

# The Secret of Psalm 46

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How many of you here have personally witnessed a total eclipse of the sun?

To stand one day in the shadow of the moon is one of my humble goals in life.

The closest I ever came was over thirty years ago. On February 26, 1979, a solar eclipse passed directly over the city of Portland.

I bought my bus tickets and found a place to stay. But in the end, I couldn't get the time off work.

Well, anyone who lives in Portland can tell you that the chances of catching the sun in February are pretty slim.

And sure enough, the skies over the city that day were completely overcast. I wouldn't have seen a thing.

That work I couldn't get out of was my first job out of college: A sales clerk at an old Radio Shack store in beautiful downtown Worcester, Massachusetts.

On my very first day behind the counter, a delivery truck pulled up to the front of the store.

They carried in a big carton, upon which was printed the legend *TRS-80*. It was our floor sample of the world's first mass-market microcomputer.

The TRS-80 Model I had a Z80 processor clocked at 1.7 megahertz, 4,096 bytes of memory, and a 64-character black-and-white text display. The only storage was a cassette recorder. All this could be yours for the low, low price of \$599.

This store I was working in had seen better days.

At one time, it had been near the center of a thriving commercial district.

But like so many other New England cities, the advent of shopping malls had, by the early '70s, turned it into a ghost town.

Worcester's solution to this problem was decisive, to say the least.

The city's elders apparently decided that if they couldn't beat them, they would join them.

And so several square blocks at the heart of the city were bulldozed into oblivion, destroying dozens of family businesses, including the site of a pharmacy once operated by my great-grandfather.

In their place was erected a vast three-level shopping complex, with cinemas and a food court.

When the dust settled, only a few forlorn blocks of the old Worcester remained standing.

My Radio Shack store was in one of those blocks.

Then, to add insult to injury, Radio Shack opened a brand-new location inside the shopping center, less than 500 feet from my store.

So now patrons has a choice between a clean, well-lighted establishment with uniformed security and acres of convenient parking, or a shadowy hole in a seedy old office building next to an adult movie theater.

Consequently, I had plenty of time to fool around with the new computer.

I taught myself BASIC programming. Then I learned Z80 assembly. Both, of course, so that I could write games.

I also created self-running animated demos which ran all night in the store window for the edification of the winos who peed in our doorway.

Strangely enough, the few customers we had didn't seem to be interested in our new computer, even after the 16K memory upgrade.

In fact, most of the people who set off the buzzer on their way through the front door weren't there to *buy* anything at all.

They were there to exploit a free promotion which was the bane of Radio Shack employees for over forty years: The Battery of the Month Club.

The idea of this promotion was simple.

Customers got a little red card upon which was printed a square for each month.

Twelve times a year, the lucky sales clerk got to punch out a square and give the customer one brand new triple-A, double-A, C, D or 9-volt battery.

Of course, customers weren't allowed to choose just *any* grade of battery.

At the time of my employment, Radio Shack offered three different levels of battery excellence.

First were the alkalines, powerful, long-lasting and expensive, hanging behind the counter like prescription medication in gold-embossed blister packs.

These were most certainly *not* available through the Battery of the Month Club.

Next were the high-end lead batteries, sturdy, dependable batteries, moderately priced, and prominently displayed near the front of the store.

These were also *not* available through the Battery of the Month Club.

Finally, at the bottom of the barrel, were the standard lead batteries.

These were literally piled in barrels, cunningly located way at the back of the store, in a dark corner near the TV antennas. Remember TV antennas?

Customers who came in looking for their free Battery of the Month had to walk the entire length of the premises, past the CB radios and stereo headphones and remote-controlled racing cars.

Nothing would stop them.

On the first day of every month, like clockwork, those customers come in waving their little red cards.

I would look up from my programming and wave them to the back of the store.

It didn't matter that the batteries were only worth twenty-nine cents.

It didn't matter that most of them were already half dead.

They came. They grabbed. And, as far as I can remember, not one of them ever paid for a damned thing.

I was such a crappy salesman. I was young and foolish.

I thought my education in game design was happening at the keyboard.

I almost missed the lesson coming through the front door.

Fortunately, I wasn't the only person fooling around with games on micros.

All over the country, people like me were experimenting.

Scott Adams was coding what would soon become the world's first commercial adventure game. Remember adventure games?

My future employer, Infocom, was being founded, along with other legendary companies like On-Line Systems, Sirius, Personal Software and SSI.

Those were exciting times.

Teenagers were making fortunes.

Games were cheap and easy to build. The slate was clean.

But in 1979, the biggest news in gaming had nothing to do with computers.

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On the morning of the autumn equinox, September 20th, a new children's picture book appeared in the stores of Great Britain.

This picture book was rather peculiar.

It consisted of 15 meticulously detailed color paintings, illustrating a slight, whimsical tale about a rabbit delivering a jewel to the moon.

On the back jacket of the book was a color photograph of a real jewel shaped like a running rabbit, five inches long, fashioned of 18-karat gold, suspended with ornaments and bells, together with a sun and moon of blue quartz.

According to the blurb underneath, this very jewel had been buried somewhere in England.

Clues pointing to its location were concealed in the text and in the pictures of the book.

The treasure would belong to whoever found it first.

The book was called *Masquerade*. It was created by an eccentric little man with divergent eyes and a talent for mischief named Kit Williams.

Within days, the first printing was sold out. And the Empire That Never Sleeps found itself in the grip of Rabbit Fever.

Excited readers attacked the paintings with rulers, compasses and protractors.

Magazine articles and TV specials dissected the clues, floated theories, and followed with keen delight the reckless exploits of the fanatics.

One obscure park, unfortunately known by the nickname Rabbit Hill, was so riddled with holes excavated by misguided treasure seekers that the authorities had to erect signs assuring the public that no gold rabbits were to be found there.

Some hunters ended up seeking psychological counseling for their obsession.

The craze leapt over the Atlantic Ocean and invaded America, France, Italy and Germany.

It sold over a million copies in a few months, a record unrivalled by any children's title until the advent of Harry Potter.

Over 150,000 copies were sold in foreign translations, including 80,000 copies in Japanese, despite the fact that the puzzle was only solvable in English.

It didn't matter that the *Masquerade* jewel was only worth a few thousand dollars.

Many seekers spent far more than that in their months of exploration and travel.

It was the thrill of the chase. The possibility of being The One.

Treasure hunts, secret messages and hidden things seem to exert an irresistible appeal.

They're fun to look for, and to talk about.

And this fact of human psychology has been exploited in computer games since the earliest days.

It finds expression in the hidden surprises we call Easter eggs.

Atari's Steven Wright is credited with coining this term in the first issue of *Electronic Games* magazine.

The first Easter egg in a commercial computer game appeared in an early Atari 2600 cartridge called, simply enough, *Adventure*.

By a sequence of unlikely movements and obscure manipulations, players could discover a secret room where the words "Created by Warren Robinet" appeared in flashing letters.

Over the decades, Easter eggs and their evil twin, cheat codes, have become an industry within an industry.

Entire magazines and Web sites are now devoted to their carefully orchestrated discovery and dissemination.

They're part of our toolkit, our basic vocabulary, the language of computer game design.

Computer gamers may have been the first to refer to hidden surprises as Easter eggs, but we certainly weren't the first to use them.

Painters, composers and artists of every discipline have been hiding stuff in their works for centuries.

The recent advent of VCRs and laserdisc players with freeze-frame capability exposed decades of secret Disney erotica.

Thomas Kinkade, the self-appointed “Painter of Light,” amuses himself by hiding the letter N in his works. A number beside his signature indicates how many Ns are hidden in each painting.

Picasso, Dali, Raphael, Poussin and dozens of other painters concealed all kinds of stuff in their paintings.

A favorite trick was hiding portraits of themselves, their families, friends and fellow artists in crowd scenes.

El Greco loved dogs. But the Catholic Church forbid him from including any in his sacred paintings.

So he hid them, usually within the outlines of celestial clouds.

Composer Dmitri Shostakovich chafed under the political censorship imposed by the Soviet Ministry of Culture.

His symphonies and chamber works are loaded with hidden signatures and subversive subtexts which, had they been recognized, would have sent him to Siberia.

Mozart’s opera *The Magic Flute* is filled with musical allusions to the rituals of the Freemasons, the ancient secret society of which he and his mentor Haydn were members.

But the most famous purveyor of Easter eggs is that champion of the late Baroque, the ultimate musical nerd, Johann Sebastian Bach.

Bach was a student of gematria, the art of assigning numeric values to letters of the alphabet: A=1, B=2, C=3, etc.

By comparing, sequencing or otherwise manipulating these numbers, secret messages can be concealed.

Bach took particular delight in the gematriacal numbers 14 and 41.

14 is the sum of the initials of his last name: B=2, A=1, C=3 and H=8.

41 is the sum of his expanded initials, *J S BACH*.

These two numbers show up over and over again in Bach’s compositions.

One of the better-known examples is his setting of the chorale “Vor deinen Thron.”

The first line of the melody contains exactly 14 notes, and the entire melody from start to finish contains 41.

Another of Bach’s favorite games was the puzzle canon.

A canon is a melody that sounds good when you play it on top of itself, a little bit out of sync.

“Freres Jacques” and “Row, Row, Row Your Boat” are familiar examples of simple, two-voice canons.

But a canon can employ any number of voices.

And you don’t have to play each voice the same way, either.

You can change the octave, transpose the key, invert the pitch, play it backwards, or any combination.

Finding melodies that make good multi-voice canons is a fussy and difficult art, of which Bach was an undisputed master.

Now, in a puzzle canon, the composer specifies the basic melody and the number of voices, but not the relationship of the voices.

The student has to figure out the position and key of each voice, and whether to perform them inverted and/or backwards.

Bach wrote quite a number of puzzle canons. The most famous, BWV 1076, is part of a fascinating story.

One of Bach's students was a fellow by the name of Lorenz Mizler, founder of The Society of Musical Science.

This elite, invitation-only institution devoted itself to the study of Pythagorean philosophy, and the union of music and mathematics.

Its distinguished membership reads like a Who's Who of German composers, including Handel, Telemann and eventually Mozart.

Applicants for membership in the Society were required to submit an oil portrait of themselves, along with a specimen of original music.

With nerdly efficiency, society member number 14 decided to combine these admission requirements into a single work.

He sat for a portrait with Elias Haussmann, official artist at the court of Dresden.

This portrait, which now hangs in the gallery of the Town Hall in Leipzig, is the only indisputably authentic image of Bach in existence.

The Haussman portrait shows Bach dressed in a formal coat with exactly 14 buttons. In his hand is a sheet of music paper upon which is written a puzzle canon for six simultaneous voices.

In 1974, a manuscript was discovered which proved that this canon was the thirteenth in a series of exactly 14 canons based on the ground theme of the famous *Goldberg Variations*.

As if these musical gymnastics weren't enough, Bach liked to hide messages in his compositions by assigning notes to the letters.

His initials B-A-C-H correspond to the pitch sequence B-flat, A, C and B-natural in German letter notation.

This theme makes its most memorable appearance in the last bars of his final composition, *The Art of Fugue*, published soon after his death in 1750.

The word "fugue" comes from the Latin *fuga*, which means flight (as in running away).

So the art of fugue is the art of flight, the art of taking a theme and running with it.

Bach wrote hundreds of fugues, but none as sublime as this sequence of 14.

In the last and most complicated fugue in the series, the first and second sections develop normally. This is followed by the B-A-C-H signature, and then suddenly, without any warning or structural justification, the fugue stops dead in its tracks.

One of the composer's 20 children, his son Carl Philipp Emanuel, claimed that Bach died moments after those last few notes were written. This story is probably apocryphal.

The Easter eggs in Bach's music are a pleasant obscurity, known chiefly to professors and students of Baroque music.

But in March of 2002, when this lecture was first delivered, those Easter eggs were the talk of the entire classical music industry.

Sitting near the top of the classical music charts that month was a compact disc on the ECM label called *Morimur*.

It is performed by the Hilliard choral ensemble together with a talented but, until then, little-known violinist, Christoph Poppen.

The music on *Morimur* is based on a gematriacal analysis of Bach's *Partita in D Minor* for solo violin.

This analysis, by German professor Helga Thoene, assigns numeric values to the duration of notes, the number of bars, and the German letter notation of the Partita. In doing so, she claims to have discovered the complete text of several liturgical ceremonies encoded in the notes.

The CD presents these hidden texts, superimposed over the original music. The result was strangely melancholy, dark, haunting, and very, very popular.

Quite a few music critics attacked this disc.

They didn't buy Professor Thoene's analysis, dismissing it as a combination of numerology and canny marketing.

Their caution was not without basis.

Numerology is a slippery slope down which many a fine mind has slid to its doom.

Allow me to offer an amusing anecdote from my own experience.

Back in the early '90s, before the Internet took off, one of the more popular online bulletin board systems was a service called Prodigy.

I bought an account on Prodigy so I could join a fraternal interest group, and gossip with fellow members around the country.

One day, a stranger appeared on our bulletin board. Right away, I knew we were in trouble.

This fellow, whose name was Gary, began spouting all kinds of apocalyptic nonsense about worldwide conspiracies, secret societies and devil worship.

At first we tried to be polite.

We questioned his sources, corrected his histories, logically refuted his claims, and tried to behave in a civilized manner.

But instead of soothing him, our attention only made him worse.

His conspiratorial warnings became urgent, approaching hysteria. He began to threaten people who disagreed with him. To coin a phrase, Gary went All Upper Case.

But his most urgent warnings weren't about the gays, the Jews, the Rockefellers or the Illuminati.

According to Gary, the greatest enemy of mankind was Santa Claus.

Gary claimed to possess a secret numerical formula that "proved" beyond a shadow of a doubt that Santa Claus was an avatar of the Antichrist.

Intrigued, we pressed Gary to reveal his formula. In doing so, we walked right into his trap. We should have known he had a book to sell.

I fell for it. I sent him the fifteen bucks. Less than a week later the book arrived.

Above an ominous photograph of the Washington monument was emblazoned the title: *666: The Final Warning!*

Inside this privately printed 494-page monster, Gary reveals a simple gematriacal formula which he claims was developed by the ancient Sumerians.

This formula assigns successive products of 6 to each letter of the alphabet: A=6, B=12, C=18, etc.

Imagine my dismay when I applied this ancient formula to the name "Santa Claus," and obtained the blasphemous sum of 666, the Biblical Number of the Beast!

I went on Prodigy and reported to the stunned members of our interest group that Gary was right, after all. There could be no doubt that, according to the unimpeachable wisdom of ancient Sumeria, Santa Claus was the AntiChrist.

I then went on to point out several other names which, when submitted to Gary's formula, also produced the sum 666.

Names like "Saint James," "New York" and "New Mexico."

Soon the bulletin board was filled with discoveries like "computer," "Boston tea" and, most sinister of all, "sing karaoke."

Gary left us alone after that. I got my \$15 worth.

But Gary is hardly the first person to connect secret codes to the Bible.

People have been looking for Easter eggs in the Bible for hundreds of years.

The Hebrew mystical tradition of kabbalah can be described as a gematriacal meditation on the Pentateuch, the first five books of the Old Testament.

The advent of computers has made the application of numerology to the Bible fast and efficient.

The latest spate of Bible-searching was instigated by a book published in 1998 by Michael Drosnin, a former *Wall Street Journal* reporter.

His book, *The Bible Code*, applied a skip-cypher, in which every nth character in a text is combined to form a message.

By applying his skip-cypher to the Hebrew text of the Old Testament, Drosnin claimed to have discovered predictions of World War II, the Holocaust, Hiroshima, the assassination of Yitzhak Rabin and both Kennedys, the moon landing, Watergate, the Oklahoma City



bombing, the election of Bill Clinton, the death of Princess Di and the comet that collided with Jupiter.

He also found predictions of a giant earthquake in LA, a meteor hitting the earth, and nuclear armageddon, all scheduled to occur before the end of the last decade.

*The Bible Code* spent many weeks on the bestseller lists, spawning several sequels and dozens of imitators.

The Bible has certainly attracted its share of crackpots.

But for the real hardcore egg hunters, nothing can rival the ingenuity, the tenacious scholarship, the stubborn zeal of those who seek the answer to the ultimate literary puzzle.

A poisonous conundrum that has squandered fortunes, destroyed careers, and driven healthy, intelligent scholars to the brink of madness, and beyond.

*Who wrote Shakespeare?*

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The essays and books devoted to the Shakespeare authorship problem are sufficient to fill a large library. Several such libraries actually exist.

Not even a day-long tutorial, much less an hour lecture, can begin to do justice to this complex, bizarre and dangerously tantalizing story.

Nevertheless, for the unacquainted, I will attempt to summarize the issue in a few paragraphs.

The undisputed facts of Shakespeare's life and career could be scribbled on the back of a cocktail napkin.

We know *for a fact* that a man named William Shakespeare was born in 1564 in or around the village of Stratford-upon-Avon.

We know that he had a wife and at least three children. We know he bought property in Stratford, was involved in several lawsuits with his neighbors, and died there in 1616, aged 52.

We also know that during those same years, a man with a last name similar to Shakespeare worked as an actor on the London stage, eventually becoming co-owner of some of the theaters there.

We also know that, about the same time, a number of most excellent poems and plays were published in London under the name Shakespeare.

We do not know *for a fact* that the landowner in Stratford and the actor in London with a similar last name were one and the same man.

We do not know *for a fact* that either man had anything to do with the poems and the plays.

All we know is that those poems and plays have, in the four hundred years since their composition, come to be regarded as a pinnacle of Western culture.

The works attributed to Shakespeare appear to have been written by a man or woman who knew something about just about everything.

They're filled with references to mythology and classic literature, games and sports, war and weapons of war, ships and sailing, the law and legal terminology, court etiquette, statesmanship, horticulture, music, astronomy, medicine, falconry and, of course, theater.

Therein lies the problem.

How could a farmer's son of uncertain schooling from a mostly illiterate country village, a man of practically no account at all, wield such encyclopedic learning with so much eloquence and wit, so much wisdom and human understanding?

For the first 150 years, nobody questioned the traditional history of the Bard.

Then, in the late eighteenth century, Reverend James Wilmot, a distinguished scholar who lived just a few miles north of Stratford, decided to write a biography of the famous playwright.

Dr. Wilmot believed that a man as well-educated as Shakespeare must have owned a fairly extensive library, despite the fact that not a single book or manuscript is mentioned in his will.

Over the years, he speculated, some of those books must have found their way into local collections.

And so the good Reverend Doctor scoured the British countryside, taking inventory of literally every bookshelf within 50 miles of Stratford.

Not a single book from the library of William Shakespeare was discovered.

Neither were there found any letters to, from or about Shakespeare.

Furthermore, no references to the folklore, local sayings or distinctive dialect of the Stratford area could be found in any of Shakespeare's writings.

After four years of painstaking research, Dr. Wilmot concluded, to his own dismay, that only one person contemporary with Shakespeare of Stratford had ever demonstrated the wide-ranging education and expressive talent needed to compose those poems and plays.

That man was the multilingual author, philosopher and statesman, inventor of the Scientific Method, Chancellor to the Courts of Queen Elizabeth and King James, Sir Francis Bacon.

Dr. Wilmot never dared to publish his theory. But before he died he confided it to a friend, James Cowell, who, in 1805, repeated it to a meeting of the Ipswich Philosophical Society. The members of the society were suitably outraged, and the scandalous matter was quickly forgotten.

Then in 1857, a lady from Stratford – Stratford, Connecticut – published a book called *The Philosophy of the Plays of Shakespeare Unfolded*.

In this book, Miss Delia Bacon, no relation to Francis, claimed that the works of Shakespeare were written by a secret cabal of British nobility including Sir Walter Raleigh and Sir Philip Sidney as well as Sir Francis Bacon.

Delia Bacon's book electrified the world of letters.

Battle lines were drawn between the orthodox Stratfordians and the heretical Baconians.

Literary societies and scholarly journals were formed to debate the evidence.

Hundreds of pamphlets, newspaper articles and essays were published defending each side, and ridiculing the opposition with that self-aggrandizing viciousness peculiar to tenured academics.

Armed with her explosive book, Delia Bacon journeyed to Stratford-upon-Avon and, unbelievably, obtained official permission to open Shakespeare's grave.

However, when the moment came to actually lift the stone, Delia's self-doubt precipitated a catastrophic nervous breakdown.

She later died penniless in a madhouse.

Around 1888, things began to get a bit out of hand.

U.S. Congressman Ignatius Donnelly of Minnesota became interested in the Shakespeare controversy. One day, browsing through his facsimile copy of the First Folio of 1623, he noted that the word "bacon" appeared on page 53 of the Histories and also on page 53 of the Comedies.

He also noted that Sir Francis Bacon had written extensively on the subject of cryptography.

Donnelly began counting line and page numbers, adding and subtracting letters, drawing lines over sentences, circling words and crossing them out.

The result was a complex and virtually incomprehensible algorithm which he claimed was invented by Bacon to hide secret messages inside the First Folio.

The greatest Easter egg hunt in the history of Western civilization had begun.

Here are just a couple of the sillier highlights.

A doctor named Orville Owen of Detroit constructed a bizarre research tool he called the Wheel of Fortune.

This wheel consisted of two giant wooden spools wrapped with a strip of canvas two feet wide and a thousand feet long.

Onto this canvas he glued the separate pages of the complete works of Bacon, Shakespeare, Marlowe, Greene, Peele and Spenser, together with Burton's *Anatomy of Melancholy*.

By cranking the spools back and forth, Dr. Owen could quickly zip across the pages in search of clues and cross-references.

Employing a large team of secretaries and stenographers, Owen claimed to have uncovered a complete alternative history of Elizabethan England, as well as several entirely new Shakespeare plays and sonnets.

Listen to this hidden verse, supposedly penned by the mighty Bard himself, which inspired Dr. Owen to build his Wheel of Fortune.

*Take your knife and cut all our books asunder  
And set the leaves on a great firm wheel  
Which rolls and rolls, and turning the fickle rolling wheel  
Throw your eyes upon Fortune  
That goddess blind, that stands upon a spherical stone  
that, turning and inconstant, rolls  
in restless variation.*

After publishing five thick volumes of this rubbish, Owen announced the discovery of an anagram indicating that Bacon's original manuscripts were buried near Chepstow Castle on the river Wye.

Owen spent the next fifteen years and thousands of dollars excavating the bed of the river with boat crews and high explosives.

He died before anything was found.

A fellow named Arensberg wrote an entire book based on the analysis of the significance of a suspicious crack in the tomb of Bacon's mother.

A ray of sanity finally appeared in 1957.

To those familiar with the science of cryptology, the name William Friedman needs little introduction.

During World War II, Colonel Friedman was the head of the US Army's cryptanalytic bureau.

He is credited with cracking the Japanese Empire's most sensitive cipher.

After the war, the Colonel decided to apply his expertise to the study of the Shakespeare ciphers. He interviewed several of the experts in the field, and prepared a detailed scientific analysis, which he published under the title *The Shakespeare Ciphers Examined*.

His conclusion? In a word, bunk.

According to the standards of cryptologic science, not one of the hidden messages purportedly discovered in Shakespeare's works was plausible.

The rules used to extract these messages from the texts were non-rigorous, wildly subjective, and unrepeatable by anyone except the original decypherer.

The people involved were not being dishonest.

They were channeling their preconceptions.

They were trapped in a labyrinth of delusion, mining order from chaos.

"Angler[s] in a lake of darkness." *Lear* III.6.

You would think that Friedman's cold and ruthless exposure would be enough to silence the heretics once and for all.

Not a chance. The books and TV specials and Web sites and conferences and doctoral dissertations keep right on coming.

I should point out that the Shakespeare authorship issue is not only the preoccupation of cranks and weirdos.

A substantial number of respected authors and Shakespeareans have expressed serious doubts about the traditional origin of the plays.

The list includes Nathaniel Hawthorne, Ralph Waldo Emerson, Walt Whitman, Henry James, Sam Clemens, Sigmund Freud, Orson Welles and Sir John Gielgud.

Living skeptics include the artistic director of the New Globe Theater, Mark Rylance; Michael York, Derek Jacobi, Kenneth Branagh, and even that most revered and scholarly of contemporary Shakespearean actors, Keanu Reeves.

The current leading candidate for the authorship is Edward de Vere, the seventeenth Earl of Oxford, a theory first proposed in 1920 by an English schoolmaster with the unfortunate name J. Thomas Looney.

What is it about Bach, the Bible and the works of Shakespeare that inspires this intense scrutiny?

Nobody's looking for acrostics in Chaucer or Keats.

There are no hit CDs of the secret chorales of Wagner or Beethoven.

For the answer, we need to recognize the unique roles which the Bible and Shakespeare have played in the development of Western culture.

No other single work of literature has influenced Modern English more than the translation of the Holy Bible published in 1611 under the auspices of King James I.

The King James Bible exemplifies the meaning of the word *classic*.

It has been called the noblest monument of English prose, the very greatest achievement of the English language.

It has served as an inspiration for generations of poets, dramatists, musicians, politicians and orators.

Countless people have learned to read by repeating the phrases in this, the only book their family possessed.

Our constitutions and our laws have been profoundly shaped by its cadences and imagery.

But even the glory of the King James Bible, compiled by a committee of 46 editors over the course of a decade, pales before the dazzling legacy of the Swan of Avon.

The lowest estimate of Shakespeare's working vocabulary is 15,000 words, more than three times that of the King James Bible, and twice the size of his nearest competitor, John Milton.

His poems and plays were written without the aid of a dictionary or a thesaurus. They didn't exist yet. It was all in his head.

When Shakespeare had a thought for which Elizabethan English had no word, he invented one.

The Oxford English Dictionary lists hundreds of everyday words and phrases which made their first appearance in the pages of the Bard.

Addiction. Alligator. Assassination. Bedroom. Critic. Dawn. Design. Dialogue. Employer. Film. Glow. Gloomy. Gossip. Hint. Hurry. Investment. Lonely. Luggage. Manager. Switch. Torture. Transcendence. Wormhole. Zany.

*Hamlet* alone contains nearly forty of these neologisms.

Who today would have this audacity, this giddy exuberance of invention?

Only one other English author even approaches Shakespeare's facility for coining new words: Sir Francis Bacon.

In the modern era, the record holder is Charles Dodgson, better known as Lewis Carroll, who, interestingly, also happens to be the second most quoted author in English, after Shakespeare.

Everyone has been profoundly molded by the influence of the King James Bible and Shakespeare. Like it or not, all of us peer at the world through the lenses of these great works.

They are the primary source documents of modern English thought, the style guides of our minds.

Contemplating these dazzling jewels of wisdom and eloquence gives rise to an extraordinary feeling.

A potent, rare and precious emotion with the potential to completely upset your life.

An emotion powerful enough to make a man abandon his wife and children, forfeit career and reputation, lay down his possessions and follow his heart without questioning.

That sweet, sweet fusion of wonder and fear, irresistible attraction and soul-numbing dread known as *awe*.

Awe is the Grail of artistic achievement. No other human emotion possesses such raw transformative power, and none is more difficult to evoke.

Few and far between are the works of man that qualify as truly awesome.

It is awe that convinces a rabbi to spend a lifetime decoding Yahweh from the Pentateuch.

Awe that sends millions of visitors each year to the Pyramids of Giza, Guadalupe and Mecca.

It was awe that drove poor Delia Bacon to her doom.

Now, please don't come away from this lecture thinking that the key to awesome game design is the installation of Easter eggs!

Ordinary games, with their contrived Easter eggs and cheat codes, are like the Battery of the Month club.

You have to trudge down to the back of the store to get what you really came for.

If super power is what people really want, why not just give it to them?

Is our imagination so impoverished that we have to resort to marketing gimmicks to keep players interested in our games?

Awesome things don't hold anything back.

Awesome things are rich and generous.

The treasure is *right there*.

One afternoon, I was sitting alone behind the counter at that old Radio Shack store. My boss had stepped out for some reason.

An elderly woman walked through the front door.

Like most of our customers, she was shabbily dressed. Probably on a fixed income.

I assumed she was there for her free battery.

But instead, she placed a portable radio on the counter.

This radio came from the days when they boasted about the number of transistors inside on the case.

It was completely wrapped in dirty white medical tape.

The woman looked at me, and asked, "Can you fix this?"

Slowly I unwrapped the medical tape, peeling away the layers until the back cover of the radio fell off, accompanied by a cloud of red dust.

The interior of the radio was half eaten away by battery leakage and corrosion.

I looked at the radio. I looked at the old woman. I looked back at the radio.

I reached behind me, where the expensive alkaline batteries were hanging like prescription medication, and removed a gleaming nine-volt cell from its gold blister pack.

Then I pulled a brand-new transistor radio from a box, installed the alkaline and helped the lady find her favorite station.

No money changed hands. She left the store without saying a word.

Awesome things are kind of like that.

Bach offered his students very specific insight into the source of awe.

In addition to B-A-C-H, two other sets of initials are also associated with Bach's music.

These initials are not hidden in the notes. Instead, they're scrawled right across the top of his manuscripts for the whole world to see.

The initials are SDG and JJ.

SDG stands for the Latin phrase *Soli Deo Gloria*, "To the glory of God alone."

JJ stands for *Jesu Juva*, "Help me, Jesus."

Bach wrote all of his great masterpieces *sub specie aeternitatis*, "under the aspect of eternity."

He did not compose *only* to please his sponsors, or to win the approval of an audience. His work was his worship.

Bach once wrote, "Music should have no other end and aim than the glory of God and the recreation of the soul. Where this is not kept in mind there is no true music, but only an infernal clamour and ranting."

The name of the power that moves you is not important.

What is important is that you are moved.

Awe is the foundation of religion.

No other motivation can free you from the limits of personal achievement.

Nothing else can teach you the Art of Flight.

Computer games are barely forty years old.

Only a few words in our basic vocabulary have been established.

A whole dictionary is waiting to be coined.

The slate is clean.

Someday soon, perhaps even in our lifetime, a game design will appear that will flash across our culture like lightning.

It will be easy to recognize.

It will be generous, giddy with exuberant inventiveness.

Scholars will pick it apart for decades, perhaps centuries.

It will be something wonderful.

Something terrifying.

Something awe-full.

---

A few years ago I was invited to speak at a conference in London.

My wife joined me, and we took a day off for some sightseeing.

We decided to visit England's second-biggest tourist attraction, Stratford-upon-Avon.

It was cold and rainy when our train arrived.

Luckily, most of the attractions are just a short walk from the station.

We visited Shakespeare's birthplace, a charming old house along the main street which attracts millions of pilgrims every year, despite the complete lack of any evidence of Shakespeare ever having lived there.

We went past the school where Shakespeare learned to read and write, although no documents exist to prove his attendance.

We visited Anne Hathaway's cottage, the rustic country farm where his wife spent her childhood, although no record shows anyone by that name ever having lived there.

Finally we came to the one location undeniably associated with Shakespeare: Trinity Parish church, on the banks of the river Avon, where a man by that name is buried.

This beautiful church is approached by a long walkway, between rows of ancient gravestones, shaded by tall trees.

The entrance door is surprisingly tiny. No cameras are allowed inside.

The interior is dark and quiet. Despite the presence of busloads of tourists, the atmosphere is hushed and respectful. A few people are seated in the pews, deep in prayer.

An aisle leads up the center of the church.

The left side of the altar is brightly illuminated. On the wall above is a famous bust of the Bard, quill in hand, gazing serenely at the crowd of pilgrims.

On the floor beneath, surrounded by bouquets of flowers, at the very spot where Delia Bacon lost her mind, the gravestone of William Shakespeare bears this dire warning:

*Good friend for Jesus' sake forbear  
To dig the dust enclosed here  
Blest be the man who spares these stones  
And curst be he that moves my bones.*



Every year, three million pilgrims arrive from every nation on Earth to approach this stone and consider the likeness of a man whose body of work can only be described as awesome.

By contrast, the right side of the altar is dark and featureless.

Nobody of any consequence is buried there.

The only point of interest is a wooden case, of simple design, carved of dark oak.

Inside the case, sealed beneath a thick sheet of glass, lies a large open book.

A plaque on the case identifies this book as a first edition of the King James Bible, published in 1611, when Shakespeare was forty-six.

Not many pilgrims visit this side of the altar.

Most of those that do simply glance at the book, read the plaque and move along.

A few, more observant, note that the Bible happens to be opened to a page in the Old Testament: the Book of Psalms, chapter 46.

No explanation is given for this particular choice of pages.

For the initiated, none is necessary.

If you are of inquisitive bent, if you are intrigued by English history and literature, if you value your peace of mind, cover your ears, *now*.

In the year 1900, a scholar noticed something about the King James translation of Psalm 46.

Something terrifying. Something wonderful.

The 46th word from the beginning of Psalm 46 is “shake.”

The 46th word from the end is “spear.”

There are only two possibilities here.

Either this is the *finest* coincidence ever recorded in the history of world literature.

Or, it is not.

---

The Earth revolves around only one sun, and has only one moon.

The moon happens to be four hundred times smaller than the sun.

The sun happens to be four hundred times farther away.

And the apparent paths of the moon and sun in our sky happen to intersect exactly twice every month.

Which means that every now and then, at long yet precisely predictable intervals, the lunar disc slips across the face of the sun and just barely conceals it for a few wonderful, terrible minutes.

A *fine* coincidence, no?

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In June of 1977, a little man with divergent eyes and a talent for mischief ascended a hilltop in the British village of Ampthill.

At the summit of this hill is a tall, slender cross, a memorial to Catherine of Aragon, the first wife of Henry VIII.

The sun, high in the south, cast the shadow of the cross upon the grassy hillside.

At exactly 12 noon, the man removed from his pocket a bar magnet. He turned the magnet so its north pole was facing south, and buried it under the shadow of the cross.

Two years later, a few hours before the publication of his first book, the man returned to that hillside, this time in the dead of night.

He used a compass to locate the magnet he had buried.

In that same place, he dug a hole in the ground and placed inside a ceramic container inscribed with the following words:

“I am the Keeper of the Jewel of *MASQUERADE*, which lies waiting safe inside me for You or Eternity.”

. . .