LEONARDO’S FORMULA

 Jakob Furness was a graduate student working on his Ph.D. in History at Oxford University in England. His thesis centered around Sir Isaac Newton -- mathematical genius and physicist, father of modern optics and the theory of gravity. Specifically, Jakob was fascinated with the last thirty years of Newton’s life, and the great man’s obsession with both alchemy and finding hidden messages in the Bible.

 When Jakob was a boy of ten, his parents – David and Lola -- showed him the formidable bronze statue of Newton in front of the British Library in London. Erected in 1995 by the Italian sculptor Eduardo Paolozzi, it depicted Newton seated and crouching towards the ground with a drawing compass in his hand, trying to rationally fathom the mysteries of the universe. Paolozzi had based his work on a famous 1795-1805 drawing of Newton in a similar pose by the noted poet and artist William Blake. Next, Jakob’s parents took him to see Isaac Newton’s impressive tomb in an exclusive corner of Westminster Abbey. Lastly, the Furness family drove with their only child to Cambridge University, where they visited the actual room Newton used as a student at Trinity College, complete with a descendent of the legendary apple tree outside its window. David explained to his son that the story of Newton’s discovery of the theory of gravity by getting hit on the head by a falling apple one afternoon was simply a nice tale. Lola added that Newton, as a young man, saw an apple fall from a nearby tree one day, and it got his restless mind to thinking about why dropped objects always went downwards towards Earth’s core. All three of these youthful adventures had sparked Jakob’s interest in the intriguing life of Sir Isaac Newton. Now, at age 26, Furness had his chance as an adult to make his own in-depth research into the private side of one of his childhood heroes.

 In December, 2011, Cambridge University had digitalized 4000 pages of Newton’s notebooks for the whole world to see on the internet. But Newton was a fanatic for saving every scrap of his jotted down notes and ideas – indeed, he rarely threw anything of his mind away. After his death in 1727 at the age of 84, without even providing a will, over ten million words were discovered that the great scientist had written – enough for the equivalent of about one hundred standard-sized novels! Over the nearly three centuries since, various editors tried in vain to sort out the personal insights and random thoughts of the man from his detailed scientific notations. This task was made doubly difficult because Newton was a notoriously secretive and fiercely private man, often writing in obscure mathematical codes and cryptic abbreviations. Jakob soon realized that he had quite a challenging task ahead!

 Furness started by going to the archives of the Royal Society in London. A lost alchemy manuscript by Sir Isaac had been found there and revealed to the world in July, 2005, so maybe other discoveries could be unearthed there too, Jakob hoped. Many of Newton’s notebooks and diaries were stored at this archives.

 Two things quickly emerged after several days of Jakob’s research: First, Newton thought that the Church’s theological concept of the Holy Trinity (Father-Son-Holy Spirit) was based on a Biblical translation error. Secondly, Sir Isaac was convinced that the End of the World would not occur before the year 2060. This was based on an analysis of key verses in the Biblical Book of Daniel and the Book of Revelations, which, when rendered mathematically, came out as 1260 years after Charlemagne had been crowned Holy Roman Emperor on Christmas Day in Rome in 800 A.D.

 Next, Furness learned about Newton’s secret delving into alchemy – the purported mystical transformation of turning base metals into gold or silver. This attempted practice was outlawed as a felony in 1404 by King Henry IV, so chemists, scientists, and pharmacists over the centuries had to try their luck in secret. Any alchemical pursuits were also strongly condemned by the Church. As a result, Newton was taking dangerous career risks both legally (by the State) and theologically (by the Church) with his detailed alchemical notes and experimentations.

 The breakthrough, however, came when Jakob stumbled upon two pages by Newton which were written in some kind of unusual number and letter code. He precisely copied the pages down on a yellow legal pad and took it back to his student apartment in Oxford. Later, using the university’s mainframe computer (having gotten special permission for one hour of use after midnight from his faculty advisor, because the machine was ordinarily reserved at night for graduate students working in their field of statistics), Jakob ran the copied number-letter combinations through various standard decryption code algorithms. The mega-computer was lightening quick, at first showing nothing in output. (Furness was reminded of those codebreakers around the world who had yet to crack the four-paneled 1990 Kryptos sculpture code at the U.S. Central Intelligence Agency in Langley, Virginia.) But then, suddenly, something was processed and printed itself out!

 Jakob feverishly read the results, first with fascination, then with bewilderment. It detailed Newton’s discovery of a lost text from a notebook written by the remarkable Renaissance polymath himself -- Leonardo da Vinci. Here is the exact transcript from the deciphered printout:

 “Being increasingly obsessed with the great man, I journeyed to Milan, where many of Leonardo’s papers were preserved at the Abrosian Library – specifically his Codex Atlanticus. After studying them over the course of several days, I noticed that two numbered pages were missing. I questioned the archivist about this strange omission, whereby he led me into another small chamber. There, he opened a wooden desk drawer and presented me with two aged sheets, written in reverse script in Italian by the left-handed genius himself. The archivist explained that these notebook leaves had never been deciphered by anyone since the library had acquired them about a century after Leonardo’s death in 1519. Upon close examination, the first sheet looked to be in some kind of complex code, whereby the second sheet was so badly faded that it was impossible to read, save for a few scribbles near the bottom. The archivist went on to explain that the second sheet was probably written by Leonardo using a copper stylus rather than his usual silver stylus. The copper reacted with the once dark oak-gall tannin and iron sulfate ink favored by the master, and over time, lightened his writing to virtual invisibility. Being impressed with a strong desire to analyze both sheets, I boldly asked permission to copy by hand all that I could of these two precious documents. Pen, paper, and ink were quickly provided, after I introduced myself to the Library Director, who fortunately knew of my esteemed scientific reputation throughout Europe. Here, then, is what I was able to decipher from the incredible details of Leonardo da Vinci’s amazing discovery, all in his own words ---

 *In the year 1474, when I was age 22, two unusual black stones fell from the sky in the month of October, and landed near the town of Viterbo, about 210 kilometers from my lodgings in Firenze. Suspecting these stones were meteorites from beyond our Earth, and desirous to examine their compositions, I ventured to Viterbo and appeared at the town hall where the unusual objects were on display. I carefully examined the smaller of the two. What lay inside at its core, I wondered? I offered the town magistrate, who had claimed ownership on behalf of the town, the generous amount of two gold florins to purchase it. He quietly accepted my coins, which I had earned over many hard months of work in a Florentine art studio. Taking my prize home, I began my experiments in secret after my normal workhours. The black stone was very heavy for its size. It weighed 594 grams, and fit in the palm of my hand. I surmised it was solidly metallic (needing to be durable enough to withstand its long travels through the heavens), but borrowing a metal saw and vise, I proceeded to slowly bisect it. To my astonishment, the core contained a kind of thick, bluish paste. Removing the paste (providing an amount equal to that which a single ripe fig might yield), I performed various chemical tests upon minute amounts for purposes of identification, but its exact composition remained a mystery to me. Next, I began to add other chemicals to the paste in an attempt to elicit any kind of reaction. After many hours of labor, I finally arrived at a combination of five elements that rendered a tiny sample of the paste into a strange and glowing purple mixture.*

 *It was at this moment that the most peculiar event of my young life took place. I happened to be thinking about the ancient pyramids of Egypt, and how I could incorporate that motif into a fresco I was currently working on in the art studio where I was employed. At this exact instant, I casually happened to touch the smallest finger of my right hand into the glowing purple paste, so as to perhaps gauge its temperature, and to determine whether the glowing material was giving off any heat. Suddenly, my mind whirled and I must have fainted, for when I recovered, I was actually back in ancient Egypt, witnessing the construction of the Great Pyramid at Giza itself! Huge limestone blocks were being pulled and pushed up ramps using wooden rollers. Hundreds of workmen and their overseers were busy at their tasks. Whether anyone noticed my presence, I cannot say. The air was hot, the lashing winds dry. I recall looking down at my finger which had touched the purple paste mixture. At first, my finger began to tingle, then to burn uncomfortably, as if by an acid. Instinctively, crouching down, I wiped the paste off of my finger in the desert sands for relief. Before I knew it, however, in a mere matter of seconds, I had unexpectedly been returned to my humble laboratory room in Firenze. Unless I had dreamed or imagined my vision, I would suppose that I had unbelievably traveled back in time for perhaps ten minutes.*

 *Such a dramatic possibility required more careful experimentation. Mixing a new batch of the five elements with a minute amount of the bluish paste sample, I again rendered the compound into the same glowing purple combination I had earlier made. This time, I focused my mind and concentrated upon the days of the extinct dinosaurs, for I had always wanted to see such a creature alive when I realized as a boy that they had once ruled the Earth before the arrival of our human species. Taking my little finger again, I lightly touched the purple compound. And again, it did its magic, as I found myself in a steaming swamp probably millions of years ago, facing a herd of several enormous Triceratops placidly grazing in the distance. The air was balmy and fetid, and I breathed with some difficulty. The sky overhead was filled with orange and scarlet-streaked clouds, perhaps indicating an approaching evening dusk. My finger soon began to ache as before, so I wiped off the purple paste on a lower portion of my woolen tunic. Within moments, I was amazingly back home. Feeling exhausted by now, I rested in my bed after a simple meal of fruit, bread, some boiled vegetables, and a cup of wine mixed with water. I waited until the next day to pursue my experimentations after working as usual at the art studio.*

 *Who would believe that I saw with my own eyes – if only for a few precious minutes -- the lost continent of Atlantis, the Imperial City of Rome at the height of its world domination, and the marauding Mongol hordes of Genghis Khan on the steppes of Central Asia? Yet I did, by my oath. But no one must know of these time travels, particularly the Church, which would condemn me and punish me as a sinful pawn of the Prince of Darkness, Satan himself. However, for the sake of science, I must document these specifics with the hope that someday, someone may verify my discovery. Sadly, the small remaining amount of bluish paste from the meteorite core transmuted into another mysterious compound, turning green and inert, possibly from exposure to our atmosphere here on Earth. I had made a total of five brief time travels over the space of three days. After but one week, the greenish paste itself evaporated, leaving only a faint stain in the bottom of my laboratory bowl.*

 *Here are the five compounds which I mixed into the once bluish paste, which rendered it glowing purple: zinc, potassium, cinnabar -- converted into its liquid mercury form --*

 The remaining two ingredients, however, could not be discerned, because Leonardo’s chronology had continued onto his second note sheet, which was totally faded and hence unreadable, except for some scribbled notations at the bottom of the page. My best guess deciphering those was that they were an unrelated list of artist paint-making materials or chemicals.

 I spent several years trying to find another small meteorite which contained a core of bluish paste, such as the Renaissance master had stumbled upon. I was able to purchase such a rarity only twice, in Bavaria and Sweden, but was disappointed once I carefully sawed into each celestial lump and found naught but fused, silvery metal conglomerates. I also tried to ascertain which two missing elements Leonardo had used, should someone, someday be able to replicate his incredible formula for time travel after finding a suitable meteorite. I attempted hundreds of chemical element combinations. Yet my quest was ultimately futile and unproductive.

 Therefore, I leave these my notes for future generations to somehow replicate this remarkable scientific breakthrough.”

 (signed) Isaac Newton (dated) 19 April 1723

 Jakob Furness sat back in his chair in astonishment. What he had stumbled upon would potentially electrify the world’s scientific community! Not knowing what else to do, he called his Ph.D. mentor, Professor Carlton Ojpek, at Oxford early the next morning. They met later for coffee at a local student café, with Jakob bringing along the computer print-out that he had deciphered which told Newton’s story.

 “This is historically explosive, Jakob!” Ojpek declared after carefully reading the transcript. “We professors dream of stumbling upon a once-in-a-lifetime, primary source find like this. You are so incredibly fortunate, young man!” Carlton exclaimed. “Plus, the timing couldn’t be better. Next week, on May 2, 2019, is the 500th anniversary of the death of Leonardo da Vinci, who died in Amboise, France. The Ambrosian Library in Milan is having a special year-long exhibition to mark the occasion. I know the current archivist there, Dr. Paulo Senestri. We can go together to Milan and visit him and ask about the two coded sheets that Newton claims were secretly kept there. By using ultraviolet light and microscopy, we might finally be able to decipher the faded second sheet that stymied Sir Isaac, and find the two missing ingredients of Leonardo’s formula. Then NASA in the United States might allow us to drill holes in some of their meteorite collections, once they get X-rayed, to see if they contain any blue paste cores.”

 On May 1, Furness and Ojpek arrived in Milan. Seeing as it was Jakob’s first trip to this northern Italian metropolis, Carlton took him to see the striking Duomo Cathedral, the Santa Maria delle Grazie church (with Leonardo’s famous painting, The Last Supper), and the Sforzesco Castle. The spring weather was pleasant, and the city’s Galleria shopping arcades were teeming. After lunch, the scholarly pair met Dr. Senestri in his office at the Ambrosian Library. “I know it is a very busy time for you, Paulo, with your big exposition opening tomorrow, but we need proof of some documentation which could revolutionize both the history books and the scientific community,” Professor Ojpek eagerly explained. Then he gave Jakob’s deciphered notes to Senestri to read.

 After studying the evidence, Dr. Paulo took off his glasses and rubbed his eyes. “Remarkable, remarkable… most remarkable,” he sighed. “But I know every single document in the library’s possession regarding Leonardo, both in the Codex Atlanticus and other assorted folios, and I swear that the two sheets that Newton mentions simply do not exist. I’m absolutely certain. If two separated sheets were written in some kind of code, I would remember. I would know. I’m very, very sorry, gentlemen. Come…see for yourself.” He led the way.

 The three men together then examined the library’s master index of all of Leonardo’s papers. They saw digitalized versions of every sheet, at random, at a special computer terminal. Next, they saw some of the original Leonardo documents, which were reverently being placed by white-gloved experts into museum-style, temperature-controlled, sealed glass exhibit cases for the world unveiling tomorrow. When they had seen enough, the library archivist threw up his empty hands in exasperation. “As you see, Newton’s discovery is not here,” he admitted. “I wish, like you, that it was.”

 The professor and his student left the Ambrosian in frustration after thanking Dr. Senestri for his time.

 “But before we give up, let’s check out the meteorite time and place that Leonardo’s notes mention. There is an international database kept by an institute called The Meteoritical Society that goes back to the third century in China. Let’s contact them and ask about two objects falling from the sky and landing in Viterbo, Italy in October, 1474,” Ojpek suggested.

 Jakob was crushed, however, when he and the professor learned that the Viterbo incident was officially listed as “doubtful” by the Society -- meaning that it might have never even occurred, and could be nothing but hearsay or a town rumor.

 “This is a good lesson for all history students to learn, Jakob, hard as it is to confront and admit. We in the profession call it The Dead End. We must accept the truth, uncomfortable and disappointing as it is. It was a noble effort, and thrilling in its own way too. It makes a great story to share someday over a beer with our colleagues. We just can’t win them all. Let’s go back to Oxford, alright?” Carlton proposed.

 If only Newton’s discovery of Leonardo’s account was true, Jakob Furness wondered…just think: mankind’s dream of time travel!

 Two days later, however, Jakob got an excited phone call from Dr. Paulo Senestri from Milan’s Ambrosian Library.

 “Jakob! I did some deeper research into your intriguing findings, and found out that our library here suffered a tragic fire back in 1834. The specific room that Newton described was one of two that was destroyed. So it’s possible that it contained the two sheets from the great Leonardo after all…

 And another tantalizing fact, my young scholarly friend: Before Newton’s body was buried in Westminster Abbey in London in 1727, a sample of his hair was analyzed, and it was found to contain heavy traces of the chemical mercury. Could this be proof that he was indeed frantically experimenting, and searching for Leonardo’s lost formula?

 Did everything you stumbled upon, Jakob, actually happen back then? Could it all really be true??"

 THE END

 by Jack Karolewski

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