

# Terminal

Charles P. Hansen settled into his seat on the Long Island Railroad. The train was sitting at Penn Station waiting for its scheduled departure to Long Beach. Long Beach, NY, nicknamed “The City by The Sea”, where his wife Amy and he downsized to a few years ago. It was only five miles from their prior home, but now they were living by the ocean in a seaside vacation city, with great shops, bars, restaurants, and a surprisingly large number of fitness centers. Charlie and Amy have been married for over fifty years, with three kids (well when asked if he had children, once they were all out on their own, he would answer, “no, we have three adults”) and five grandkids, who were all adults now as well, or close to it. It was currently the winter holiday season and in winter the neighborhood was much quieter than in summer, but the city never closed down. The streets were decorated with holiday lights, including the shapes of various sea images, such as sea turtles, dolphins, and surf boards, along with the standard holiday fare. The city just held its yearly electric light parade, its Holiday fare and advertising was starting for the annual Polar Bear plunge, as Charlie planned to join 7,000 other brave souls for a February dip into the Atlantic. Long Beach wasn’t just on Long Island, it was on a barrier island under Long Island, below the mouth of the “fish”, about a mile wide and ten miles long, one of only two cities on Long Island.

The LIRR branch he was riding. was the Long Beach line, named after the terminal station. The train today felt oddly empty to Charlie, as he wasn’t used to riding on the off peak, there were only about twenty people in a car designed for a couple of hundred. He sat on the end of a familiar feeling five-seater, with his long legs stretched out from the end seat. When the big board upstairs flashed his track, other passengers sprinted for their spots, but Charlie knew the seven minutes to departure was plenty of time, as he calmly took the long walk along the platform, scanning the panoramic view of the shiny metal stretched thin into the tunnel to see the car he was destined for. He was headed for the very first car, as it gave him the shortest walk when getting off the train. He knew it didn’t make any difference in how far you ended up walking in total, but this was how people did these things. Besides, it was winter, so there was some logic to minimizing the outside walk. As an actuary, he tended to over think these things, but he often quipped anything worth thinking about is worth overthinking about. After the commute he would normally then walk the half mile home, but today, knowing he had the box, he parked his car at the station, so he could drive home. It was odd to be leaving so early in the day, just after quarter close, particularly year end close, when final true ups have not yet been done, but his valuation system was so well automated, he was comfortable leaving it in the hands of the Phil, the supervisor who was taking over his work.

Charles was the name on his corporate ID, cubicle name plate, and which he used for the SOA directory and business social media websites like LinkedIn and CorpConnect, but everyone called him Charlie. On the empty seat next to him, he placed a box that contained over fifty years’ worth of treasured junk he had accumulated in his career and couldn’t bear to part with or at least he would decide what to do with sometime later. In the box was his name plate and ID, a Cubicle

Sweet Cubicle plaque, actuarial pins, and bumper stickers with slogans like “Actuaries Architects of Financial Security”, “Professionalism Counts” and “Take a Risk, Marry an Actuary”. Corporate mugs, pens, hats and even a frisbee proudly all emblazoned with the end results of a multitude of various corporate rebranding efforts over the years touting MANRe, the Metropolitan American National Reinsurance Company of New York in different designs, colors, and fonts and even a cartoon Elephant used as a “pitchman” for a while. “We Never Forget Our Obligations”. “The Strength to Best Protect You”. There was a suit and shirt for when clients visited the office, however he planned to donate those to charity as they barely fit anymore. Few clients visited in recent years and never impromptu anymore, (ok, they were never really impromptu, but when the office went business casual, managers sometimes forgot to let you know today needed to be business attire). Charlie never wanted to be caught looking improper, it was already one of his older suits when he brought it in to the office, and the suit hung there for many years, only being worn a few times over all those years. One time was after going to the gym in the morning, he realized he grabbed his son’s clothes out of the dry cleaning, and since his son was ten at the time, that was not going to be an option. On top of the stack in the box were a pair of shoes, as he wore sneakers to work to save his feet and also a sweater for when the office was cold, even though maintenance always promised the thermostat was set to 70 degrees. And there were some comic strips, mostly Dilbert, that he’ll probably throw out at home, though there was the one from the New Yorker he had framed, because after all this time, like the punchline, he felt he was kind of famous in actuarial circles. The people in the industry knew him and respected him, he had worked on a few SOA committees, presented at conferences and by working for a reinsurer he gained exposure to quite a large number of clients and consultants over the years, he had a lot of connections on LinkedIn and CorpConnect.

He worked until he was 75, because he liked the work, he got to work from home often and he had a great work / life balance, not to mention the money was good, he had plenty of vacation time to travel and he felt his mind was still sharp. He even asked his supervisor to let him know if he ever felt he was slipping, and if it was time for him to call it quits. That never happened, he was not terminated, it was just time. It was not that the job of calculating terminal reserves was ever all that exciting, but Charlie made it a game, a goal of the pursuit of perfection and that was exciting to him. He finally felt the project that took the last 20 years of his career was completed and it was a good time to step away.

Early in his career, on his morning commute he sat with a group of friends and friends of friends accumulated from sitting in the same car, knowing people from the neighborhood and getting into conversations. When Amy started commuting into Manhattan, she had her own group of friends that sat in a different car than Charlie, so after they married, they went in separate train cars in the morning and then would get together to walk to work, he would drop Amy at her office and then continue on to his own. On the evening commute Amy’s morning crew and his got together and they became a rather large group, on the 5:32, Far Rockaway branch, third car from the rear, short side, some days as many as fifteen of them. They got a bit loud, talking about the day, stuff in general and food, for some reason a lot of discussion of food. That crowd thinned over the years as they changed hours, people moved, and especially after so much changed after

the pandemic of around ten years ago, with fewer people commuting at all, so he had hardly any regulars that he knew anymore, but there were always a few familiar faces that seemed to be on board. He actually, met Amy on the train as he was going to the MANRe job interview, but that is a story for another day. When Amy took a job on Long Island, Charlie joined a group of card players and he started spending most of his commutes playing gin. He had various card partners over the years, going from being the young guy to the veteran. They sat in the five-seater, knee to knee with their briefcases spread out across their laps. He was good at games; cards came naturally to him, and he liked to joke that he never needed to bring lunch money to work, he would earn it. There was always someone looking to take an empty spot in the game, a friendly kibitzer who would sit across the aisle, but who knew not to talk out of turn. He got into the game that way, being invited to join by an acquaintance, after one old-timer retired.

Today with the five-seater to himself, Charlie still wouldn't put his feet up on the seat across, as the conductor tended to chastise you for it, and he didn't want to be bothered, he just wanted to close his eyes and relax. He stuck his monthly ticket in the pocket of his shirt where the scan code was visible for the conductor. Instead of the old hole punchers, everything was now scanned, and so much quieter. The scans fed a system telling the MTA how many people were on the train and in each car, how many got off and on at each station and ultimately how many cars and conductors were needed at any time of day. It was a thoroughly modern machine, maybe more computer than vehicle, a huge upgrade from what he rode on when he started in the early 80's. Not just quieter, but brighter, cleaner, and actually more comfortable. As, the train glided silently on the rails, electric billboards flashed ads and a scroll of the upcoming stations rolled across a rectangular sign above the door, using cartoons of an old train or the Dashing Commuter as a break between the station names. He adjusted the wings on the head rest, sat back, closed his eyes, and reminisced.

That first day heading into his new job, Charlie sat alone on the window side of a two-seater. He was headed to Penn Station, followed by a cross-town walk. As of a decade ago he would have gone right into the Grand Central Terminal on the LIRR to get easily to the main corporate headquarters. Then again, just before that Penn Station was half the size, before it took over the old post office, across the street and Madison Square Garden, above. While working at the East Side office he spent many lunch hours at the UN Rose Garden, reading and watching the river and boats. MANRe moved buildings twice, he even got to be move coordinator, riding in the moving truck and making sure all the boxes ended up in the right place in the new office. They were downtown for a few years, where for lunch he walked over the Brooklyn Bridge once a week, hung at Battery Park and watched chess and backgammon being played in Liberty Park. Now he was up by Central Park, where he continued to take long walks and was close enough to get lunch from the so-called Soup Nazi, before he became famous. A mostly empty brief case was in the rack above his head, an Actuarial Statistics textbook was on his lap that he was skimming in preparation for his November exam, secretly wishing the book was something by Stephen King, instead. He was hired for the job with only one exam, a rarity now-a-day. Though it did take a while to get his first actuarial job, even turning down one that offered only \$12,100 to start. He felt brave turning it down and was thrilled and proud of himself when he landed the MANRe job

at \$19,400, just a month later. Studying on the train was hard with the distractions of the noise, people talking, the clacking of the rails, the click of the hole punches, plus the bouncing and rocking of the train. As the train went through the last stations the aisle was full of commuters and an older woman sat next to him, reading the NY Times, with expert folds. He also realized, too late, he was riding backwards; it didn't feel particularly comfortable, especially, when he was trying to read, and he needed to be more aware of where he sat tomorrow. Plus, he was just generally nervous for that first day.

Charlie got to the office about half an hour early, and a little sweatier than he wanted from the 20-block walk. Despite being a cool day, his suit jacket covered the sweat stains on his blue shirt and his feet ached a bit from the mile hike in new shoes. His tie was in his briefcase, he would go wash up and put it on before meeting anyone. He eventually learned the subway system for days when the weather didn't cooperate, but he always preferred to walk it when he could. After checking in at Human Resources, a more veteran actuarial student, John, escorted the new employees to the actuarial student work area, those with coats put then down in a couple of empty cubicles and went to meet the managers. They got their initial rotations and were told what cubicles would become their temporary homes. A student named Josh asked for a specific cubicle, when John asked why, Josh said his coat was already there, why should he need to move it. John patiently explained that HR had the cubicle and phone number assignments already set for each new employee. To which Josh asked if that could be changed so he didn't have to move the coat. Needless to say, Josh didn't last long.

Charlie's initial jobs, like most of the other students at MANRe, involved a lot of programming, mostly COBOL, some Fortran. It was commonly called spaghetti code by the students, because the strings of logic were so hard to follow, though he liked to call it copper penny programming, because back in the day of fuses, a burnt-out fuse could be fixed by inserting a copper penny. Of course, if you didn't replace it rather soon enough, the house could burn down. The programming consisted of constantly updating and fixing someone else's work, with only enough time to get a patch in. Once, right after rotating to a new department, he was having trouble balancing the output of a program he just inherited. It took him a while to find the error, which was literally the program skipping the processing of a specific policy number. Upon asking Tony, the prior programmer, why he would do this, he was told that policy kept causing the program to error out, and since Tony couldn't figure out why, he just skipped the processing of the policy and adjusted manually. That didn't sit well with Charlie, he needed to figure out the "why", and did.

When Charlie started at MANRe not only were there no laptops, not even personal desktops, he sat at a special terminal and typed instructions like "M Op: Please load tape #C142599 onto reel #156", so that he could access data he needed to work with, while feeling a cold breeze emitting from under the door of the room needed to house the computer. However, there were also additional dummy terminals for when mainframe access wasn't needed, one for every three students in a common room. Like the signal in an old diner, so that a waitress would know which table's order was up, a board with a lighted number would tell someone when a terminal was

available. When MANRe finally got PCs, spreadsheet programming started with VisiCalc, then SuperCalc, Lotus, Lotus 123, Excel, and then a few years ago TurboCalc and for documents, there was WordStar, WordPerfect, and Word before TopWord. Policies were first being reviewed on microfiche and microfilm, as well as actually pulling paper files. It only took 35 years, after he started to go almost completely paperless.

Changes also affected the exams as he worked towards his FSA, moving, combining, disappearing, all confusing the once simple one through ten everyone, even non-actuaries seemed to know. He started before the SOA allowed calculators, starting with the TI-1706 purchased from the SOA for a tax deductible \$9.99, requiring the SOA and CAS logos stamped on the back. Charlie hated when they allowed calculators for exams as he was a great arithmetician, faster than most, even other actuaries and he also knew the various “tricks” of taking exams, eliminating answers that were unlikely or just too difficult for most people to calculate by hand. He obtained his FSA, before the exams became an alphabet soup that he was unable to follow and didn’t bother to as he rarely managed any students.

The work area went from cubicles to open floor space and then clear half walled cubes, where you were expected to take phone calls in a conference room to keep the area quiet. No one had offices and as fewer workers came into the office, they started sharing workspaces. Charlie was in the office a lot, relatively speaking, so he got to retain his own cubicle. When MANRe, went to buy new desk chairs, a small group was asked to try them out first. It wasn’t hard to figured out he was chosen for being the tall guy, some were less than flattered when they realized why they were also chosen. They went from wearing suits to business casual Fridays, to full time business casual, to many working from home. He liked working from home, they had a room they just used as his home office, living only a few blocks from the ocean, taking breaks walking on the boardwalk, but he needed the computer power in the office many days. Remote (never call it virtual in front of Charlie, he’ll remind you everyone involved is real) conferencing got much better as time went on as well, though, unlike other work software there was less agreement on what to use among clients and consultants, so he needed to have it all installed, Zoom, Webex, Teams, 8x8, and NxtGen. When working from home he usually wore sweats, or shorts and a tee, many with the MANRe logo and characters. In addition to the suit in the Manhattan office closet, he also needed a button-down shirt at home for remote client conferences. As long as you stay seated, it didn’t matter what you wore on the bottom. He didn’t bother changing for the internal meetings.

Charlie, like most rotating students, was a jack of all trades, going through the various rotations of the various lines of business and the various actuarial functions. But he primarily felt at heart that he was a programmer from those early years when he wrote computer programs more than he ever did true actuarial work. He was even put in charge of making sure the actuarial programs were all compliant for Y2K, when the world feared a catastrophic shutdown of life as people realized most programs never accounted for needing a four-digit century. When he an ASA, he was out of the student program rotation and settled on Health and Medical products, mostly

valuation, but he knew it all, since he had done it all. As a reinsurer he usually worked with over thirty different clients, as many as 35 in some years, as well as multiple administrators and consulting actuaries, so he had access to more data than most actuaries working at a single company. This gave him an advantage over insurance carrier actuaries in becoming a true expert, he needed to know more when he counseled his clients and spoke at conferences. Like most experts he hated being wrong and anyone who knows actuarial work know they are always wrong. He continuously tried to improve his models. A big problem at MANRe were the books closed on or around the 22<sup>nd</sup> of the month, so there was always a week of adjustments that had to be calculated for each close. Charlie hated having to explain reserve adjustments and charting actual results without reserve error against booked results, which became a quarterly task. He built models that tracked past errors and corrected for them. He tried to get as much actuarial and general morbidity and mortality data as was available. He even searched various government websites with accident data and other death statistics. Most of this data was available for sale and Charlie felt it was needed to help minimize error. Besides, when you are dealing with over \$800 million of premium, the data cost was relatively cheap on the scale of things. As technology advanced, he started getting automatic feeds from these data sites, he was tracking even down to smaller mass casualty events and interpolating the possible exposure to his blocks of business.

Artificial intelligence has been talked about in insurance circles for almost as long as Charlie has been working in insurance, mostly for decision making areas like underwriting, with simple If A then B logic. There was constant development of more complex decision-making programs. To most people it started with games, tic-tac-toe, checkers, chess, backgammon, poker, all getting more sophisticated over time. Siri, Alexa, Google, Cortana, Bixby, Dot and Sheila all making look up simpler. Self-driving cars pushed some boundaries, regarding safety versus innovation. Then programs that could write professional essays, create art, or make it look like celebrities were saying things they never uttered, these led to a lot of discussions of privacy, ethics, copywrite law, and public domain. Charlie was able to avoid many of the legal areas of concern based on how carefully he built his databases. In the early 2030's the "wild west" of AI was becoming more controlled, which actually opened up more legitimate uses for those that could show proper acquisition of information and no rights infringement. Charlie was determined to apply AI use to actuarial work. He developed theories on how it should work, but as we all should know, in theory, theory and practice are the same, in practice, they rarely are. He loved the concept of not just iterative calculations, but calculations that learned and corrected errors going forward, basically improving itself, becoming more accurate and calculating much quicker. It was slow in developing at first, at least to the degree he wanted to use it, but his other programs needed little update and maintenance, so he used his downtime working on this programming logic, trying to get the practice closer to the theory. His computer was state on the art, he constantly loaded the most modern AI programs and had automated data feeds from all his clients, as well as actuarial data feeds from the SOA and CAS and various local, state, and federal data sources.

A large monkey wrench in Charlies' progress occurred around ten years ago, with a worldwide pandemic called COVID-19, a corona virus. United States Medical claims were down, particularly Medicare Supplement products as the Government started covering a lot of the costs of testing

and treatment and eventually vaccines. Also, people were hesitant to go to hospitals due to the virus and besides that, hospitals weren't accepting anyone needing non-emergency procedures. Not only were medical claims down so were P&C claims. People were working from home and not even going out socially, no one was driving. On the other hand, life claims were way up, especially among the elderly. In the United States Excess Deaths were as much as 20% above expected in the first year of the pandemic. No system, no matter how smart was figuring how to project these fluctuations out. COVID is still with us, essentially similar to a hyper-contagious flu, though even from an asymptomatic carrier. Other issues complicating forecasting was tracking those who missed critical treatment or diagnosis in those early years and more so long COVID, other, seemingly unrelated, conditions brought on by COVID. By 2027, there were finally tests to be able to link these conditions to COVID and to better classify them. Before that it was almost all anecdotal. Few other uncontrollable events had such a lasting impact on his programming. There were other major events during his working years, but while devastating, normalcy, at least as it related to insurance, returned sooner. 9/11 had many companies adding terrorism clauses. Four 100-year weather events hit the New York area alone in just the last 25 years, but systems were able to account for the increased frequency of severe storms.

Once the pandemic slowed to an endemic, and then mostly seasonal and as issues of long COVID were better defined and identified, Charlie went back to his modeling with a passion. Trends were finally stabilizing again. However, those years were at least not a total business loss, because when you are a reinsurer, or any expert consultant, turmoil is good. When you are the experts and people don't know what is going on, it is the time to network for clients. Even in his early days of actuarial, Charlie was considered "an actuary with a personality", "the actuary who stared at the other fellow's shoes", and he enjoyed the prospecting, he enjoyed being the expert in the room, sometimes he enjoyed presenting, visiting clients and he especially enjoyed the travel perks, hotel, and airline points, actually he and Amy enjoyed those, and he had a lot pocketed for his retirement. He was happy when the travel started up again, as the world felt somewhat normal again, or at least what the new normal was better understood.

As time went on, Charlie and MANRe started contributing to national databases. The government wanted better information on health conditions, terminal diseases, any illness trends out of the ordinary. They never wanted to be blindsided again by any potential epidemic. The federal government also wanted a better grasp on cultural health issues, the underserved, the poor, preventative possibilities, and regional issues. There was already government sourced healthcare in PPACA, Medicare and Medicaid, and visions of a future National Single Payor healthcare was becoming an actual possibility.

Computers were all communicating with each other. Anything with a processor and on Wi-Fi was part of a universal network, sometimes all it took was a plug. After many battles for the authorities against individuals and even countries trying to hack, cram, stack, scam, phish, spam, smish, skim, vish, pharm and spoof, using malware, scareware, spyware, ransomware, scrubware, botnets, darknets, trapnets, trojan horses, viruses, spiders, moles, and worms, even

leading to an outright banning of some popular social media platforms, personal information was finally being protected through Federal and International law. The collection and processing of data was possible at a level only dreamed up five years before. Charlie was one whose career grew with all the technology advancements and despite his age, he learned the new systems earlier and easier than any newbie coming in. He especially loved the Artificial Intelligence systems, though recognizing that some of the advancement there was frighteningly close to the science fiction of his youth. He was even getting data from systems he never imagined would matter to his work, but it was all feeding in, available in bulk and included in the calculations. His work gained some renown within MANRe and the Life division wanted a piece of this technology as well. At MANRe, Health was significantly large, but Life was massive. If 100 people died in a plane crash leaving from Kansas, five of them were most likely MANRe policy holders. Hospital data, accident reports, natural disasters were all included as part of the communication system.

A year or so back, to Charlies' amazement, the model appeared to be virtually flawless, there was no significant error. Incurred But Not Reported errors were at minimal levels as never before and seemingly becoming more of a certainty, than a calculation. He wasn't taking it for granted, he did audits, reconciliations, every check he could think of, and the numbers still checked out. He had peer reviewers go through everything as well, few understood the programming, but they agreed the numbers all looked correct and amazingly accurate. There was no need for contingency margins, no adjustments, or explanations to management. Downline pricing became easier, and more accurate. Medical rate increases had sufficient data to satisfy almost any state examiner. It became clearer what markets to avoid, what regions were not as profitable as they appeared and where they should increase presence. They actually reduced the top line and MANRe's market share, while at the same time increasing profitability and eliminating volatility. He documented everything as well as he could for the next person to take over and gave notice that he was retiring in a few months.

On Charlies' last day they threw him a nice party. He was surprised how many people came, many long retired, even some old clients from the local area. The trackbit watch they gave him as a going away present was on his wrist, measuring the vitals of a calm, satisfied man. He joked that his data will be grouped together with everyone else wearing these fitness tracking devices and ultimately loaded into his program, which really wasn't all that far from the truth.

Charlie opened his eyes, as he looked out the window, at the water, the low afternoon sun was glistening off the bay, a few boats were out despite the chilly weather, and some gulls were trying to steal the boats' catch, he relished how beautiful this area was. He loved it here, but he still wanted to travel, he and Amy wanted to play golf in every state, and they only had a few left. They used his business travel well to build on side trips and earning hotel and airline points to travel inexpensively on their own. He felt he would need some other hobby to fill his time as well. He thought about tutoring math, but it all came so natural to him, it was hard for him to relay information in an understandable way to children. His younger daughter once told him "I always thought I was bad at math, until I realized you were just a freak". They would definitely spend



more time visiting the kids and grandkids. When Charlie noticed the train passing the station preceding Long Beach, he mentally prepared himself to gather up his stuff. As he went to stand up, he felt like the train was moving faster than usual.

Back in the home office, the reserve numbers had been already calculated, waiting to be tested out after the new year. Without any human involvement, Charlie's system was still working on its own, it kept processing without anyone initiating the system, constantly tracking data, and adjusting. Charlie taught it to learn from prior errors and correct mistakes, in a sense he made the system as much of a perfectionist as he was. Not that it could love or hate or feel anything, but he sometimes believed it seemed like it hated to be wrong. And on the last workday before the year end as it has done for the last few years it reviewed all the prior calculations and decided the actuals were coming in slightly low. One can imagine the sound of dial-up ring tones and circuits clicking, metaphorically, of course, as all this was completely silent, as multiple machines at various locations communicated, searching for the right counts to make it all work out.

Charlie's train silently glided along the tracks, but at a speed in excess of what was normal. Most of the riders were oblivious to anything unusual, though the train crew instinctually felt that something was amiss. The train's brake computer system seemed to have decided to not slow down, just yet, despite the conductor's frantic efforts. Charlie was wondering about the speed just as the lead car ran beyond the platform, and then the brakes suddenly engaged, but too late as three cars ran off the platform and flipped sideways. The coupling between cars disengaged in time to keep the remaining nine cars from following in a bizarre domino effect.

In New York City a computer collected data on the accident from another computer on the network, actually three other computers, sorted through the information cleaned out redundancies and calculated MANRe's expected deaths from the disaster. After the numbers were tabulated, year-end terminal reserves were calculated that were exactly what was estimated a week before. An actuarial student would check it and report it satisfactory after the holiday weekend.

The crash was the lead story on the evening news, news people descended on the station, reporting on the horrific accident at the Terminal Station on the Long Island Rail Road's Long Beach line. The media capturing images of the wreckage, speaking poetically of twisted metal and the senseless loss of life. The media mentioned how 93 people were hurt in the accident, 57 terminally. They captured images of the victims' scattered belongings as a team of transit workers, along with the police forensic experts, cleaned up and sorted through the mess. There was great deal of conjecture as to whether this was human error, a deliberate act, just poor maintenance or general wear and tear on the equipment. Most people did not realize how updated all the equipment was and what would not be found among the debris, was any sign of terrorism or deliberate sabotage. The injured and dead were already taken care of luckily leaving no morbid images of sheet covered bodies or field triage attempts for the curiosity seekers, but

there were a lot of scattered briefcases, some intact, some open, a multitude of cell phones and electronic devices, disposable coffee cups, beer cans and a cooler, there was some surprise to also find an empty suit, what seemed like a half dozen broken coffee mugs and a frisbee with a picture of a cartoon elephant.