him yet.”

“Please explain to me what the hell you’re talking about.”

“In the future, Steve will develop a form of practical time travel, come back in time when he knows his past self is not around for him to encounter. He’ll log into his own computer and submit orders to buy stocks. Then he’ll set up a remarkable chain of events to kill off two CEO’s to make sure that those stocks skyrocket.”

“How? How will he do this?”

“I really don’t know. He’ll have technology available in the future that we can only dream about now. My guess is that he read a story in a newspaper about John McDowell nearly dying from choking on a chicken bone and decided to see if he could change the past to make sure that he really did die. With that success under his belt, he felt he could arrange a more elaborate accident to kill off Helen Raymond. But as far as his present self is concerned, he hasn’t committed a crime yet. You can’t arrest him until *after* he goes back to the past and does all of this.”

“Wow. How will we know when that is?”

Hal thought about all the coincidences that had led to this conclusion over the evening.

“I’m sure you’ll know somehow.”

“What about me?” Sam was visibly nervous. “I have to go back and work with this guy.”

Sgt. Zebatinsky spoke with compassion. “We’ll take care of you, Sam. You may have to enter a witness protection program, but we’ll take care of you. Come down to the station on 9<sup>th</sup> street tomorrow and ask for me.”

With his thoughts on time travel, Hal instinctively started pondering the risks involved as the three men sat in silence for a few more minutes, traded phone numbers and email addresses, then paid their bills and left one by one.

## Epilogue

“Very thorough report, Snyder. I’m impressed. And you say you closed this case with only four interventions and all of them were class E?” The supervisor was clearly pleased with Snyder’s work.

“Yes, sir. That’s correct. Sgt. Zebatinsky was already going to stop at the bar so I didn’t have to intervene there. Sometimes coincidences just happen by themselves. I did have to start the elevator campaign to be sure that Hal had the reports in his hand when he arrived at the bar. Then I had to flash a light at just the right time on his drive home so that he would hit that pothole and get a flat tire. That was easily done from the rooftop where no one could see me. Finally, I had to sit in Sam’s booth so that he would sit at the bar instead.”

Snyder continued. “You will also find that my report shows the calculations for success at well above 98%. Finding the right set of interventions was the key to minimizing the risk.”

“Did you have to intervene to let Sgt. Zebatinsky know when to arrest the suspect?”

“Yes, sir. That was the fourth intervention. Ten years later, we arranged for him to meet someone named Sebatinsky. The coincidence of the names caught his attention, reminded him of the coincidences of that night, and he took it as a signal that it was time to obtain the search warrant.”

“Good work, Snyder. Thanks. You may go now.”

As he watched Snyder leave the room, the supervisor leaned forward in his chair and pondered risk assessment past, present, and future.

## *Untraced Elimination*

*Spring 2007, Langley*

“We need an actuary.”

“A what?”

“An actuary. Someone who does statistics and mathematics for insurance.”

“What for? You want to start taking out policies on clandestine operations?”

Preston Clarke had always bothered the group. These men who were not used to being wrong, being corrected, and being instructed by civilians, could not help themselves from heating up every time Preston made a suggestion, though deep down they knew his guidance was vital. Preston had been a business all-star the first forty-five years of his life. He had been a VP in four different industries before the CIA recruited him. Preston lost interest quickly in nearly every industry he set out to conquer. Had he been a professional football coach, he would be the guy who switches from team to team, taking all of them to the Super Bowl before finding greener pastures, or, more accurately, browner pastures. Preston had no interest in being king of the hill, a dweller in green pastures. His interest was in conquering the hill, creating and resurrecting the pasture.

General Rick Daniels considered Preston the mother of the group, and Generals did not like needing a mother. The animosity shown Preston was not as a dislike for Preston himself, but was because they disliked that they knew they needed him. Daniels, especially, wished things were like they were in the old days. Find bad guys, kill bad guys. But now bad guys weren't easily identified. Daniels found out early that his forty years of experience meant nothing in the Iraq conflict. He had too much experience to be confined to a desk, though. He was an easy pick for this group. The hard part was convincing him that he could serve his country just as well in the CIA. The days of identifying himself as a Combat General were over. At least he wasn't some kind of advisor or writing a book about the war. He was still in the game.

The two men, along with Dan Tovey, were the core of the group which included a score of analysts and technicians. This group also had their own little army, five hundred “soldiers” whose only link to the usual definition of a soldier was that they took orders and carried them out. They were from all walks of life and had basic knowledge in nearly every industry. They were the *Economic Foot Soldiers*.

“We need an actuary because priority one is keeping the mission undetectable,” answered Preston.

“So they came up with an equation that says ‘X = Untraceable Kill’? Wow, impressive for a bunch of folks who are scared of a bb gun.”

The General's sarcasm was not lost on the ears of the others.

“Nope. An actuary *can* come up with an equation that says, ‘Here's how many and how often you can eliminate and have it appear natural’”.

“So am I being shown the door?” wondered Dan Tovey, aloud. Dan Tovey was the man who identified the targets. A former Army Ranger who had been involved in many morally complex missions, he was so perfectly prepared to lead this group it seemed as if that was the plan all along. After the Army, Dan earned his PhD in Economics and landed in Washington. After five years, the CIA came calling. Dan was all too eager to sign up.

“You still identify ‘em. We’ll just choose from your list,” Preston replied.

*March 19<sup>th</sup>, 2009, The Midwest*

For the good of the country.

For Erik Doyle, the phrase should’ve only existed in action dramas and political debates. He had chosen the life of a supporter. Everything on his profile implied *leader* if not carefully analyzed. Student Government, Habitat for Humanity, and Fraternity Secretary, amongst a stellar academic record, were the bright spots on a resume that resulted in numerous interview requests.

Insurance companies were looking for the next generation actuary and felt one Erik Doyle would be just what they needed. Erik was looking for a career where the work was challenging but not ambiguous. An actuarial career was just what he was looking for. Go in, work hard, find the results and go home. No wondering about decisions, no endless meetings deciding which was the right course to pursue, no slick presentations to make one’s point. Erik and his manager, Terri, clashed for two years as their expectations of each other were revealed to be terribly off. Terri thought she was nurturing a future manager, possibly a VP. Erik was just interested in learning to be efficient enough to get the day done with as little stress as possible.

Five years later, Erik was on his 3<sup>rd</sup> manager, making each seem like they were geniuses at managing their workload thanks to Erik. Rebecca, Terri’s next “Golden New Hire”, was already managing a small book of business. Rebecca was the actuary everyone was looking for and Terri had already forgotten that Erik even worked for her. *Good for Rebecca* thought Erik when her promotional announcement had come through. He was happy for his co-workers and happy others were interested in being on the front lines of the business world, as he had been happy others had been interested in setting up the local Habitat for Humanity, which he had found satisfaction in being a part of. His philosophy on life had netted him a degree, a job, a wife, a house, and two beautiful kids. The white picket fence, though absent, may as well have enclosed his front yard.

Before March 19<sup>th</sup>, 2009, what Erik Doyle did for the good of the country is help the United States Economy run as a well-oiled machine. In terms of there being a decision as to what was best, it was easy. All Erik needed to do was a good job. But that was before the 19<sup>th</sup>, before receiving the letter that ended in “What needs to be done will be for the good of the country, and you may be the only one who can expose this.”

*March 28<sup>th</sup>, 2009*

It is real. It’s not a joke.

Erik put the papers down before the sweat forming on his palms seeped onto the pages. *What do I do now?* he thought. Would another letter be arriving advising him of a way forward? Could he just call a meeting of the managers and present it then? Suddenly the scene in *Office Space* where the main characters wanted to look up “Money Laundering” in the dictionary didn’t seem as funny. He had made a special request through seven different DOI’s through the administrative assistant for casualty data from the prior nine months. When he processed the numbers, the results and their implications

were unmistakable. What now, though? How did a full time cubicle dweller whose most rebellious act was driving up to 8 mph over the speed limit expose a governmental conspiracy, obviously planned and executed by the top minds available?

The monitor became transparent as he stared at nothing, unable to work, unable to function, unable to stop from sweating.

*That Afternoon, Langley*

“Somebody has the information,” Preston announced.

Stunned, but not surprised, the group stared in disbelief. They were not surprised since all of them had aged five years in the last nine months. The mission was perfectly planned, undetectable, and, so far, well executed. Still, they knew that nothing of this magnitude had ever been carried out. Two dissenters had been identified and eliminated, perhaps letting others know there was no way out once in.

General Daniels peered down at his wrist, where his own tracker and microphone was embedded, just like everyone else. He felt the camera inside the tip of his nose. How could someone have leaked the information? Surely whoever obtained the “information”, whatever Preston meant by that, didn’t just stumble upon it. Someone leaked. One of the “soldiers” attempted to type a note to his wife on his PC without looking at the screen or the keyboard, hence bypassing the camera and microphone. If he had thought it through he would have realized there was no way this group wouldn’t practically have their own spy network on each computer. A hit-and-run took care of him that night.

And after that episode typewriters were declared off limits. *Spyware* just didn’t work on the old dinosaurs.

“We’re still not sure if there is a legitimate business reason for having it, but nevertheless somebody has the means to uncover us.” Preston paused. He had more comments, but he knew he was going to deal with a barrage of questions first.

“Are there any leads?” Dan Tovey had calmed down substantially since the first meeting. Perhaps not calmed down, but far less defensive. He had clenched up and froze during any commercials about saving money on insurance. Was the commercial saying something? Eventually, Dan realized that if he didn’t quit thinking someone was out to get him, he would be gone. He’d rather someone get him than live like someone was around every corner.

“Nothing yet. We *have* to act as if this is a threat even though it is unconfirmed. But we can only act like that internally,” explained Preston.

“Why don’t we just wipe whoever it is out?”

“Well, we don’t know who. The individual made the request under the company name.” Preston knew the “kill ‘em dead and hide the body” suggestion was going to be presented.

“How many possibilities?”

“From our estimates, at least forty three people in that office have the capability of deciphering the data and figuring us out. We’re already working on it. We have one internal, but we weren’t able to get this one in pricing,” replied Preston.

The group had one informant in every insurance company in the United States. Most had been given a cover story about a terrorist operation that involved massive ID

theft. So they were able to monitor any suspicions under the guise of a different operation. Preston had also given fake assignments to these informants so that they might feel as if they were doing something.

“Will our informant be able to help?” Dan wishfully asked.

“Not likely. This wasn’t one of our best.”

“DAMN IT!!!! WHAT CAN BE DONE?” *Wow, that was quick.* Preston thought it would be a half an hour before General Daniels was satisfied that everything that could be thought of had already been. He had either earned the old man’s respect or this unnerved him so much that he wanted to get right to the point.

“We’ve cross-checked each background that was available. None of them have worked with or had any contact with Mike.” Mike Milner. The Actuary. If anyone was going to be the downfall of the operation it was Mike. Despite his military background and tight surveillance, Mike made them all nervous. Without him, though, the whole operation would still be in the works. His job was to hand pick those who could be taken care of without suspicion arising. But there was a catch. If someone obtained precisely the right information, evidence of their operation would be “beyond statistical significance”. Or “beyond a reasonable doubt”, words which were much more subjective but filled them all with terror.

“Well, according to Mike, this would only happen if someone knew what they were looking for.” Dan was beginning to accept the worst case scenario—someone did know and would need to be silenced. “So someone leaked. I know we all think Mike is most likely, but who else could it be?”

“Before we find the leak, we need to stop this information from being used,” said Preston. “But who could have leaked?”

*Everyone is a suspect* thought Dan, trying to keep his amateur poker face stoic as he tried to read Preston and General Daniels. *Feelings are mutual* his thoughts continued. It was every man for himself, but each still had the mission first.

*March 29<sup>th</sup>, 2009, The Midwest*

Six miles on the treadmill did little to calm Erik down the previous night. He had been aloof. His wife, Gina, thought his behavior odd but he had acted somewhat like this around exam time. She hoped those days were over. Had the damn SOA added another exam? Or was Erik now trying to get his FCAS?

*If he’s still acting like this tomorrow, I’ll talk to him about it* thought Gina.

Erik had left for the office before the family woke up. Running didn’t quite cut it last night. This morning it was a hard half hour of weights. The exertion did little to relieve the pulsing anxiety but any help was welcomed with open arms. A project was due at noon. He had thought of calling in sick but the letter expressly forbade actions such as that. He reopened it

*After you obtain the State Summary, you MUST carry on in your normal routine. No days off. And keep a hard copy with you...*

Thankfully it didn’t say act normal. Erik dove into the data retrieved yesterday, refined it and made clearer the conclusions which would be drawn from the data. He had

followed procedure up to this point. He knew the format the data would come in. Everything had been prepared so that all he needed to do was dump it in and the results would basically appear. He still couldn't believe that he was following the letter, despite never having met its author to verify. The letter verified itself.

*This is unbelievable. I know. My first proof to you will be that your wife will call saying she can pick up the kids. Her office will have a fire drill malfunction and all will be sent home for the day. Granted that doesn't prove much. I have arranged for that to happen so that you will at least have the curiosity to check for the following events. Call Memorial Hospital in Detroit and ask for a Charles Hansen on March 22<sup>nd</sup>. He will have died the previous day...*

Several more "proofs" followed. Enough for Erik to know that this letter was not some sick joke. He thought again about his wife. Hopefully she was already on her way to the camping site. As soon as he got the letter, he prepared this weekend. Her car was full of gas, eliminating the need for her to stop and use a credit card. He had watched enough TV to know that she could be tracked that way.

*Your family will only be in danger if they find you out before your release your findings. After you release your findings, all their efforts will be towards damage control. Your wife and children will be safe. You, my friend, must know that you may not be.*

He struggled with that one. He considered himself a patriot, one who would give himself for his country. He knew without a doubt that he would give himself for his family, and give himself for any one member of his family. But if he did nothing, the country might still be alright. The pivotal moment had been two days after the letter. Attending a College Basketball game, they rose to sing the national anthem. He glanced over at little Tiffany, all of four years old, singing sweetly the song which stood for freedom and self-government. He would do what was needed to keep it that way.

*New Mail. Open Inbox?*

The pop-up on his screen took him out of his slumber. He clicked to open his email inbox to find seven new messages.

"Damn," Erik muttered to himself, hoping that assignments he was emotionally unprepared to handle today would be absent from the few. His eyes fell on the fifth.

*Sender: Ethan Hunt*

Erik fumbled with the disc in his pocket. What to do now? He knew, but it still took a few moments to accept the reality. "Ethan Hunt" was code for "They're on to you, and unless you are as elusive as Ethan Hunt, get the hell out of there now." He knew that he was no Ethan Hunt, the famous protagonist from the *Mission: Impossible* series. He carried out his plan of information release, taking longer since his hands were shaking so bad he could barely type. He pressed *Send* and turned to go. *Do you want to save your message?* He angrily clicked *Yes* and started walking out. Within seconds, the building alarms went off.

*Langley*

“It’s underway,” General Daniels stated.

“Question is if it’s in time,” wondered Preston aloud.

The bomb threat was easy to carry out. The section where the actuaries sat was to be “swept” by a handpicked team of “experts” who just *happened* to be in town to help the local FBI agents. Normally the agents resisted CIA help but no one was particularly enthralled about entering a building with possible explosives. The team chosen by Daniels had been flown during the night. Another agent checked them in at a hotel the night before, making it seem as though they had been there all along.

General Daniels, Preston, and Dan all paced nervously, waiting to hear the results. Microphone and video would be placed in each cubicle. Undetectable “spyware” would be installed on each PC. That would be done within minutes. The hard part, locating the culprit, might take an unimaginable half hour. Only eight agents were capable and available to check the history of each PC, looking for evidence of the files being used. Perhaps they could get lucky early.

The phone rang.

“Tell me something good,” barked Daniels.

“It’s over,” replied the agent on the other line. “There’s no way to stop it.”

“There’s always a way. If twenty people know, take out twenty people!”

“How about twenty thousand? An email was sent to the entire corporation, and to individuals in eleven other companies. General, nice knowing you. We’re all going off the grid. If you can speak Spanish, maybe we’ll see you on some Brazil beach in a few years.”

Preston’s cell rang.

“Preston, uh, Mike Milner sent an interesting email this morning. Nothing was on it that seemed strange, but it went to an unmonitored inbox and was addressed to ‘Ethan Hunt’. We think it was then re-sent. We’ll know within minutes.”

“Forget about it,” sighed Preston. “We’re done. Erase whatever files you have and, I don’t know...uh find someplace to hide.”

“It was Mike, wasn’t it?” asked Dan, half knowing the answer.

“Yep.”

“Well, order a hit,” stated Daniels.

“No need. We just need to disappear,” Preston replied while simultaneously thinking, “I shoulda stayed corporate.”

“He’s going down. I have ways ready. I don’t go down alone.” General Daniels took out his cell phone and started walking for the door.

### *Hartford, Connecticut*

Mike Milner opened his latest list. At the bottom he added *Mike Milner, Hartford, Connecticut*. Meaningless, yet peaceful. Each week, he received a list of necessary targets and he sent back a revised list, showing those who could be killed without arousing curiosity amongst the regulators and statisticians whose task it was to monitor death rates and hospitalization rates. He attached the list to his email and prepared to press send.

Mike leaned back in his chair and waited for the inevitable. He knew they wouldn't let him go unpunished. He wondered again how he had been talked into this task.

*“Mike, we cannot continue in our present course as a country and survive. It's a different world. The Iraqi insurgents gave the world a blueprint for stopping the United States military. We need to return to the 'old' U.S.A. The one where the American Dream is alive and well. That is how we rose and that is how we'll stay on top.”*

Preston made a good case. Within six years, they predicted domestic auto manufacturers would be broken beyond repair. A downward spiral would then ensue, the government needing to raise taxes on a populace that had just seen its GDP fall 4.5%. Eventually the United States would resemble the United States of the 1930's, but without the ability to acquire massive government debt. As for the auto industry, by the latest estimate, 42% of the price of an American made automobile went to excessive union salaries, health care, and retirement benefits. The plan was to eliminate as many individuals as possible who would incur enormous health costs or retirement benefits. The first to go would be the “healthy” seventy somethings who would live an average of 8.8 extra years, incurring thousands in medical bills while collecting tens of thousands each year in retirement.

Preston had advised that it would take years for medical rates to go down and a noticeable pattern would show itself, since too many people would be analyzing the data. The solution was to encourage U.S. auto manufacturers to form a collective pool to self-insure. Data would change hands. The government offered to reinsure the auto industry in exchange for union regulation rights. Within years, U.S. made autos would be competitive again with the foreign autos. This was only to be the first industry. After just nine months, the ratio of excessive union salaries, health care, and retirement benefits to total cost had already fallen to 36%. Another year of clean work and they would be allowed to “adjust” another industry.

Mike had bought into their theory, at first. The American people were no longer capable of self-government, and what they didn't know wouldn't hurt them. And the deaths were painless. A team of soldiers were trained in administering undetectable poisons to produce “natural” deaths. Mike's inner trigger felt it was wrong, but his rational self, the one which bought into Darwin's theory of “Evolution by Natural Selection” yet held onto an assumed existence of God, knew they were right. The country could not continue on its present course.

An otherwise uneventful night had changed Mike's mind. While falling asleep to the *History Channel*, he had watched a program about the South wanting to preserve slavery, claiming it was essential to economic survival. He had always abhorred slavery. Sure it was tough to overcome the free labor, but the choice was simple. Slavery was plain wrong. If our way of life depended on slavery, it was our way of life that needed to change. If the American Dream was unattainable except through operations such as this, it was time to either adjust the Dream, or roll up some sleeves and get back to work.

If Erik Doyle was stopped, Mike would be killed. They would keep going on without him, perhaps find another actuary to plot their kills. He had chosen Erik for several reasons. First and foremost was that Erik had no direct link to him. Erik had

been in a seminar he had taught nine years ago. The bright eyed college kid seemed to have a good future ahead of him. Due to a mutual colleague at Erik's company, he found that Erik had chosen the "family path", less recognition, less money, more quality time. *And might be able to work on unknown projects without neglecting other projects.* As to whether he would do what the letter spelled out, Mike only hoped. He dreamt that enough fear, curiosity and duty existed in Erik to compel him through each stage. Given the alarms Preston and his group set off, Erik had done something.

Perhaps something like this could wake the American people up. He hoped. An instant later he felt terrible guilt at letting himself think anything about this mission was good.

Suddenly, the front door crashed open. Mike knew what was headed to his back room. He pressed *Send* on the email, including his name on the list of people who could be eliminated without suspiciously affecting aggregate levels.

"I'm back here," he shouted. He wanted to go down quick and in his chair. Leaning back, he began waiting for the bullet.

### *The Midwest*

Erik sped out on the Interstate (within eight miles over the speed limit as always). He hoped his wife had made it out of the city. He dared not call. Another fear implanted by those spy movies. In fact, he had thrown his cell phone out just before getting on the Interstate and planted a nearly dead battery in hers, along with trashing her car charger. He wondered who the invisible informant had been. He didn't think he would ever know. Even if he survived the aftermath of what most assuredly would be the greatest chaos and rioting the nation would ever see, he couldn't imagine a picnic in a park twenty years from now to reminisce about saving the world with the unknown patriot.

He saw the exit onto the State Route. As he took it, his heart lifted. Something told him that if he made it this far, they wouldn't get him. They would have to have the police, National Guard, Marines, whoever to comb the entire area.

*If you can without a doubt expose this operation in a way that will prompt immediate investigation and action, disappear for two to three days. The group is not big enough to hunt for you. They will be consumed entirely by self-preservation, as their mission will no longer be salvageable.*

Monday evening Erik would be returning with his family to the city they called home. His wife would no doubt be shocked at what CNN and everyone else would be reporting. He wondered how his old manager Terri would explain how she uncovered the plot, as the whistle-blowing email originated on her machine. She would explain that she was in a meeting at the time. The sender would remain anonymous, or so Erik hoped. He just wanted to return to normal life, and occasionally see his little girl sing an anthem he could someday again be proud of.

## SOPHROSYNE

I first met Mr. Scadgers while in the employ of D--- & S--- Fidelity and Surety Company, a small operation located in the Midwest that was regarded indifferently in the insurance world, when regarded at all. The meeting in which I presented my quarterly reserve analysis to Mr. D--- & Mr. S--- became quite contentious, as Mr. D--- strongly judged my estimates to be much too low, while Mr. S--- was of the opposite, but equally adamant, frame of mind. After hours of increasingly vitriolic debate, with Mr. D--- calling Mr. S--- a s---ed d---, Mr. S--- proclaiming Mr. D--- a d---ed s---, and both of them flinging colorful invectives from all locations in the lexicon of vulgarity in my direction, we decided to hire Scadgers for the unenviable, but lucrative, goal of reaching a compromise that was acceptable to both Messrs. D--- and S---.

Scadgers had, by this point in his career, reached a high level of professional respect in the actuarial field, a distinction belied by both his immense corpulence and his perpetual state of dishabille. He had already gained quite a reputation among my coworkers by his second day in the office. From the reports I received, after his workspace was adequately set up, he spent the majority of his first day mainlining Red Bulls and Mountain Thunder, slam-chugging a staggering amount of Wendy's Spicy Chicken sandwiches, Black Forest Ham & Swiss Frescatas, and king-size Milky Ways, while intermittently declaring himself in stentorian proclamations to all located in his general proximity, to be, among other things, "Oswald Jacoby and Kurt Gödel's red-headed stepchild," the "morbidly obese Parmenides of the eighth floor," and an "all-encompassing actuarial maelstrom of profound credibility."

Upon encountering him mid-meal in the breakroom, I, too, was astounded by what I saw. He had commandeered a majority of the eating area, both through his own intrinsic corporeality and through a repast that spanned multiple tables, each of whose contents would have dumbfounded the likes of Trimalchio and Brillat-Savarin.

One table was solely reserved for forcemeats and charcuterie of myriad variety. Thick, glistening slices of pork, duck, and foie gras paté were circumvallated by stacks of duck leg confit on one plate; another was piled high with turgid bratwurst, mortadella, sopressata, chorizo, culatello, and a staggeringly large portion of prosciutto di Parma, the last of which I eyed enviously. A singularly plump and pleasing chicken galantine, coated with a shimmering layer of gelid aspic, seemed to me much like Leonidas marshalling these salted and cured hoplites into gustatory battle, facing ineluctable decimation from Scadgers' gluttonous jowls.

Enough meat to kedge any person of more modest appetite was stacked nearby. Roast beef, turkey legs, hot wings, venison jerky, and two large deli plates from the closest Super Kmart shared space with a stack of pizzas. Two-liters of Dr. Perky, Cheerwine, Frawg, and Cherry Coke were treated like oversized flasks by Scadgers, employed periodically when a liberal application of lubrication was deemed necessary for the proper functioning of the alimentary process.

A dizzying array of snack foods occupied another entire table. Bags and boxes of pretzels, Cheez-its, Funyuns, a generic knockoff of Cheetos, Peanut Butter Ritz Bitz, and many more were open and in varying states of emptiness. Scadgers, however, was currently steering the preponderance of his voracity towards a table of pastries and

chocolates. A multitude of profiteroles and éclairs had already been consumed, and a selection of truffles seemed to be the next object of his insatiable appetite.

At this moment in my survey, Scadgers noticed me staring at him, chortled, and asked me, “What do you think my credibility is? I think either 0.28 or 0.29, closer to 0.28, really.”

“Pardon?”

“You heard me. My credibility.”

“I’m not quite sure what you mean.”

“Well, let me ask you this, then: Why have actuarial methods not progressed to the point where we can always make predictions about the future with complete confidence?”

“Well, for one thing, that would be tantamount to being able to tell the future, which, I believe, is still impossible.”

Scadgers waved his hand dismissively, and replied, “No, no, you’re thinking about it the wrong way. Current actuarial methods are not sufficient because no actuary has ever tried to make himself fully credible.”

“I still don’t understand you.”

“One’s own credibility. The amount of space one occupies in the universe. How can I expect to make accurate predictions when I only weigh forty stone? My gorging is not purposeless; this is no Barmecide feast, my friend. I will become a Gaussian cornucopula of knowledge, the square root of Daniel Lambert over one thousand eighty-two, Pootie Tang’s belt, even. Rossini, Walter Hudson, James Beard – men of that sort had the drive to go all the way, but were eating for the wrong reasons. A Rascal scooter and a proclivity towards sheet cake do not an actuary make. The reason our current methods are imperfect is because no actuary has yet tried to make himself fully credible; to consume the apeiron, the ylem, to become the alpha and even the omega. If those two fat twins on motorscooters had been actuaries, the Cape Cod method would have been devised decades earlier. If Bornhuetter had added ten chili cheese Big Bites, a few handfuls of Combos, and a Slurpee or two to his daily diet, he would have known the exact time of death of every person on the planet. Don’t you understand how vital a contribution to humanity this will be? I - I need to consume all, to BE ALL!”

Scadgers, by this point in his vociferous outburst, had got himself so worked up that he stopped bloviating for a period, instead focusing his energy on emitting gasps, sputters, and other terribly violent paroxysms. His entire head had reached such a startling rubicundity that it could be mistaken for an exceedingly large beetroot or pippin. I considered pointing out to him that his plan would necessitate the incorporation of me into himself in one of several distasteful and troubling manners, but, after contemplating both Scadgers’ current convulsive state and the lack of an immediate threat to my existence, I thought the better of it.

After fortifying himself with several generous swigs of Dr. Perky and two napoleons, Scadgers resumed his tirade:

“I will become anything and everything. I will define the yin; I will comprehend the yang. All dimensions, all questions, all answers, all will be made clear to me; Bühlmann and Panjer and Pentikäinen will seem like so many babbling infants. How much time has been wasted already, squandered by those who did not see the truth! If George Berkeley had fully devoted himself to pigs’ trotters and Kit Kats, Amelia Earhart

would have lived to sleep with Judge Crater and wake Kant from his dogmatic slumber! The second Boer War, Chernobyl, and *Charles in Charge* could all have been prevented if William Morgan understood the wisdom imparted by veal kidneys! If – if Aristotle had lived to taste McGriddles, why, why ---“

Once again incarnadine and driven to apoplexy through his perfervid but largely incoherent proclamations, Scadgers descended into a cacophonous fit of coughing, gurgling, choking, and other equally startling exertions. I used this opportunity to take my leave of him, quickly scuttling back to my cube in order to avoid any further interaction for the time being.

For the rest of the week he was in our office, Scadgers caused similar commotions through his eccentric and often outlandish behavior, which eventually led some of us to dub him “Emperor Norton” and to imitate his pompous and prolix oratory. Still, like Melville’s enigmatic Scrivener, his curious conduct led me to take an especial interest in him even after the end of his employment with our company.

Over the next few years, D--- & S--- finally completed its prolonged, inexorable slide towards ruination, and, before its last futile grasps at solvency, I moved on to a more auspicious opportunity at one of its former competitors. Messrs. D--- & S--- went their separate ways, drowning those few still remaining in their mutually acrimonious wake. Through my various connections in the actuarial profession, however, I would occasionally receive reports of my quondam colleague and his rapacious appetite.

It has been quite a while now since I have been fortunate enough to receive any more news of Scadgers. At last report, the Emperor, having grown tremendously fat to the point that he was bedridden and rapidly declining in health, was still working tirelessly in his peculiar and thankless quest to achieve full credibility.

# **A Short Speculative Actuarial Story**

By Erik Anderson

Sometime in The Future, The World's Greatest Actuary finally provides the definitive proof to the ultimate actuarial theorem:

Exams were harder back when I took them.

*Condemnation of Fate*

Steve Mathys

With the late October sun half an hour over the horizon, peeking in her small eastern window enough to illuminate the coffee maker and half the refrigerator, Katie stood dressed in simple slacks and an off-white blouse. Pretty enough for work, yet casual, so that he might think she wasn't making this trip solely for him. Which, of course, she was, but he didn't have to know that. *Who am I kidding*, she thought. *Of course he'll know.*

"Abby, I'm going over there. I've got to," she said, gripping the handle of her old-fashioned phone (she still thought of land lines as old-fashioned, even though many people had never given them up for a cell phone) a little tighter at the thought of seeing Rick again. *Oh, his eyes!*

The voice on the other end made the sound of a worn-out friend playing along with the charade of trying to convince otherwise. "You can't. You know you can't. It'll be a disaster."

But Katie didn't know it. Abby might think she knew it. But Katie felt different. "It's different, Abby. I'm losing weight, I dyed my hair... I read those books he recommended! He's got to see how much I love him now. If he doesn't, I'll--"

Abby cut her off. "Katie, don't say it. Just shut up. Don't say you'll kill yourself. That won't do anything."

"But if he knows how much I--"

"He already knows, Katie. He just doesn't care."

Katie sighed. "But he's so beautiful!"

“He’s old.”

“You say that every time.”

“We both do.” Her best friend gave a little squeak of exasperation. “Oh, Katie, I gotta go. I’ll be late for work.” They quickly finished their conversation, with Katie promising not to go anywhere. Less than a minute later, with her jacket on and keys in her hand, Abby called her cell phone. Without thinking Katie answered, and heard a short tirade, one that she’d heard dozens of times. She listened and nodded and *um-hmed* in all the right places. Abby was right. If Rick didn’t love her now, he never would. Two years of trying, with nothing to show for it. Not a kiss, not a letter, barely acknowledging her when she showed up. She closed her eyes and leaned her head against her apartment door. *But maybe he could learn to*, came an unbidden thought. And with it the smooth, cool feel of the doorknob turning under her hand, the soft vibration of her phone in her purse against her side, *That’s Abby*, and the quiet stillness of the empty hallway into which she stepped with confidence, focus, and determination.

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Through the first two straight-line neighborhoods and suddenly out into the open suburbs where streets curve but have no identity, Katie drove effortlessly, the turns as practiced as a bedtime ritual, here a left, there a slight brake at the top of the hill so you don’t get a ticket, making her way quickly out of the little sister of Chicago and into gently rolling Illinois farmland. In little more than half an hour she was turning left into Rick’s long driveway, still only gravel, the miniature boulders kicking up into the underside of her sedan. She could care less.

Stopping the car, she glanced at herself in the mirror and saw she was biting her lower lip again, the upper half of her face perky and expectant, like so many times before. She closed her

eyes and said a quick prayer, desperate for anything that would change his mind. Feeling no different, Katie quickly stepped to the front door, rapping the old-fashioned knocker there twice. She surveyed the scene for the hundredth time.

Perched atop a small rise, set two hundred yards back from the road and in front of another thirty acres of farmland that Rick occasionally tended to, the white-sided two-story building was perfectly at home in farm country, with wide rooms, square windows, and real red shutters at their sides. Some simple landscaping, a few bushes and a stone path, had been added to the front to make it look nice, and thirty or so large walnut trees lined one side of the drive way, leaving the other side open for a view of the smooth front lawn gently rising to meet the house, like a king on his throne. *Oh, I wish I were his Queen*, thought Katie. Images of their young children, five in all, three boys and two girls, soon covered the lawn, overflowing it with happiness and laughter. They moved across the green expanse in random, haphazard ways, first throwing sticks, then balls, then wrestling, then playing tag or Ghost In The Graveyard, riding bikes in the summer and pulling sleds in the winter. Katie glanced down at the end of the drive and saw Rick and herself standing, arm in arm, as they returned from a moonlit stroll in the quiet fall air, talking softly as echoes of contentment roll from the back of the house where the children were having the last bonfire of the year with their cousins, staying over in the visitor bedroom on the second floor, the one that had the antique dresser and the extra-wide four-poster bed and the heirloom goosedown comforter that Rick's grandmother had given him before she died, that he had so lovingly presented to her as a wedding present the night before their ceremony, the same comforter that they'd taken back to their room and slipped under after all their guests had finally left and they were all alone as husband and wife and happy and exhausted, hands gently caressing in –

With a start Katie realized she was dreaming again. She looked at her watch to see that nearly ten minutes had passed since she knocked. Rick wasn't home. *Maybe he's just not coming to the door.*

"Rick? *Rick!*" She stepped off the porch and moved around the corner of the house to the barn where he had his metalworking shop. As a retired mechanical engineer, Rick still liked to tinker and fix the occasional broken TV. Maybe he was in there. "Rick?" She heard the faint sounds of metal scraping across metal coming from the open door to his shop. *He's here!* She skipped a couple of steps before calming herself enough to walk, not run, walk, to the door and knock. "Hi," she said, when he stopped but did not turn around.

"Hi, Katie," she heard. As often as he addressed her, she wished he would *say* it rather than just using that machine. It was convenient, yes. It communicated, yes. But it wasn't speaking, no, not really. She glanced at his left hand again, saw the web of slender electrodes from his fingertips, the ones that picked up the movement of each individual finger, snaking back to the silver disk near his wrist, a slightly thicker wire running from there along the back of his arm to the small voice box at the base of his neck, watched his hand move again, that single hand move and fall silent, waiting for the slight motions to be processed as typing, waiting for the voice box to register what modifications it needed to make to the air around his throat in order to present the almost-reality that was his artificial voice, waiting and finally hearing "I was expecting you."

She stepped inside the work room, carefully avoiding a few small shards of metal littering the floor, glancing absently at the screwdrivers and awls, ohmmeters, small hammers and pliers covering the walls and the work bench, reaching to touch his shoulder but pausing, knowing he had never returned her touch, wondering how she would feel about another rejection.

*Too late*, and she let her hand fall gently, giving a slight squeeze even as she could see him tense, then stand quickly and turn in the same motion to face her.

“You were expecting me?”

“It’s been about four days.”

*Am I that predictable?* “I read that book you suggested. I had no idea mythology was so interconnected between the Greeks and Romans.”

Rick didn’t say anything, just stood there looking sexy in his blue jeans and brown work shirt. His short-cropped brown hair had only the slightest hint of gray, but his piercing blue eyes, set deep inside his slim face, so perfectly matched to his tall, slender body, told her that he didn’t really have anything to say. His fingers twitched quickly. “It’s not going to work, Katie. Don’t you see that?”

She bit her lip to suppress a moan. “I can get over the age difference, Rick. Don’t you understand that by now?”

“Katie, I’m a hundred and thirty-three years old. Let it go. Let me go.”

She shook her head. “I still say you faked that birth certificate. You don’t look a day over fifty.”

“And you’re not a day over thirty.” His face sagged a little, as if he were tired, too. “Why would I fake that, Katie? Why would I want to make myself that much older? To make myself a freak?” She’d heard it all before, he’d said it all before, but, still, she knew that some day he’d end this joke and crack a smile. And then he’d kiss her and everything would be all right.

She stepped closer, reaching out to take his right hand in her left, she still couldn't think of touching that left hand, all cobwebby-looking, but she'd deal with that once he spoke and told her how much he loved her. He pulled away and moved to the side, out of the workshop and back across the short span of thin grass to the main house. The bleakness on his face told her too much, and at the same time nothing at all.

\*

Katie hurried into the small coffee shop that smelled of steamed milk and laptop cases, glancing around at the comfortable chairs and comfortable people, finally spying Abby in one of the back corners. When their eyes met, Katie knew that the beaming smile she felt on her cheeks was a surprise to Abby. She mouthed a little "Oh?" and waved her over. Moving quickly, Katie landed onto the two-seat couch and dumped her shoulder bag on the floor, still clutching the leather-bound volume in her hands. She would never let it out of her sight. It was her joy, her beauty, her *raison d'être*. It was a gift from *him!*

"So," Abby was trying to sound nonplussed. "What'cha got there? Little light reading?"

Katie held it out for her to see. It was a brown leather journal, about an inch thick, relatively new, filled with pages and pages of thin writing, very neat, very methodical. She had clutched it to her chest for hours, not even able to believe that it existed, much less that it was for her, and she had it and was going to read it! Rick had filled it, he told her, because there was too much he needed to tell her, more than could be said face to face. Abby pointed to one of the yellow rectangles, small sticky-notes, spread along the edge. "What're these? Bookmarks?"

Katie sighed. "Rick said that if I don't have time to read it all I can just read those parts." She felt her smile widening. "I'll bet those are the places he says he loves me!" She looked down and saw that each little tab had a number on it. "Ten little tabs," she said. "Ten ways to

tell me that we'll be together forever!" She clutched the journal to her chest again, smelling Rick's deep woody smell that permeated the binding. She felt foolish, but she didn't care. He loved her! And he would tell her so! Opening her eyes to find Abby staring at her, Katie blushed. She tried to hide her excitement behind a hand, but couldn't avoid giggling, and when Abby saw it, they were quickly leaning against each other, with tears in their eyes and sides aching. Friends since college, ten years or more, and this was the best they could come up with? Laughing in a coffee shop about a journal that some guy who said he was over a hundred years old had written with his own hand, not even using a typewriter or anything? No witty comment, no secret glance shared knowingly, no desperate grab for the book and short tussle over who would get to read it first, no long-winded speeches about true love and its magical effects? *Nope*, Katie thought. *This is all we get. A few laughs here and there to break up the monotony of the everyday, and then it's back to it.*

She gathered her thoughts and her things quickly, made a sad apology for breaking her promise, but did point out that this treasure proved her vindication. Abby, always the methodical, investigative one, reminded her to read it from front to back, even if she did skip to the tabs. Katie promised, but the slight roll of Abby's eyes and shake of her head meant that they both knew better. With a quick goodbye, Katie darted out the door, leaving behind a fine friend and the warmth of the coffee shop, heading as fast as her beat-up car would take her through the punishingly slow snarl of traffic that is city life.

\*

<1>

*I was born on January 3, 1894. My mother and father were Elsie and Jacob Wagner of Pittsburgh, Pennsylvania. We lived in a small apartment down the street from the foundry where my*

*father worked. Our neighborhood was filled with families just like ours. Their fathers worked at the foundry and their mothers spent afternoons hanging washing out on the line. The children played in the streets and in the yards. We went to school two blocks away on the corner that was taught by Miss Morgan and went to the church on the other corner that had Reverend Preston as our pastor.*

*My brother and sister before me were both stillborn. I was the only child to survive, named Richard for my father's father. My parents put all of their hopes and dreams on me and when I-*

Katie stopped. She flipped through a few more pages and saw it was much the same – rote repetition of Rick's life, growing up in rural America. She had expected him to be writing about how much he loved her. But this was... well, disappointing. She closed her eyes and rubbed her temples, sinking a little lower into her couch, alone in her apartment. She stood and stretched, then went quickly to the kitchen – *kitchen nook*, she reminded herself, a junior investigative journalist salary barely paid for this tiny place, much less one with a real kitchen – and poured a glass of wine. Settling back into the couch, she opened again at random and read.

*But the Depression was very hard on my wife. We had to move a lot, and she never felt happy. She always wanted some security. I always felt bad that I couldn't give it to her. I took whatever jobs I could find, picking tomatoes or sweeping floors.*

That was no better. Katie found herself biting her lip again, and willed her mouth open and her lip back in its right place. The anticipation was killing her. Giving in to her impetuous side just a little, Katie flipped to the end and hoped to find something more interesting.

<10>

*I think it's only fair to you, Katie. I hope you've read this far. I hope you've read everything. I don't think you did. I bet you just jumped right to the end to see what I'm saying. Well, I can't repeat myself again. If you really want to know you have to read and do the hard work like I did. But I will say this: that what I have told you again and again is true, that we are not right for each other. There is something else, and that is that I really do care for you. I know your feelings for me. I accept and understand that. But I hope that you will also accept it when I say I never want you to come see me again. The pain is too much. You are a pretty, young woman who deserves to be told so. I can't do that for you. I have seen your reaction when I use my glove. I won't apologize for it. It's the way I have come to accept my life these days. It's what I have to do. And you have to simply let it go.*

*Katie, please believe me. I like you too much for you to be upset by this. But I don't love you like you love me. Okay, I love you a little, but like a father loves a daughter that he sees making a big mistake. Please listen to these words. Please don't come back.*

Katie shut the journal. There were a few pages more, but that was all he had underlined by tab #10. She raised a hand and felt tears on her face, then flung the leather-bound pages across the room with all her might. The journal smashed against a picture on the wall, knocking both to the floor. Unfortunately, the glass didn't break, she didn't rush over and pick up her treasure to find it had magically transformed into a love letter, she didn't get a last-second reprieve phone call from the Governor telling her that everything would be okay, he didn't really mean it, he was just trying to scare her off and now he was on his way over with a bouquet of flowers and a romantic CD. No, none of that. The journal just lay there on the floor, closed and mocking her, ripping her heart out of her chest one page at a time. She sat on her couch and cried, head in her hands and staring at the floor, not seeing, just crying, and crying, and crying, and by the time she woke up in the morning her tears had dried on the cushion and she wished she was hung over because at least that would mean there was a good reason for the way she felt, but this way it was just plain and simple torture that she would have to endure every day for the rest of her natural life, watching her heart shrivel and melt and bleed out there in the yellow sunbeam on top of the brown leather cover holding thousands, millions of hand-written words that were all just bullshit for all the good they did her lying there on that rotten floor, mocking her, tempting her, destroying her, biting and pulling at her relentlessly one by one until they would leave her an empty shell of a person, withered and decaying, a huddled mass shivering on a cold stone altar begging for the mercy of death.

Katie stood and walked over to the journal, picked it up calmly and set it on the counter. Blessedly, Abby was home on a Saturday morning and they agreed to meet for lunch. Katie considered leaving the vile thing in her apartment, but at the last second she stuffed it in her purse. Maybe Abby would burn it for her.

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With a slight nod of her head, Abby picked up the journal. She flipped it open to the first tab and read quietly, her lips moving slightly in that way that Katie had once found annoying. Katie picked at her salad, and said nothing. There was nothing to say. Abby's voice was quiet. "You didn't read it, did you?" Katie shook her head. "He obviously has something to say, don't you think?" Katie took her beer and gave it a big pull, eyeing Abby around the wide rim. She hoped her expression told Abby to back off. "Can I read it?"

Startled, Katie sputtered out a bit of her beer, then hastily dabbed at herself with a napkin. "No, I don't –" she started, but then stopped. "Okay." Immediately Abby settled back into the booth and continued following the small, slightly slanted strokes. "Do you believe him?" came from Katie's mouth before she even knew she was speaking.

Abby looked up half-heartedly. "Hm? Oh, well, I think I'll see what he has to say about the fifties before I determine that." Abby was quite the history buff. "If he's telling the truth, and he really did live through the whole of the twentieth century, then he should have some ideas about that most pivotal of decades." She grinned. "See, we nerds can sometimes be useful."

Katie was tired of the self-deprecation. "Abby, you're not a nerd. I'm too pretty to be friends with a nerd," she said, though she just didn't have the energy to put up much of a fight. Abby might be another junior something-or-other, but she was quick as a whip at debate.

The rest of their meal passed in silence, Katie dejectedly sipping from time to time, Abby reading and methodically turning pages. The waiter appeared twice, first to imperceptibly top off a water glass, then to leave the bill, and finally, an hour after that, Abby grunted and closed the book with a slight *snap*, a satisfied smile on her face.

"So, what, you know the answer to the mystery now?" Katie asked.

Abby shook her head and gave her a wry smile. “Nope. But I think I believe him. I just have to figure out how he does it...”

“Does what?” The room was nearly empty now, and Katie could hear echoes of their conversation off the mirrors thirty feet away. She glanced at them and cringed at her bedraggled appearance.

“How he stayed alive so long. I mean, he said he’s a hundred and thirty-three, and the birth certificate confirms that, but how? And why doesn’t he look like he’s getting any older?” She threw up her hands in mock exasperation. “All our research, not to mention that of three other companies before us, couldn’t come up with anything. I guess all we can do is hope that he’ll tell you something in here,” she patted the volume tenderly, “that might give us a clue.” She drained her water glass and munched a couple of cold fries. “If we had something to go on, like that he lied, then maybe we could refuse him.”

Katie didn’t really care about Abby’s problems, but she decided to play along anyway. “Refuse what?”

“Renewal of his life annuity.” Katie must have been staring at her like a moose stares at a computer, because Abby quickly continued. “Cash payments for life, every month. We had one back in the, oh, seventies or so, innovative in that increased the monthly benefit every two years based on the remaining life expectancy at that time. A lot of companies sold something similar. Guaranteed renewal after age 100, or so. Pretty quickly the companies that sold them realized they were way wrong about the expected mortality, and they shut it down. But not before a lot of people bought them. People like Rick.” Katie cringed at the name. “The ones that live a long time can really put a hurt on us with something like this. Especially if he’s at a hundred and fifteen years old and our mortality table says he should die tomorrow, so we

basically have to pay him out way too much money, and that is only going to go up two years later.” She sighed. “You know, Katie, sometimes I wish I’d never been assigned this case.”

A small part of Katie wished it, too.

\*

It would be another week before Katie and Abby could meet again. During that time Katie spent two days lying on the floor, three days lying in bed, and one day walking between the two. Not consecutively, nor exactly, but that’s about how Katie figured it when she was lying in her bathrobe on Friday afternoon staring up at the empty ceiling and wishing that she’d never gone to college, or maybe never made friends with Abby, or never taken the job as junior investigative journalist so she wouldn’t have to be the only one in her circle of friends that was an expert at finding long-lost information. That way she never would have met Rick, she never would have invested so much time and energy into falling in love with him, and she never would have been so thoroughly demolished by only a few simple words.

*But maybe he didn’t really mean them*, she thought, and realized that it was the first time in the week she’d felt optimistic. That small bit of hope actually inspired her. Not to do anything, though, but enough to sit up and notice that she hadn’t changed clothes in three days. Calling in sick first on Monday, then Tuesday, and finally Wednesday for the rest of the week had left her without any responsibilities. The time had dragged on. Katie tried to think of something she had done, something she had read, something she had watched on tv during the past four days, but it was all a blur. Less than a blur, a haze. No, less than a haze, a nothing. At least with a blur or a haze or a fog there’s something behind it, something that actually did happen and could be reasoned out with a little time and effort. For Katie it had just been a

nothing stretch of time in which she inhaled but did not breathe, she ate but did not taste, she drank but did not thirst, existed but did not think. So did she exist at all? Why should she?

Startled out of her stupor by the ringing phone, Katie managed to get off the couch and answer it. Her machine was blinking 8 – 8 – 8; apparently someone (*maybe Rick!*) had been trying to get in touch with her. Had she been sleeping? Or just ignoring it? Either way, she answered this call.

“Katie, it’s Abby. I don’t have time to talk now, but can we meet for lunch tomorrow? I’ve read all the journal,” *she wrote a journal?* “and I’ve got some news for you. I think,” as Abby paused, Katie heard her hold the phone away a bit and give a moan like she was stretching for something, “I think you’ll be interested to hear. But you probably won’t like it.”

Katie grunted. No, not Katie. Some thing in control of Katie’s body moved her mouth, squeezed her stomach, forced a little air across her vocal cords and made a sound. Katie had withdrawn inside, watching without concern, cocooned in isolation, away from the hurt and pain caused by emotion, deep inside where there was only Katie and no love, no hope, no rejection, no fear, and soon the thing hung up Katie’s phone, moved her back to the couch, then later to the bedroom where it set her alarm, shut the body down, and rested it until the next morning when she, still down deep, watched as it moved around the apartment making a semblance of reasonable appearance with clothes, hair, a touch of makeup, and then Katie rode the slender body down the stairs and out into the street, along for a quick walk to the bakery where it waved to her good friend Abby, seated comfortably in a high-backed plush booth that looked like it would feel good.

“I found it,” Abby said, smiling and leaning over to touch Katie-body’s hand. Katie-mind registered the experience. Katie-mind waited. Abby continued carefully. “I know how he does it. How he managed to live so long.”

Katie-body and Katie-mind waited without changing emotion. At this point neither cared. Katie-body remembered the few times it had managed to touch Rick’s glorious hand, or his strong shoulder, even the little kiss it had given him on the cheek once, but did not wish for any of that back. Katie-mind remembered the joy at seeing him, the trust she had felt in his eyes, the desperation she felt at reading the words *don’t come back*, and she wished for those to all go away. Katie-mind and Katie-body listened to Abby and heard, but could not care.

She picked up the leather journal and opened to the first page, the first tab. “I read everything in here. Everything. And I believe it. Don’t ask me why, I just do.

“The first hundred pages or so are just his life. Did you know he was married? He fought in the Great War, lived through the depression, saw the sixties, hated the eighties, made a comfortable small fortune in tech stocks in the nineties, lost it all when the bubble burst, rode it back up again in the second tech bubble fifteen years ago, and now just lives on his farm, tinkering and doing crossword puzzles. You show up here,” Abby flipped to tab 8, “where your actuarial analyst friend asked you to do your investigative reporter thing on a problem she didn’t have the expertise to figure out. So you went over there and instead of getting to the bottom of the problem of why there was a hundred and thirty-one year old man still alive in rural Illinois and it wasn’t on the news every weekend, you ended up falling in love.

“But he never talked to you. He said he’s sorry for that in here,” Katie-mind heard that and realized it might be important; it tried to make Katie-body sit up a little straighter. It did not obey. “He said it was necessary. That’s why he used his *glove*, but it’s not really a glove. Oh, it

was, at first,” Abby flipped to tab 5, “when his engineering friends fitted him with the set of electrodes that would record what motions his fingers did so he wouldn’t have to be strapped down to an external keyboard all the time.” Abby paused and stared Katie-body right in the eye sockets. “Did you know he was able to design a one-handed keyboard so he wouldn’t have to use two hands?” She was obviously impressed. Katie-mind tried again to make Katie-body do something, but it seemed weaker this time. Perhaps with a huge push.

“Anyway, he’s been using that sort of glove-thing for, what, sixty years now or so, and in that whole time he hasn’t said a word. And not just then – for almost twenty years before that. He stopped talking when he was fifty-three, and hasn’t said ‘Boo’ since. Not to anyone. Not to you,” Katie-mind tried to cry at that, but without a body it was simply a hole in the fabric of emotion, “not to the tax man, not to his children, not to the insurance agent. Just wrote stuff down or typed with his one hand and let the voice box speak for him.” She shook her head. “How lonely he must have been!”

Abby paused and took Katie-body’s hand. This time Katie-mind came forward enough to register the sensation of connection, of appreciation. “You want to know why he didn’t speak?” Katie-mind did not. “He thought he couldn’t. He thought his next word would be his last. Apparently,” she flipped to tab 5, “when the Second World War was over, Europe was pretty inviting to the Americans, so Rick and his wife went for a tour. Spain, Portugal, France, Switzerland, and, then, finally, Greece. Where they toured ancient Athens.” Katie-mind remembered the mythology book. Had Rick been trying to tell her something? “One of the temples there was dedicated to the three Fates, the ladies who spin the threads of life. Well, evidently Rick liked it so much in there that he went back later that night and saw something. Like ghosts, or spirits. But they looked like...” She paused, then turned the journal around and

shoved it at Katie-body. Katie-mind listened while Katie-body's eyes took in the sensations that would eventually be translated into information-bearing content that Katie-mind would decode into coherent meanings. In other words, she read.

*They looked like all the pictures and statues we had seen for days. They were slender and wearing a toga draped across one shoulder. All of them sat on stools spread across the little platform at the back of the temple. But there were more than I thought. I expected three, like the tour guide said. But there were four - one spinning, one measuring, one cutting, and the last one, wrapping threads around small pebbles taken from one jar beside her and dropping them in another. The first three were all very similar - pretty and young, they could have been sisters. But the last looked like an old maid, wrinkled and with thin, grey hair. She would quietly take a pebble from the jar, wrap the thread, and just as quietly place it in the other jar.*

*The threads I understood. They were the threads of life. They were the length of time each person had. But I didn't understand the fourth one. So I just stood there and watched, hoping to see something.*

*After about ten minutes I saw them cut the smallest thread - it was less than an inch long. When the one with the shears handed it to the old lady, I heard her cry. She took the pebble out of the jar, wrapped the tiny string carefully around, and*

then gently kissed it. She put it down in the other jar, and then I heard the other three cry a little bit, too. So I felt like crying, and I made a small noise in my throat, I guess they heard it, because they all looked at me with fear in their eyes.

"Get out," one said, the one at the spinning wheel. Clotho, she would have been. "This is not for mortals."

"Get out," said the one measuring the length of the threads. Lachesis. "You have no business here."

"Get out," said Atropos, cutting another thread, this one longer than her own arm. "Many things you should not see."

"Get out," said the last one, who I had no name for. Her voice was as old as her face, very tired and raspy. "Before you find yourself condemned."

Somehow that intrigued me, and I stayed. Their threats were pretty idle, as they didn't do anything to me, just continued with their business. After about another ten minutes, though, the old lady spoke.

"You are condemned," she said. "I am Parameno, the one who assigns." She stood and walked to me. Closer, I could see that her wrinkles were deep, very deep, covering her whole face. All that I could see, I mean. I wanted to look in her eyes, but I couldn't. She was blindfolded. But still, she stared right at my eyes, as if she could see.

*"I assign this to you. This is your condemnation," she said. "To know." She pressed a pebble into my hand, wrapped with a length of string. "This is yours. You must now bear it." She turned to go, leaving me there all alone, stunned, unable to say anything, unable to move. I simply stood, waiting, for a few more minutes, staring at my hand and feeling a slight coolness of the pebble. Finally I turned to go.*

*"Watcher," came the tired, raspy voice once more. I faced the group. This time all four of them were standing to face me. Their blank faces scared me most of anything that night. "The thread is not that of life," she continued. I was confused. Not the thread of life? But that's what everything in all the histories has said - that the fates determine a person's life. And how did that blindfold come into it? "The thread is the thread of words," Parameno finished, and as she did, all four raised a silent hand. I left the temple then and went back to our hotel. It would be another six months before I would really understand what it -*

Katie-body startled and jerked the eyes away as Abby nudged its shoulder, so that Katie-mind had to stop reading and think. Katie-body stared at Abby, and Katie-mind swam back to the surface, struggling for control, reaching and grasping and finally finding purchase, exploding into herself again, one whole again, with control of mind, body, and spirit, and felt a rush like that on the first drop on a roller coaster, senses fully alive and firing, noticing everything around her, tasting, hearing, breathing, rocketing her into awareness and comprehension.

“Hell-ooo?” Abby said, poking her once again. “You alright Katie? I said your name there about ten times and got nothing.” Katie nodded and mumbled something that might have been thanks. “Did you read it? Did you get to the end of that part, when he told about the blindfold?”

Katie shook her head. “You don’t think he believes that, do you? That if he never speaks again, he’ll never die?”

Abby shrugged. “It seems impossible, I know. But we know he *lives* like he believes it. And the mind is a very powerful organ. There’s parts of our brain we have no idea what they control or why they’re there. So if he believes it, it seems like anything’s possible.”

Katie didn’t buy it. But when she started to open her mouth, something stopped her. A little tickle at the back of her brain – *what if he’s right?* Instead, she simply shook her head.

\*

Confronting him was easier than she thought. Despite Abby’s pleas, Katie hadn’t said one word more during the rest of lunch, nor had she said anything to herself on the drive out here. When he answered the door at her knock, she said nothing then, either, just showed him the journal, open to the last page she’d read. He nodded and waved her inside. They sat in the living room, sipping coffee. He’d brought a pen and pad of paper, in case she wanted to tell him something, but Katie found herself with, ironically, nothing to say to him after the last two years and so many rejections.

He tried to make small conversation, with his glove, and thankfully asked only yes-or-no questions that she could nod or shake her head to. Finally, when the coffee was lukewarm, she sensed it was time to go. She stood, and held her hand out to shake. Thankfully, he held out his, too, and when his palm touched hers, it was warm, and friendly, but not romantic or loving.

Something deep inside begged her to squeeze harder, to grab on and never let go, but she knew it wouldn't be right. With a final glance in his eyes, so blue they still made her heart weak, she bit her lip in frustration and turned to go.

He went with her to the door, then stood on the porch and watched as she descended the two simple steps and walked to her car. But, once there, she couldn't move. Something still held her back. So she leaned against it, her back to Rick, and let the silent tears flow. And that's when she heard it.

“Katie,” he said, *said!* In a real voice! He'd said her name! He spoke and it was for her! Oh, his voice was sweeter than honey, more powerful than the mightiest thunder! It was Niagara Falls and a nuclear bomb and a 747 taking off all at once, the dazzle of a hummingbird and the grandeur of the Moscow Ballet and the calm of a full moon on a treeless plain at midnight. It was love and it was from him and it was for her! She whirled around and saw him standing at the bottom of the porch, holding his good hand out to her. “Katie, I,” he continued, but stopped. She didn't care. He'd spoken, he truly loved her, that journal was all lies, she knew it, she knew it, she knew it, she would love him forever and he would love her forever, and they would live here and they would have children and grandchildren and great-grandchildren, and they would die happy and together in each other's arms, *Katie, I*, he'd said, she remembered, she would remember every moment for the rest of her life, she would remember it and imprint it on her mind, her heart, every cell in her body, *Katie, I*, she jumped and sprinted around the corner of the car, shouting, “Rick, I love you!” and he loved her, he did, he loved her, and she loved him, *Katie, I*, and in the delirium of the moment Katie as ran to hold him, “Rick!” she slipped a bit on the gravel driveway, “whoops!”, and only had time to think, while her head was fast approaching the hard edge of the bumper below, *Katie, Katie, I*.