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Privilege, Tragedy, Doubt, Science, and Faith— a Personal Story

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Abstract: This is a personal autobiographical essay by a Lutheran college professor who is also a practicing research scientist, but who is neither theologian, nor philosopher, nor pastor. If you are looking for rigorous, sophisticated, and compelling arguments regarding the interface between the Christian faith and science, the existence and character of God, the divine inspiration and inerrancy of the Bible, and the veracity of Christ's claim to be Lord and Savior, let me assure you that these arguments do indeed exist and are well worth reading and pondering, but this is not the place to find them. What I've written is intended to be a personal account of my encounters with and explorations of the faith-science interface over the years set against the unfolding backdrop of my life.

Who I am today: I am a professor at Concordia University in Irvine, CA, a small Lutheran (LCMS) liberal arts university, where I teach, mentor, and lead student research in chemistry and chemical physics. I also give chapel messages and counsel students regarding their faith, life, and careers. But the real story is not where I now am but the circuitous route I took to get there. Let me start by saying it is a flat-out miracle that I am a professor at Concordia and that I, a most reluctant adult convert, am a Christian. For over a decade—the decade in which I graduated from high school and earned my undergraduate and doctoral degrees—I was a hard-core unbeliever. Much to my own surprise, I suffered the consequences of doing too much reading—especially C. S. Lewis, Augustine, Pascal, and, of course, the Bible—and slowly but inexorably returned to the Christian faith, fighting it all the way. It also didn't help my unbelief that many family members and friends were praying for me without ceasing. And, finally, God lovingly delivered some unpleasant circumstances along the way to drive me beyond the end of my rope and directly into



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His arms. All I can say is that God must possess both an enormous sense of humor and an otherworldly patience, not to mention a great love for me, to have this hard-headed ex-sceptic and foot-dragging convert back in the fold, professoring at Concordia and writing this article!

The Danger of Abundant Blessings: Until 1968, I led what can only be described as a privileged and protected life. I was raised in a wonderful Christian home by highly educated parents who loved each other and who cherished their children. Moreover, our family lived in the spectacular natural beauty of the rural American west. My father's intelligence, drive, and wise financial stewardship afforded us a most comfortable standard of living. My mother took great joy in cooking delicious meals and providing a well-kept home for the family. Doing well in school came easy for me, as did physical activity. I could run, hike, and ride my bike for miles. I went to church regularly with my parents. I said prayers before meals and before bedtime. I had a Bible on whose cover was inscribed my name in gold type. We celebrated Christmas and Easter. I regularly attended youth group fellowship activities. Of course, I took my many blessings for granted. What did I need God for? I already had it all! As I moved through my high school years, the Christian faith seemed increasingly contradictory, inconsistent, and irrelevant to my entitled mind: a tangled cobweb of old stories and myths bereft of any power to induce meaningful changes. Science, in contrast, provided tangible evidences of its power, its logical coherence, its verifiable reality, and its practical value to society. I well remember our family's driving across the Nevada desert late at night in the 1950s when an above-ground nuclear bomb explosion at the Nevada Test Site, over 300 miles away, lit up the entire southern sky. Now that was real, observable, verifiable power in which I could believe!

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Tragedy: September 3, 1968. A personal tragedy in a year of tragedies destroyed my already wavering faith. My father, a scientist and industrial entrepreneur of deep Christian faith—bright, articulate, principled, admired, energetic, enthusiastic; role model, leader, friend, beloved husband, wonderful father—lay dead of cancer. Earlier in that fateful year, Martin Luther King, Jr., and Robert F. Kennedy lay dead of gunshot wounds inflicted by assassins. In the rice paddies and jungles of Vietnam, bullets, bombs, rockets, and napalm snuffed out lives—theirs and ours—at a

prodigious rate, especially during the Tet Offensive. Demonstrations and protests sprang up on college campuses across the nation. Blood ran in the streets of Chicago during the Democratic National Convention. How could a good, loving, all-powerful God possibly allow all of this? As far as I could see, God, if indeed He did exist, either didn't care about the sufferings of humanity or He didn't have sufficient power to rescue humanity from its sufferings. And if He did exist, I was exceedingly angry with Him for taking my father away. While my father was alive, his arguments for the faith provided an unfailingly provocative, logical, and insightful counterpoint to the heresies of that time period, but they failed to persuade me. What did persuade me was the grim reaper, death, who took my father's life, his virtue, his love, and his apologetical skill away from me just two weeks after my eighteenth birthday. My father's death devastated my mother, left my younger sister without her beloved daddy, and catapulted me into the abyss of unbelief. Moreover, the tragedy of death in my own family mirrored the tragedy of deaths in our country and throughout the world in 1968. Unless compelled by my mother or unless shamelessly using church-sponsored events as a way to meet girls, I did not darken the door of a church for over a decade as my unopened Bible gathered dust.

Divine clues: But even in the horrific blackness of 1968, clues were in place that I would later follow on my journey back to faith. God also cloaked and protected the inner recesses of my mind and heart so, when the time eventually came, I could follow these clues back into the fold. What were these clues? First, I knew through the example of my parents that at least some smart, educated people, even scientists, embraced the Christian faith. Second, I knew who Jesus Christ was, and I also knew the Bible. I also benefited from regular exposure to worship and prayer as a child. Third, my parents were Godly and mirrored the love of God in the way they loved each other and the way they loved me and my sister. And fourth, our family's love of the outdoors resulted in me being deeply exposed to the beauty and grandeur of creation throughout my childhood: snow-capped mountain peaks, rushing river water, trembling aspen leaves, and tendrils of the Milky Way stretched across the night sky. In a city slum beneath a pollution-filled sky or in a filthy, overfilled jail or refugee camp in a third-world country, one might well be excused for concluding that God can't possibly exist. In vivid contrast, even in the darkest days of my unbelief, the exquisite alpenglow touching the peaks of the High Sierras at twilight moved me to the depths of my soul and left me awestruck at the magnificence of the world in which I lived.

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Success, failure, and restoration—an encounter with unmerited Grace: There are those like me who abandon the Christian faith because of misfortune. Others don't want to be shackled by God's commandments. They seek to enjoy their sins without any pangs of guilt or inhibition. While I encountered many hedonistically inclined people in high school, college, and graduate school who eagerly sought to free themselves from the commandments, this lifestyle held no attraction for me. I believed in the value of skills acquired through hard work and practice. I was a seeker of knowledge and deep understanding, meaningful friendships, and true love, not excess and dissipation. I was praised for being "more godly" than most believers. If I edited the word God out of the Ten Commandments or just assumed the word God meant an abstract power, they made sense, just like the laws of physics made sense. I felt much more comfortable personally around Christians than non-believers, even though intellectually I found myself more in the camp of the unbelievers. For a time, I was quite successful in college and graduate school: honor roll student, scholarship winner, award winner, acclaimed teaching assistant, and successful researcher.

Then God lovingly (in the tough love sense) let my life come apart in graduate school. My research foundered. Relationships fell apart. My grades suffered, and my health wavered. I left graduate school for a while and supported myself by working in a service station. By any reasonable human standard, I had messed up totally in my graduate school experience. I came to realize I was not godly at all, but sinful to the very core of my being. This awareness devastated me. Then an amazing thing happened. An opportunity to go back to graduate school and finish my dissertation miraculously opened up. Shortly thereafter, an opportunity opened up for me to receive a postdoctoral appointment, following the completion of my Ph.D., in a world-class research laboratory. I knew beyond a shadow of a doubt that I didn't deserve nor did I earn these opportunities. They were being given to me, for reasons I did not understand at the time, as unearned gifts I had done nothing to merit. I found it very difficult to accept these gifts because with the acceptance came, in effect, a confession of my sinful nature and a need for supernatural help that I could not possibly obtain on my own merits.

I began reading the Bible and going to church again, not to pick up girls, but to put my life back together. This return to faith was not a noble, carefully reasoned step, but an act of desperation. I knew I needed help. I had nowhere else to turn but to God, to the Christian faith my parents had so lovingly exposed me to as a child. Like many others, I wondered why so many bad things had happened to a "good person" like me. Now, a far more difficult question presented itself. Why were some very good things happening to me, a truly bad, undeserving person? As I considered the glory and grandeur of the universe from the microscopic to the cosmological scales as I knew from science, I was led back to my childhood realization that God the Creator exists: a God of surpassing intelligence, knowledge, creativity, artistry,

and power. From the blessings I received when I didn't deserve them and couldn't possibly earn them, I was led to the truth that God—specifically the God/Man Jesus Christ—is a God of grace, infinitely good and infinitely loving, always ready to forgive and restore.

The big transition: Just how did I make the transition from viewing myself as a good person deserving a blessed, trouble-free life to seeing myself in the sober light of truth as a bad person desperately needing undeserved forgiveness and restoration? God cleverly appealed to my scientific training. Wherever I looked in my unbelieving life, the story was the same—different girlfriends, different cities, different universities, different research advisors, different research opportunities, all of exceedingly high quality; yet, despite the most noble of intentions and the most excellent of opportunities, I always seemed to end up hurting and disappointing others and squandering incredible blessings. The data made sense only if I assumed the source of the problem was not with other people and other circumstances but with me. I had done experiment after experiment—changing everything but me—and nothing had worked out. My only choice and my only hope was to change radically, and only God could make the changes in me that needed to be made.

Two lives: My personal story as an adult scientist thus encompasses two separate lives—one lived apart from God and another lived with God. At the core of my abandonment of the Christian faith as a young adult was my total inability at the time to negotiate my way through the apparent contradiction inherent in tragedy. How could God possibly be good if He allowed my father, a very good man, to die? How could He let disease, assassination, mob behavior, and war claim the lives of countless other good men? Either God was not good, choosing not to deploy His power to stop bad things from happening, or he was powerless to prevent evil. I wrestled with this problem for years. But eventually the danger of reading too much caught up with my unbelief. I was reading Blaise Pascal's *Pensees* when I came across this startling passage: "Contradiction is a poor indication of truth. Many things that are certain are contradicted. Many that are false pass without contradiction. Contradiction is no more an indication of falsehood than lack of it is an indication of truth." Pascal is cautioning us not to make too much of contradictions. When our knowledge is incomplete, which is almost always the case, contradictions are bound to arise. It's a good bet to say that God's knowledge and

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power far exceed ours, and, despite the incredible pace of scientific discovery, this will always be the case.

An accident thrusts my young daughter into the abyss of contradiction: To get at the meaning of death, illness, and tragedy in our lives and perhaps to better appreciate the magnitude of the loss felt by those who loved Jesus as they watched Him die on the cross, let me share this true family story, a parable if you please, in which my young daughter plays the role of a person experiencing tragedy and I play the role of Jesus. The setting is in the kitchen. My wife has taken some home-baked cookies out of the oven and placed them in a heavy glass bowl on the kitchen counter. Our daughter Charlotte, who has just learned how to walk, goes into the dining room, carries a small stool over to the kitchen counter, climbs up, and grabs the bowl. It is too heavy for her. She tumbles to the kitchen floor, bowl still in her tiny hands, whereupon the bowl shatters and Charlotte's face smashes down into the broken glass. I rush over to Charlotte, pulling her up away from the glass shards, not knowing how severely she is injured. I turn her over to look at her face and neck. There are no life-threatening arterial wounds. Her eyes are undamaged. I thank the Lord in a quick prayer. However, she has sustained a severe laceration to her face that will need immediate emergency surgical attention.

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At the hospital, the plastic surgeon and his assistants lay out little Charlotte on the operating table. They ask me to scrub up and join them. The surgical team cleans and probes the wound, preparing it for suturing. Charlotte squirms with pain and fear. Her eyes lock on mine, and through her eyes, she asks, as clearly as if she said the words, "Daddy, why are you, who love me so much, letting these strangers hurt and torture me?"

"Because I love you and you need medical attention" is the answer, but there is no way I can communicate this to her at that instant in the operating room in a way she could possibly understand.

In baby Charlotte's pleading eyes, my behavior in the hospital seemingly contradicts everything she knows about me and all that she has experienced in our father-daughter relationship. The surgical procedure that ultimately resulted in a perfectly healed, almost invisible scar was, in the operating room, a truly horrible experience for Charlotte. Death, illness, and tragedy cannot, I think, be understood in the immediacy of the moment, but only in a broader context in this life or perhaps

only in the light of eternity in Heaven. Only at that level can the contradiction be resolved. On this side of Heaven, we must trust in God's character, as expressed so beautifully in John 3:16 ("For God so loved the world that he gave his one and only Son, that whoever believes in him shall not perish but have eternal life") when we face death, illness, and tragedy that we cannot possibly understand in our humanity. Joseph's statement to his brothers about returning good in response to evil, "You meant harm to me, but God intended it for good" (Gn 50:20), is another excellent example of how God turns the bad we can't understand into a good we never expected, resolving a host of contradictions. In a fallen world, God's inherent goodness and His great love for us, may, at times, be expressed in terms of difficult and unpleasant circumstances that we, like baby Charlotte, can't possibly understand within the limits of our humanity.

Contradiction in science: In the first decade of the twentieth century, two new theories—quantum mechanics and relativity—burst upon the scientific community. Quantum mechanics beautifully describes the behavior of matter at the sub-atomic, atomic, and molecular levels. Relativity provides an elegant series of predictions regarding the behavior of matter and energy at velocities approaching the speed of light. However, quantum mechanics and relativity are most difficult to reconcile with one other, a problem that has been worked on for over a century with only limited success. The two theories, each of which has proven to be extremely powerful within its domain of applicability, seem to contradict one another at numerous points. In experimental science, contradictions often arise when an incorrect assumption or a key missing fact renders experimental results contradictory.

A story to illustrate this fact comes from my research laboratory. It involves both a key missing fact and an experimental flaw that took us months to finally figure out. We wanted to do some experiments with a larger molecule comprised of an atom (A) and three other smaller molecules (B). This larger molecule is conveniently symbolized as AB₃. We attempted synthesize and study samples of AB₃ in thoroughly cleaned and dried apparatus comprising Pyrex glass (used in oven-safe casserole dishes), Teflon plastic (used in non-stick frying pans), and stainless steel (used in many kitchen utensils because it neither rusts nor corrodes). In other words, our apparatus was made out of what we thought were non-reactive, chemically inert materials. Moreover, we had much experience that confirmed to us the chemical inertness of these materials, both in the laboratory and in our kitchens.

However, in an experiment/control test in which we looked at the properties of atom A, molecule B, and large molecule AB₃ separately—with all other conditions, we thought, being the same—colors of A, B, and AB₃ did not turn out the way we expected. Our experimental results contradicted our theory. After many other tests failed to reveal the problem, we finally discovered that the colors came out consistently when we replaced all stainless steel apparatus with apparatus comprised solely of Pyrex and Teflon. As it turned out, molecule B was reacting with the iron in

the stainless steel of our original apparatus, giving a different color than we expected. This unexpected color was, in actual fact, the characteristic color that analytical chemists have used for decades to detect the presence of trace amounts of iron in materials by the addition of molecule B. The take-home message is that exceedingly careful scrutiny of the facts and the experimental procedures giving results that contradict the theory is in order; it's easy to be fooled and to get derailed, even when you are being careful. As Einstein famously said, "Subtle is the Lord."

Science and the Christian Faith: Religion is the opium of the people. Smart people don't believe in God. God is a fantasy that ignorant people, poor deluded suckers, believe in. The common misconception of the post-modern times in which we now live hinges on the assumption that "smart" science and "stupid" faith are inherently and irrevocably contradictory. You can't have them both. One or the other must necessarily be rejected. It turns out that nothing could be further from the truth. Within science itself, quantum mechanics and relativity are simply too useful and too powerful, despite their apparent contradictions one with another, to throw either one of them away. We are thus compelled to carry on with the difficult and as yet far from complete task of working through the apparent contradictions and seeking a reconciliation that both preserves their distinctive insights and integrates them into a larger whole.

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The same can be said about science versus the Christian faith. Much of the supposed science/faith conflicts from which contradictions arise disappear when precise definitions and clear logic are imposed. For the honest intellectual, not to believe in God imposes far more logical difficulties than it purportedly solves. Did the elegance of the laws of physics, the exquisite fine-tuning of the fundamental physical constants, e.g., the charge of an electron or the speed of light, the organizational masterpiece of the periodic table, and the remarkable geometrical precision of molecular structure, just happen without purpose or plan? And why, as Nobel Laureate Eugene Wigner phrases it, is mathematics so unreasonably effective in science? Johannes Kepler, the Lutheran astronomer and mathematician who deduced that planetary orbits were ellipses, had the answer, which, in various forms, has been voiced over the centuries by many of the greatest scientists who ever lived: "The chief aim of all investigations of the external world should be to discover the rational order and harmony which has been imposed on it by God and which He revealed to us in the language of mathematics."¹

Even when we understand something well, like the rotational kinetic energy of the Earth about its axis, we, as a human race, are not in possession of enough energy to stop our nights and days even if we wanted to induce such a disaster. When we look beyond our solar system and beyond our own galaxy, the sheer magnitude of the energy and power evident on the cosmological scale dwarfs not only the capabilities of humanity but also its very imagination. Multiple strands of evidence seem to lead to the conclusion that an incredibly bright, unimaginably powerful creator—a mathematical genius—is at work creating and sustaining the universe. Consider, as just one example of many that could be cited, the exquisite simplicity of Newton’s gravitational force law and Coulomb’s law of electrostatic force. For both laws, the force diminishes with a mathematically perfect reciprocal distance squared relationship. Nature seems to be incredibly fine-tuned in other ways. The magnitudes of the fundamental physical constants such as the speed of light, the mass of a proton, or the charge on an electron seem to be especially well chosen to create a universe, our universe, with unique and amazing properties, not the least of which is our ability as human beings to exist in it and think about it! This evidence contradicts the assumption made by many that God doesn’t exist or has no power. But this is a contradiction that can be resolved if we join with the Psalmist in saying what our own observations and our own hearts confirm: “The heavens are telling the glory of God and the firmament declares His handiwork” (Ps 19:1).

Divine design or cosmic crapshoot: Science in the twenty-first century is confronted with a fundamental contradiction in which order, purpose, and design are seemingly pitted against randomness, disorder, and blind probability as contestants. Are life as we know it and the cosmos as we find it the products of blind, chance interactions without meaning or purpose? Or, alternatively, are we looking at something of profound significance that is exquisitely tuned and carefully planned? I side with divine design. There is simply too much order in the cosmos for it all to be explained away via chance. It must also be pointed out that what we perceive to be random chance may not be random at all. Perhaps God moves both behind and in front of a screen which we, in our ignorance of higher reality, incorrectly call random chance. Could we not be like the prisoners described in Plato’s Allegory of the Cave, who have only seen shadows and assume these to be reality? But this much is sure: Between my understanding and God’s understanding must necessarily exist a vast gulf far beyond my capability to negotiate. As we consider this gulf, it seems fitting to include this observation of G. K. Chesterton: “The riddles of God are more satisfying than the solutions of man.”²

Hydrogen, hubris, and humility: Success in science tends to breed pride and arrogance, giving credence to the patently erroneous belief that science is well on its way to unlocking all of the secrets of the universe. In truth, we scientists see through a dark and distorted glass. The unknown dwarfs—and will continue to dwarf—that which we know. A half century ago, physicist John Rigden wrote a much quoted

essay titled, “H stands for Hydrogen and Humility.”³ In the essay, he chose the example of hydrogen, the simplest element in the periodic table, to make the point that our scientific understanding of the cosmos is far, far from complete. Starting with Bohr, whose quantum theory of the hydrogen atom seemed to provide a complete description of atomic structure and atomic spectra at the time, generations of physicists have added refinement after refinement and experiment after experiment to Bohr’s supposedly ultimate model of atomic hydrogen. Moreover, the odds are exceedingly good that we will never cease to discover new things about atomic hydrogen in the future. This example should be taken as a cautionary tale by those who would dare to claim that they’ve finally arrived at the complete and definitive scientific understanding of a topic in science. Science is inherently limited and inherently incomplete. And, curiously enough, good science invariably creates more new questions than it answers. Neither God nor God’s creation are in danger of being found out, exposed, or revealed in totality by science, now or in the future.

Asleep under a miracle: As crazy as it seems, the very magnificence of the universe and its divine origin can lull the scientist to sleep. In the familiar intimacy of the laboratory or observatory, we scientists are tempted to take for granted the incredible, amazingly ordered, undergirding network of creation—which we know in part as the laws

of physics, chemistry, and cosmology—that make possible the very experiments we are doing and the very measurements we are making. Why do we live in a universe that manifests an ordered, consistent reality in which the scientific method actually works? Why is this universe so mathematically elegant and so seemingly fine-tuned for us to be who we are and do what we do in science? For me as a scientist and believer, I have the great privilege to see the imprint of the divine throughout creation. However, in my unbelieving years, I, along with many other unbelieving scientists, tended to think operationally. How do these molecules interact with one another in a chemical reaction? How can this force be used to change the geometry of a molecule? I, as an unbeliever, simply did not ask why the force was what it was, who created the force or what, ultimately, caused molecules to behave as they did.

Closing bet—Pascal’s Wager: Pascal in his famous wager points out if you bet God exists but He actually doesn’t, the worst that will happen to you as a believer is that you will have lived a godly life guided by the Ten Commandments, the best and

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most practical rules of living ever devised. If, however, God does exist and He is who He says he is in the Bible, you win everything: the best possible earthly life plus the guarantee of a blessed eternal life Heaven. In contrast, if you bet against God's existence, you may do well for a time on Earth, but the odds are that you are setting yourself up to be disappointed in temporal life and excluded from Heaven. You lose in both the temporal and eternal realms. To bet on God, then, is the smart bet with the best "payout odds" for time and eternity, for scientist and layman, and for good times and bad here on Earth. It's also the surest of sure bets. I assert that the cumulative evidence for God's existence as provided by science, as articulated by Scripture, and as attested to by secular history is so great that the scientist or the layperson can bet on God with the confident hope—not of having a trouble-free life—but most certainly of winning the biggest jackpot of all in this world and the next: Jesus Christ.

Endnotes

¹ Morris Kline, *Mathematical Thought from Ancient to Modern Times* (New York: Oxford University Press, Inc., 1972), 231.

² G. K. Chesterton, introduction to *The Book of Job* (London: Cecil Palmer and Haywood, 1916), ix–xxvii.

³ John. S. Rigden, *American Journal of Physics*, 50, no. 299 (1982).