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THE LANGUAGE OF GOD

A Scientist Presents Evidence for Belief

FRANCIS S. COLLINS

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CHAPTER TWO

The War of the Worldviews

IF YOU STARTED THIS BOOK as a skeptic and have managed to travel this far with me, no doubt a torrent of your own objections has begun to form. I certainly have had my own: Isn't God just a case of wishful thinking? Hasn't a great deal of harm been done in the name of religion? How could a loving God permit suffering? How can a serious scientist accept the possibility of miracles?

If you are a believer, perhaps the narrative in the first chapter offered some reassurance, but almost certainly you, too, have areas where your faith conflicts with other challenges you face from yourself or those around you.

Doubt is an unavoidable part of belief. In the words of Paul Tillich, "Doubt isn't the opposite of faith; it is an element of faith." If the case in favor of belief in God were utterly airtight,

then the world would be full of confident practitioners of a single faith. But imagine such a world, where the opportunity to make a free choice about belief was taken away by the certainty of the evidence. How interesting would that be?

For the skeptic and the believer alike, doubts come from many sources. One category involves perceived conflicts of the claims of religious belief with scientific observations. Those concerns, particularly prominent now in the field of biology and genetics, are dealt with in subsequent chapters. Other concerns reside more within the philosophical realm of human experience, and those are the subject of this chapter. If you are not someone who is troubled by these, then feel free to turn to Chapter 3.

In addressing these philosophical issues, I speak mainly as a layman. Yet I am one who has shared these struggles. Especially in the first year after I came to accept the existence of a God who cared about human beings, I was besieged by doubts from many directions. While these questions all seemed very fresh and unanswerable upon their first arrival, I was comforted to learn that there were no objections on my list that had not been raised even more forcefully and articulately by others down through the centuries. Of greatest comfort, many wonderful sources existed that provided compelling answers to these dilemmas. I will draw upon some of these authors in this chapter, supplemented by my own thoughts and experiences. Many of the most accessible analyses came from the writings of my now familiar Oxford adviser, C. S. Lewis.

While many objections could be considered here, I found four to be particularly vexing in those early days of newborn

faith, and I believe these are among the top concerns faced by anyone considering a decision about belief in God.

ISN'T THE IDEA OF GOD JUST WISH FULFILLMENT?

Is God really there? Or does the search for the existence of a supernatural being, so pervasive in all cultures ever studied, represent a universal but groundless human longing for something outside ourselves to give meaning to a meaningless life and to take away the sting of death?

While the search for the divine has been somewhat crowded out in modern times by our busy and overstimulated lives, it is still one of the most universal of human strivings. C. S. Lewis describes this phenomenon in his own life in his wonderful book *Surprised by Joy*, and it is this sense of intense longing, triggered in his life by something as simple as a few lines of poetry, that he identifies as "joy." He describes the experience as "an unsatisfied desire which is itself more desirable than any other satisfaction."² I can recall clearly some of those moments in my own life, where this poignant sense of longing, falling somewhere between pleasure and grief, caught me by surprise and caused me to wonder from whence came such strong emotion, and how might such an experience be recovered.

As a boy of ten, I recall being transported by the experience of looking through a telescope that an amateur astronomer had placed on a high field at our farm, when I sensed the vastness of the universe and saw the craters on the moon and the magical diaphanous light of the Pleiades. At fifteen, I recall a Christ-

mas Eve where the descant on a particularly beautiful Christmas carol, rising sweet and true above the more familiar tune, left me with a sense of unexpected awe and a longing for something I could not name. Much later, as an atheist graduate student, I surprised myself by experiencing this same sense of awe and longing, this time mixed with a particularly deep sense of grief, at the playing of the second movement of Beethoven's Third Symphony (the *Eroica*). As the world grieved the death of Israeli athletes killed by terrorists at the Olympics in 1972, the Berlin Philharmonic played the powerful strains of this C-minor lament in the Olympic Stadium, mixing together nobility and tragedy, life and death. For a few moments I was lifted out of my materialist worldview into an indescribable spiritual dimension, an experience I found quite astonishing.

More recently, for a scientist who occasionally is given the remarkable privilege of discovering something not previously known by man, there is a special kind of joy associated with such flashes of insight. Having perceived a glimmer of scientific truth, I find at once both a sense of satisfaction and a longing to understand some even greater Truth. In such a moment, science becomes more than a process of discovery. It transports the scientist into an experience that defies a completely naturalistic explanation.

So what are we to make of these experiences? And what is this sensation of longing for something greater than ourselves? Is this only, and no more than, some combination of neurotransmitters landing on precisely the right receptors, setting off an electrical discharge deep in some part of the brain? Or is this, like the Moral Law described in the preceding chapter, an

inkling of what lies beyond, a signpost placed deep within the human spirit pointing toward something much grander than ourselves?

The atheist view is that such longings are not to be trusted as indications of the supernatural, and that our translation of those sensations of awe into a belief in God represent nothing more than wishful thinking, inventing an answer because we want it to be true. This particular view reached its widest audience in the writings of Sigmund Freud, who argued that wishes for God stemmed from early childhood experiences. Writing in *Totem and Taboo*, Freud said, "Psychoanalysis of individual human beings teaches us with quite special insistence that the God of each of them is formed in the likeness of his father, that his personal relationship to God depends on the relation to his father in the flesh, and oscillates and changes along with that relation, and that at bottom God is nothing other than an exalted father."³

The problem with this wish-fulfillment argument is that it does not accord with the character of the God of the major religions of the earth. In his elegant recent book, *The Question of God*, Armand Nicholi, a psychoanalytically trained Harvard professor, compares Freud's view with that of C. S. Lewis.⁴ Lewis argued that such wish fulfillment would likely give rise to a very different kind of God than the one described in the Bible. If we are looking for benevolent coddling and indulgence, that's not what we find there. Instead, as we begin to come to grips with the existence of the Moral Law, and our obvious inability to live up to it, we realize that we are in deep trouble, and are potentially eternally separated from the Author of that Law. Further-

more, does not a child as he or she grows up experience ambivalent feelings toward parents, including a desire to be free? So why should wish fulfillment lead to a desire for God, as opposed to a desire for there to be no God?

Finally, in simple logical terms, if one allows the possibility that God is something humans might wish for, does that rule out the possibility that God is real? Absolutely not. The fact that I have wished for a loving wife does not now make her imaginary. The fact that the farmer wished for rain does not make him question the reality of the subsequent downpour.

In fact, one can turn this wishful-thinking argument on its head. Why would such a universal and uniquely human hunger exist, if it were not connected to some opportunity for fulfillment? Again, Lewis says it well: "Creatures are not born with desires unless satisfaction for those desires exists. A baby feels hunger: well, there is such a thing as food. A duckling wants to swim: well, there is such a thing as water. Men feel sexual desire: well, there is such a thing as sex. If I find in myself a desire which no experience in this world can satisfy, the most probable explanation is that I was made for another world."⁵

Could it be that this longing for the sacred, a universal and puzzling aspect of human experience, may not be wish fulfillment but rather a pointer toward something beyond us? Why do we have a "God-shaped vacuum" in our hearts and minds unless it is meant to be filled?

In our modern materialistic world, it is easy to lose sight of that sense of longing. In her wonderful collection of essays *Teaching a Stone to Talk*, Annie Dillard speaks about that growing void:

Now we are no longer primitive. Now the whole world seems not holy. . . . We as a people have moved from pantheism to pan-atheism. . . . It is difficult to undo our own damage and to recall to our presence that which we have asked to leave. It is hard to desecrate a grove and change your mind. We doused the burning bush and cannot rekindle it. We are lighting matches in vain under every green tree. Did the wind used to cry and the hills shout forth praise? Now speech has perished from among the lifeless things of the earth, and living things say very little to very few. . . . And yet it could be that wherever there is motion there is noise, as when a whale breaches and smacks the water, and wherever there is stillness there is the small, still voice, God's speaking from the whirlwind, nature's old song and dance, the show we drove from town. . . . What have we been doing all these centuries but trying to call God back to the mountain, or, failing that, raise a peep out of anything that isn't us? What is the difference between a cathedral and a physics lab? Are they not both saying: Hello?⁶

WHAT ABOUT ALL THE HARM DONE IN THE NAME OF RELIGION?

A major stumbling block for many earnest seekers is the compelling evidence throughout history that terrible things have been done in the name of religion. This applies to virtually all

faiths at some point, including those that argue for compassion and nonviolence among their principal tenets. Given such examples of raw abusive power, violence, and hypocrisy, how can anyone subscribe to the tenets of the faith promoted by such perpetrators of evil?

There are two answers to this dilemma. First of all, keep in mind that many wonderful things have also been done in the name of religion. The church (and here I use the term generically, to refer to the organized institutions that promote a particular faith, without regard to which faith is being described) has many times played a critical role in supporting justice and benevolence. As just one example, consider how religious leaders have worked to relieve people from oppression, from Moses' leading the Israelites out of bondage to William Wilberforce's ultimate victory in convincing the English Parliament to oppose the practice of slavery to the Reverend Martin Luther King Jr.'s leading the civil rights movement in the United States, for which he gave his life.

But the second answer brings us back to the Moral Law, and to the fact that all of us as human beings have fallen short of it. The church is made up of fallen people. The pure, clean water of spiritual truth is placed in rusty containers, and the subsequent failings of the church down through the centuries should not be projected onto the faith itself, as if the water had been the problem. It is no wonder that those who assess the truth and appeal of spiritual faith by the behavior of any particular church often find it impossible to imagine themselves joining up. Expressing hostility toward the French Catholic Church at the dawning of the French Revolution, Voltaire wrote, "Is it

any wonder that there are atheists in the world, when the church behaves so abominably?"¹⁷

It is not difficult to identify examples where the church has promoted actions that fly in the face of principles its own faith should have sustained. The Beatitudes spoken by Christ in the Sermon on the Mount were ignored as the Christian church carried out violent Crusades in the Middle Ages and pursued a series of inquisitions afterward. While in the Mecca phase of his life, the prophet Muhammad never used violence in responding to persecutors, Islamic jihads commenced in the Medina phase and extended over centuries, even to present-day violent attacks such as that of September 11, 2001, creating the unfortunate impression that Islam is necessarily violent. Even followers of supposedly nonviolent faiths such as Hinduism and Buddhism occasionally engage in violent confrontation, as is currently occurring in Sri Lanka.

And it is not only violence that sullies the truth of religious faith. Frequent examples of gross hypocrisy among religious leaders, made evermore visible by the power of the media, cause many skeptics to conclude that there is no objective truth or goodness to be found in religion.

Perhaps even more insidious and widespread is the emergence in many churches of a spiritually dead, secular faith, which strips out all of the numinous aspects of traditional belief, presenting a version of spiritual life that is all about social events and/or tradition, and nothing about the search for God.

Is it any wonder, then, that some commentators point to religion as a negative force in society, or in the words of Karl Marx, "the opiate of the masses"? But let's be careful here. The

great Marxist experiments in the Soviet Union and in Mao's China, aiming to establish societies explicitly based upon atheism, proved capable of committing at least as much, and probably more, human slaughter and raw abuse of power than the worst of all regimes in recent times. In fact, by denying the existence of any higher authority, atheism has the now-realized potential to free humans completely from any responsibility not to oppress one another.

So, while the long history of religious oppression and hypocrisy is profoundly sobering, the earnest seeker must look beyond the behavior of flawed humans in order to find the truth. Would you condemn an oak tree because its timbers had been used to build battering rams? Would you blame the air for allowing lies to be transmitted through it? Would you judge Mozart's *The Magic Flute* on the basis of a poorly rehearsed performance by fifth-graders? If you had never seen a real sunset over the Pacific, would you allow a tourist brochure as a substitute? Would you evaluate the power of romantic love solely in the light of an abusive marriage next door?

No. A real evaluation of the truth of faith depends upon looking at the clean, pure water, not at the rusty containers.

WHY WOULD A LOVING GOD ALLOW SUFFERING IN THE WORLD?

There may be those somewhere in the world who have never experienced suffering. I don't know any such people, and I suspect no reader of this book would claim to be in that category. This universal human experience has caused many to question

the existence of a loving God. As phrased by C. S. Lewis in *The Problem of Pain*, the argument goes like this: "If God were good, he would wish to make his creatures perfectly happy, and if God were almighty, he would be able to do what he wished. But the creatures are not happy. Therefore, God lacks either goodness or power or both."⁸

There are several answers to this dilemma. Some are easier to accept than others. In the first place, let us recognize that a large fraction of our suffering and that of our fellow human beings is brought about by what we do to one another. It is humankind, not God, that has invented knives, arrows, guns, bombs, and all manner of other instruments of torture used through the ages. The tragedy of the young child killed by a drunk driver, of the innocent man dying on the battlefield, or of the young girl cut down by a stray bullet in a crime-ridden section of a modern city can hardly be blamed on God. After all, we have somehow been given free will, the ability to do as we please. We use this ability frequently to disobey the Moral Law. And when we do so, we shouldn't then blame God for the consequences.

Should God have restrained our free will in order to prevent these kinds of evil behavior? That line of thought quickly encounters a dilemma from which there is no rational escape. Again, Lewis states this clearly: "If you choose to say 'God can give a creature free will and at the same time withhold free will from it,' you have not succeeded in saying anything about God: meaningless combinations of words do not suddenly acquire meaning simply because we prefix to them the two other words 'God can.' Nonsense remains nonsense, even when we talk it about God."⁹

Rational arguments can still be difficult to accept when an experience of terrible suffering falls on an innocent person. I know a young college student who was living alone during summer vacation while she carried out medical research in preparation for a career as a physician. Awakening in the dark of night, she found a strange man had broken into her apartment. With a knife pressed against her throat, he ignored her pleas, blindfolded her, and forced himself on her. He left her in devastation, to relive that experience over and over again for years to come. The perpetrator was never caught.

That young woman was my daughter. Never was pure evil more apparent to me than that night, and never did I more passionately wish that God would have intervened somehow to stop this terrible crime. Why didn't He cause the perpetrator to be struck with a bolt of lightning, or at least a pang of conscience? Why didn't He put an invisible shield around my daughter to protect her?

Perhaps on rare occasions God does perform miracles. But for the most part, the existence of free will and of order in the physical universe are inexorable facts. While we might wish for such miraculous deliverance to occur more frequently, the consequence of interrupting these two sets of forces would be utter chaos.

What about the occurrence of natural disasters: earthquakes, tsunamis, volcanoes, great floods and famines? On a smaller but no less poignant scale, what about the occurrence of disease in an innocent victim, such as cancer in a child? The Anglican priest and distinguished physicist John Polkinghorne has referred to this category of event as "physical evil," as op-

posed to the "moral evil" committed by humankind. How can it be justified?

Science reveals that the universe, our own planet, and life itself are engaged in an evolutionary process. The consequences of that can include the unpredictability of the weather, the slippage of a tectonic plate, or the misspelling of a cancer gene in the normal process of cell division. If at the beginning of time God chose to use these forces to create human beings, then the inevitability of these other painful consequences was also assured. Frequent miraculous interventions would be at least as chaotic in the physical realm as they would be in interfering with human acts of free will.

For many thoughtful seekers, these rational explanations fall short of providing a justification for the pain of human existence. Why is our life more a vale of tears than a garden of delight? Much has been written about this apparent paradox, and the conclusion is not an easy one: if God is loving and wishes the best for us, then perhaps His plan is not the same as our plan. This is a hard concept, especially if we have been too regularly spoon-fed a version of God's benevolence that implies nothing more on His part than a desire for us to be perpetually happy. Again from Lewis: "We want, in fact, not so much a father in Heaven as a grandfather in Heaven—a senile benevolence who, as they say, 'likes to see young people enjoying themselves,' and whose plan for the universe was simply that it might be truly said at the end of each day, 'a good time was had by all.'"¹⁰

Judging by human experience, if one is to accept God's loving-kindness, He apparently desires more of us than this. Is that not, in fact, your own experience? Have you learned more

about yourself when things were going well, or when you were faced with challenges, frustrations, and suffering? "God whispers to us in our pleasures, speaks in our conscience, but shouts in our pains: it is His megaphone to rouse a deaf world."¹¹ As much as we would like to avoid those experiences, without them would we not be shallow, self-centered creatures who would ultimately lose all sense of nobility or striving for the betterment of others?

Consider this: if the most important decision we are to make on this earth is a decision about belief, and if the most important relationship we are to develop on this earth is a relationship with God, and if our existence as spiritual creatures is not limited to what we can know and observe during our earthly lifetime, then human sufferings take on a wholly new context. We may never fully understand the reasons for these painful experiences, but we can begin to accept the idea that there may be such reasons. In my case I can see, albeit dimly, that my daughter's rape was a challenge for me to try to learn the real meaning of forgiveness in a terribly wrenching circumstance. In complete honesty, I am still working on that. Perhaps this was also an opportunity for me to recognize that I could not truly protect my daughters from all pain and suffering; I had to learn to entrust them to God's loving care, knowing that this provided not an immunization from evil, but a reassurance that their suffering would not be in vain. Indeed, my daughter would say that this experience provided her with the opportunity and motivation to counsel and comfort others who have gone through the same kind of assault.

This notion that God can work through adversity is not an

easy concept, and can find firm anchor only in a worldview that embraces a spiritual perspective. The principle of growth through suffering is, in fact, nearly universal in the world's great faiths. The Four Noble Truths of the Buddha in the Deer Park sermon, for example, begin with "Life is suffering." For the believer, this realization can paradoxically be a source of great comfort.

That woman I cared for as a medical student, for instance, who challenged my atheism with her gentle acceptance of her own terminal illness, saw in this final chapter of her life an experience that brought her closer to God, not further away. On a larger historical stage, Dietrich Bonhoeffer, the German theologian who voluntarily returned to Germany from the United States during World War II to do what he could to keep the real church alive at a time when the organized Christian church in Germany had chosen to support the Nazis, was imprisoned for his role in a plot to assassinate Hitler. During his two years in prison, suffering great indignities and loss of freedom, Bonhoeffer never wavered in his faith or his praise for God. Shortly before he was hanged, only three weeks before the liberation of Germany, he wrote these words: "Time lost is time when we have not lived a full human life, time unenriched by experience, creative endeavor, enjoyment, and suffering."¹²

HOW CAN A RATIONAL PERSON BELIEVE IN MIRACLES?

Finally, consider an objection to belief that cuts particularly sharply for a scientist. How can miracles be reconciled to a scientific worldview?

In modern parlance, we have cheapened the significance of the word "miracle." We speak of "miracle drugs," "miracle diets," "Miracle on Ice," or even the "miracle Mets." But of course, that's not the original intended meaning of the word. More accurately, a miracle is an event that appears inexplicable by the laws of nature and so is held to be supernatural in origin.

All religions include a belief in certain miracles. The crossing of the Israelites through the Red Sea, led by Moses and accompanied by the drowning of Pharaoh's men, is a powerful story, told in the book of Exodus, of God's providence in preventing the imminent destruction of His people. Similarly, when Joshua asked God to prolong the daylight in order for a particular battle to be successfully carried out, the sun was said to stand still in a way that could only be described as miraculous.

In Islam, the writing of the Qur'an was started in a cave near Mecca, with the instruction of Muhammad provided supernaturally by the angel Jibril. Muhammad's ascension is clearly also a miraculous event, as he is given the opportunity to see all of the features of heaven and hell.

Miracles play a particularly powerful role in Christianity—especially the most significant miracle of all, Christ's rising from the dead.

How can one accept such claims, while claiming to be a rational modern human being? Well, clearly, if one starts out with the presumption that supernatural events are impossible, then no miracles can be allowed. Again, we can turn to C. S. Lewis for particularly clear thinking on this topic, in his book *Miracles*. "Every event which might be claimed to be a miracle is, in the last resort, something presented to our senses, something seen,

heard, touched, smelled, or tasted. And our senses are not infallible. If anything extraordinary seems to have happened, we can always say that we have been the victims of an illusion. If we hold a philosophy which excludes the supernatural, this is what we always shall say. What we learn from experience depends on the kind of philosophy we bring to experience. It is therefore useless to appeal to experience before we have settled as well as we can, the philosophical question."¹³

At the risk of frightening those who are uncomfortable with mathematical approaches to philosophical problems, consider the following analysis. The Reverend Thomas Bayes was a Scottish theologian little remembered for his theological musings but much respected for putting forward a particular probability theorem. Bayes's Theorem provides a formula by which one can calculate the probability of observing a particular event, given some initial information (the "prior") and some additional information (the "conditional"). His theorem is particularly useful when facing two or more possible explanations for the occurrence of an event.

Consider the following example. You have been taken captive by a madman. He gives you a chance to be set free—he will allow you to draw a card from a deck, replace it, shuffle, and draw again. If you draw the ace of spades both times, you will be released.

Skeptical of whether this is even worth attempting, you proceed—and to your amazement you draw the ace of spades twice in a row. Your chains are released and you return home.

Being mathematically inclined, you calculate the chances of this good fortune as $1/52 \times 1/52 = 1/2704$. A very unlikely

event, but it happened. A few weeks later, however, you find out that a benevolent employee of the company that manufactured the playing cards, being aware of the madman's wager, had arranged to have one of every hundred decks of cards be made up of fifty-two aces of spades.

So perhaps this was not just a lucky break? Perhaps a knowledgeable and loving being (the employee), unknown to you at the time of your capture, intervened to improve the chances of your release. The likelihood that the deck you drew from was a regular deck of fifty-two different cards was 99/100; the likelihood of a special deck of only aces of spades was 1/100. For those two possible starting points, the "conditional" probabilities of drawing two aces of spades in a row would be 1/2704 and 1, respectively. By Bayes's Theorem it is now possible to calculate the "posterior" probabilities, and conclude that there is a 96 percent likelihood that the deck of cards you drew from was one of the "miraculous" ones.

This same analysis can be applied to apparently miraculous events in daily experience. Suppose you have observed a spontaneous cure of a cancer in an advanced stage, which is known to be fatal in nearly every instance. Is this a miracle? To evaluate that question in the Bayesian sense will require you to postulate what the "prior" is of a miraculous cure of cancer occurring in the first place. Is it one in a thousand? One in a million? Or is it zero?

This is, of course, where reasonable people will disagree, sometimes noisily. For the committed materialist, no allowance can be permitted for the possibility of miracles in the first place (his "prior" will be zero), and therefore even an extremely un-

usual cure of cancer will be discounted as evidence of the miraculous, and will instead be chalked up to the fact that rare events will occasionally occur within the natural world. The believer in the existence of God, however, may after examining the evidence conclude that no such cure should have occurred by any known natural processes, and having once admitted that the prior probability of a miracle, while quite small, is not quite zero, will carry out his own (very informal) Bayesian calculation to conclude that a miracle is more likely than not.

All of this simply goes to say that a discussion about the miraculous quickly devolves to an argument about whether or not one is willing to consider any possibility whatsoever of the supernatural. I believe that possibility exists, but at the same time, the "prior" should generally be very low. That is, the presumption in any given case should be for a natural explanation. Surprising but mundane events are not automatically miraculous. For the deist, who sees God as having created the universe but then wandering off in some other place to carry out other activities, there is no more reason to consider natural events as miraculous than there is for the committed materialist. For the theist, who believes in a God who is involved in the lives of human beings, various thresholds of assumption of the miraculous are likely to apply, depending on that individual's perception about how likely it is that God would intervene in everyday circumstances.

Whatever the personal view, it is crucial that a healthy skepticism be applied when interpreting potentially miraculous events, lest the integrity and rationality of the religious perspective be brought into question. The only thing that will kill the

possibility of miracles more quickly than a committed materialism is the claiming of miracle status for everyday events for which natural explanations are readily at hand. Anyone who claims the blooming of a flower is a miracle is treading upon a growing understanding of plant biology, which is well on the way to elucidating all the steps between seed germination and the blossoming of a beautiful and sweet-smelling rose, all directed by that plant's DNA instruction book.

Similarly, the individual who wins the lottery and announces that this is a miracle, because he prayed about the outcome, strains our credulity. After all, given the wide distribution of at least some vestiges of faith in our modern society, it is likely that a significant fraction of the individuals who bought a lottery ticket that week also prayed in some fleeting way that they might be the winner. If that be so, then the actual winner's claim of miraculous intervention rings hollow.

More difficult to evaluate are the claims of miraculous healing from medical problems. As a physician, I have occasionally seen circumstances where individuals recovered from illnesses that appeared not to be reversible. Yet I am loath to ascribe those events to miraculous intervention, given our incomplete understanding of illness and how it affects the human body. All too often, when claims of miraculous healing have been carefully investigated by objective observers, those claims have fallen short. Despite those misgivings, and an insistence that such claims be backed up by extensive evidence, I would not be stunned to hear that such genuine miraculous healings do occur on extremely rare occasions. My "prior" is low, but it is not zero.

Miracles thus do not pose an irreconcilable conflict for the believer who trusts in science as a means to investigate the natural world, and who sees that the natural world is ruled by laws. If, like me, you admit that there might exist something or someone outside of nature, then there is no logical reason why that force could not on rare occasions stage an invasion. On the other hand, in order for the world to avoid descending into chaos, miracles must be very uncommon. As Lewis has written, "God does not shake miracles into nature at random as if from a pepper-caster. They come on great occasions: they are found at the great ganglions of history—not of political or social history, but of that spiritual history which cannot be fully known by men. If your own life does not happen to be near one of those great ganglions, how should you expect to see one?"¹⁴

Here we see not only an argument about the rarity of miracles, but an argument that they should have some purpose, rather than representing the supernatural acts of a capricious magician, simply designed to amaze. If God is the ultimate embodiment of omnipotence and goodness, He would not play such a trickster role. John Polkinghorne argues this point cogently: "Miracles are not to be interpreted as divine acts against the laws of nature (for those laws are themselves expressions of God's will) but as more profound revelations of the character of the divine relationship to creation. To be credible, miracles must convey a deeper understanding than could have been obtained without them."¹⁵

Despite these arguments, materialistic skeptics who wish to give no ground to the concept of the supernatural, those who refute the evidence from the Moral Law and the universal sense

of longing for God, will no doubt argue that there is no need to consider miracles at all. In their view, the laws of nature can explain everything, even the exceedingly improbable.

But can this view be completely sustained? There is at least one singular, exceedingly improbable, and profound event in history that scientists of nearly all disciplines agree is not understood and will never be understood, and for which the laws of nature fall completely short of providing an explanation. Would that be a miracle? Read on.

PART TWO

The Great Questions of Human Existence

CHAPTER TEN


Option 4: BioLogos

(Science and Faith in Harmony)

AT MY HIGH SCHOOL GRADUATION, an earnest Presbyterian minister, father of one of the graduates, challenged the assembled fidgeting teenagers to consider how they planned to answer life's three great questions: (1) What will be your life's work? (2) What role will love play in your life? and (3) What will you do about faith? The stark directness of his presentation caught all of us by surprise. Being honest with myself, my answers were (1) chemistry; (2) as much as possible; and (3) don't go there. I left the ceremony feeling vaguely uneasy.

A dozen years later I found myself deeply engaged in finding answers to questions 1 and 3. After a long and tortuous path through chemistry, physics, and medicine, I was finally encountering that inspiring field of human endeavor I had been longing to find—one that could combine my love of science and

mathematics with a desire to help others—the discipline of medical genetics. At the same time, I had reached the conclusion that faith in God was much more compelling than the atheism I had previously embraced, and I was beginning for the first time in my life to perceive some of the eternal truths of the Bible.



I was vaguely aware that some of those around me thought that this pairing of explorations was contradictory and I was headed over a cliff, but I found it difficult to imagine that there could be a real conflict between scientific truth and spiritual truth. Truth is truth. Truth cannot disprove truth. I joined the American Scientific Affiliation (www.asa3.org), a group of several thousand scientists who are serious believers in God, and found in their meetings and their journal many thoughtful proposals of a pathway toward harmony between science and faith. That was enough for me at that point—to see that other sincere believers were totally comfortable merging their faith with rigorous science.

I confess that I didn't pay much more attention to the potential for conflict between science and faith for several years—it just didn't seem that important. There was too much to discover in scientific research about human genetics, and too much to discover about the nature of God from reading and discussing faith with other believers.

The need to find my own harmony of the worldviews ultimately came as the study of genomes—our own and that of many other organisms on the planet—began to take off, providing an incredibly rich and detailed view of how descent by modification from a common ancestor has occurred. Rather

than finding this unsettling, I found this elegant evidence of the relatedness of all living things an occasion of awe, and came to see this as the master plan of the same Almighty who caused the universe to come into being and set its physical parameters just precisely right to allow the creation of stars, planets, heavy elements, and life itself. Without knowing its name at the time, I settled comfortably into a synthesis generally referred to as "theistic evolution," a position I find enormously satisfying to this day.

WHAT IS THEISTIC EVOLUTION?

Mountains of material, in fact entire library shelves, are devoted to the topics of Darwinian evolution, creationism, and Intelligent Design. Yet few scientists or believers are familiar with the term "theistic evolution," sometimes abbreviated "TE." By the now standard criterion of Google search engine entries, there is only one mention of theistic evolution for every ten about creationism and every 140 about Intelligent Design.

Yet theistic evolution is the dominant position of serious biologists who are also serious believers. That includes Asa Gray, Darwin's chief advocate in the United States, and Theodosius Dobzhansky, the twentieth-century architect of evolutionary thinking. It is the view espoused by many Hindus, Muslims, Jews, and Christians, including Pope John Paul II. While it is risky to make presumptions about historical figures, I believe that this is also the view that Maimonides (the highly regarded twelfth-century Jewish philosopher) and Saint Augustine would

espouse today if they were presented with the scientific evidence for evolution.

There are many subtle variants of theistic evolution, but a typical version rests upon the following premises:

1. The universe came into being out of nothingness, approximately 14 billion years ago.
2. Despite massive improbabilities, the properties of the universe appear to have been precisely tuned for life.
3. While the precise mechanism of the origin of life on earth remains unknown, once life arose, the process of evolution and natural selection permitted the development of biological diversity and complexity over very long periods of time.
4. Once evolution got under way, no special supernatural intervention was required.
5. Humans are part of this process, sharing a common ancestor with the great apes.
6. But humans are also unique in ways that defy evolutionary explanation and point to our spiritual nature. This includes the existence of the Moral Law (the knowledge of right and wrong) and the search for God that characterizes all human cultures throughout history.

If one accepts these six premises, then an entirely plausible, intellectually satisfying, and logically consistent synthesis emerges: God, who is not limited in space or time, created the universe and established natural laws that govern it. Seeking to

populate this otherwise sterile universe with living creatures, God chose the elegant mechanism of evolution to create microbes, plants, and animals of all sorts. Most remarkably, God intentionally chose the same mechanism to give rise to special creatures who would have intelligence, a knowledge of right and wrong, free will, and a desire to seek fellowship with Him. He also knew these creatures would ultimately choose to disobey the Moral Law.

This view is entirely compatible with everything that science teaches us about the natural world. It is also entirely compatible with the great monotheistic religions of the world. The theistic evolution perspective cannot, of course, prove that God is real, as no logical argument can fully achieve that. Belief in God will always require a leap of faith. But this synthesis has provided for legions of scientist-believers a satisfying, consistent, enriching perspective that allows both the scientific and spiritual worldviews to coexist happily within us. This perspective makes it possible for the scientist-believer to be intellectually fulfilled and spiritually alive, both worshipping God and using the tools of science to uncover some of the awesome mysteries of His creation.

CRITIQUES OF THEISTIC EVOLUTION

Of course, many objections to theistic evolution have been raised.¹ If this is such a satisfying synthesis, why is it not more widely embraced? First of all, it is simply not widely known. Few, if any, prominent public advocates have ever spoken pas-

sionately about theistic evolution and the way in which it resolves current battles. While many scientists ascribe to TE, they are in general reluctant to speak out for fear of negative reaction from their scientific peers, or perhaps for fear of criticism from the theological community.

On the religious side of the divide, few prominent theologians are currently familiar enough with the details of biological science to endorse this perspective confidently in the face of massive objections from the advocates of creationism or Intelligent Design. Important exceptions can be noted, however. Pope John Paul II in his message to the Pontifical Academy of Sciences in 1996 offered a particularly thoughtful and courageous defense of theistic evolution. The pope stated that "new findings lead us toward the recognition of evolution as more than a hypothesis." He thus accepted the biological reality of evolution, but was careful to balance that with a spiritual perspective, echoing the position of his predecessor Pius XII: "If the origin of the human body comes through living matter which existed previously, the spiritual soul is created directly by God."²

This enlightened papal view was warmly welcomed by many believer-scientists. Concerns were raised, however, by comments from Catholic Cardinal Schönborn of Vienna, only months after the death of John Paul II, suggesting that this was a "rather vague and unimportant 1996 letter about evolution," and that more serious consideration should be given to the Intelligent Design perspective.³ (More recent signals from the Vatican appear to be returning to the perspective of John Paul II.)

Perhaps a more trivial reason that theistic evolution is so little appreciated is that it has a terrible name. Most nontheolo-

gians are not quite sure what a theist is, much less how that term could be converted to an adjective and used to modify Darwin's theory. Relegating one's belief in God to an adjective suggests a secondary priority, with the primary emphasis being the noun, namely "evolution." But the alternative of "evolutionary theism" doesn't resonate particularly well either.

Unfortunately, many of the nouns and adjectives that could describe the rich nature of this synthesis are already freighted with so much baggage as to be off-limits. Should we coin the term "crevolution"? Probably not. And one dare not use the words "creation," "intelligent," "fundamental," or "designer," for fear of confusion. We need to start afresh. My modest proposal is to rename theistic evolution as Bios through Logos, or simply BioLogos. Scholars will recognize *bios* as the Greek word for "life" (the root word for biology, biochemistry, and so forth), and *logos* as the Greek for "word." To many believers, the Word is synonymous with God, as powerfully and poetically expressed in those majestic opening lines of the gospel of John, "In the beginning was the Word, and the Word was with God, and the Word was God" (John 1:1). "BioLogos" expresses the belief that God is the source of all life and that life expresses the will of God.

Ironically, another major reason for the invisibility of the BioLogos position is the very harmony that it creates between warring factions. As a society we seem drawn not to harmony but to conflict. The media is partly to blame, but the media only plays to the public's desires. On the evening news you are likely to hear of multicar crackups, destructive hurricanes, violent crimes, messy celebrity divorces, and yes, raucous school board

debates over the teaching of evolution. You are not likely to hear much about the coming together of neighborhood groups of different faiths to try to solve community problems, nor about lifelong atheist Anthony Flew becoming a believer, and certainly not about theistic evolution or the double rainbow seen over the city this afternoon. We love conflict and discord, and the harsher the better. In academia, the serious music and art produced by members of the faculty seem to celebrate being hard to listen to and hard to look at. Harmony is boring.

More seriously, however, objections are raised to BioLogos by those who perceive this perspective as doing violence to either science or faith or both. For the atheistic scientist, BioLogos seems to be another "God of the gaps" theory imposing the presence of the divine where none is needed or desired. But this argument is not apt. BioLogos doesn't try to wedge God into gaps in our understanding of the natural world; it proposes God as the answer to questions science was never intended to address, such as "How did the universe get here?" "What is the meaning of life?" "What happens to us after we die?" Unlike Intelligent Design, BioLogos is not intended as a scientific theory. Its truth can be tested only by the spiritual logic of the heart, the mind, and the soul.

The most major current objections to BioLogos arise, however, from believers in God who simply cannot accept that God would have carried out creation using such an apparently random, potentially heartless, and inefficient process as Darwinian evolution. After all, they argue, evolutionists claim that the process is full of chance and random outcomes. If you rewind the clock several hundred million years, and then allowed evo-

lution to proceed forward again, you might end up with a very different outcome. For example, if the now well-documented collision of a large asteroid with the earth 65 million years ago had not happened, it might well be that the emergence of higher intelligence would not have come in the form of a carnivorous mammal (*Homo sapiens*), but in a reptile.

How is this consistent with the theological concept that humans are created "in the image of God" (Genesis 1:27)? Well, perhaps one shouldn't get too hung up on the notion that this scripture is referring to physical anatomy—the image of God seems a lot more about mind than body. Does God have toenails? A belly button?

But how could God take such chances? If evolution is random, how could He really be in charge, and how could He be certain of an outcome that included intelligent beings at all?

The solution is actually readily at hand, once one ceases to apply human limitations to God. If God is outside of nature, then He is outside of space and time. In that context, God could in the moment of creation of the universe also know every detail of the future. That could include the formation of the stars, planets, and galaxies, all of the chemistry, physics, geology, and biology that led to the formation of life on earth, and the evolution of humans, right to the moment of your reading this book—and beyond. In that context, evolution could appear to us to be driven by chance, but from God's perspective the outcome would be entirely specified. Thus, God could be completely and intimately involved in the creation of all species, while from our perspective, limited as it is by the tyranny of linear time, this would appear a random and undirected process.

So perhaps that takes care of the objections about the role of chance in the appearance of humans on this earth. The remaining stumbling block for the BioLogos position, however, at least for most believers, is the apparent conflict of the premises of evolution with important sacred texts. In looking closely at chapters 1 and 2 of the book of Genesis, we have previously concluded that many interpretations have been honorably put forward by sincere believers, and that this powerful document can best be understood as poetry and allegory rather than a literal scientific description of origins. Without repeating those points, consider the words of Theodosius Dobzhansky (1900–1975), a prominent scientist who subscribed to the Russian Orthodox faith and to theistic evolution: "Creation is not an event that happened in 4004 BC; it is a process that began some 10 billion years ago and is still underway. . . . Does the evolutionary doctrine clash with religious faith? It does not. It is a blunder to mistake the Holy Scriptures for elementary textbooks of astronomy, geology, biology, and anthropology. Only if symbols are construed to mean what they are not intended to mean can there arise imaginary, insoluble conflicts."⁴

WHAT ABOUT ADAM AND EVE?

Very well, so the six days of creation can be harmonized with what science tells us about the natural world. But what about the Garden of Eden? Is the description of Adam's creation from the dust of the earth, and the subsequent creation of Eve from one of Adam's ribs, so powerfully described in Genesis 2, a

symbolic allegory of the entrance of the human soul into a previously soulless animal kingdom, or is this intended as literal history?

As noted previously, studies of human variation, together with the fossil record, all point to an origin of modern humans approximately a hundred thousand years ago, most likely in East Africa. Genetic analyses suggest that approximately ten thousand ancestors gave rise to the entire population of 6 billion humans on the planet. How, then, does one blend these scientific observations with the story of Adam and Eve?

In the first place, the biblical texts themselves seem to suggest that there were other humans present at the same time that Adam and Eve were expelled from the Garden of Eden. Otherwise, where did Cain's wife, mentioned only after he left Eden to live in the land of Nod (Genesis 4:16–17), come from? Some biblical literalists insist that the wives of Cain and Seth must have been their own sisters, but that is both in serious conflict with subsequent prohibitions against incest, and incompatible with a straightforward reading of the text. The real dilemma for the believer comes down to whether Genesis 2 is describing a special act of miraculous creation that applied to a historic couple, making them biologically different from all other creatures that had walked the earth, or whether this is a poetic and powerful allegory of God's plan for the entrance of the spiritual nature (the soul) and the Moral Law into humanity.

Since a supernatural God can carry out supernatural acts, both options are intellectually tenable. However, better minds than mine have been unable to arrive at a precise understanding of this story over more than three millennia, and so we

should be wary of staking out any position too strongly. Many believers find the story of Adam and Eve compelling as literal history, but no less an intellect than C. S. Lewis, a distinguished scholar of myth and of history, found in the story of Adam and Eve something resembling a moral lesson rather than a scientific textbook or a biography. Here is Lewis's version of the events in question:

For long centuries, God perfected the animal form which was to become the vehicle of humanity and the image of Himself. He gave it hands whose thumb could be applied to each of the fingers, and jaws and teeth and throat capable of articulation, and a brain sufficiently complex to execute all of the material motions whereby rational thought is incarnated. The creature may have existed in this state for ages before it became man: it may even have been clever enough to make things which a modern archaeologist would accept as proof of its humanity. But it was only an animal because all its physical and psychical processes were directed to purely material and natural ends. Then, in the fullness of time, God caused to descend upon this organism, both on its psychology and physiology, a new kind of consciousness which could say "I" and "me," which could look upon itself as an object, which knew God, which could make judgments of truth, beauty and goodness, and which was so far above time that it could perceive time flowing

past. . . . We do not know how many of these creatures God made, nor how long they continued in the Paradisal state. But sooner or later they fell. Someone or something whispered that they could become as gods. . . . They wanted some corner in the universe of which they could say to God, "This is our business, not yours." But there is no such corner. They wanted to be nouns, but they were, and eternally must be, mere adjectives. We have no idea in what particular act, or series of acts, the self-contradictory, impossible wish found expression. For all I can see, it might have concerned the literal eating of a fruit, but the question is of no consequence.⁵

Conservative Christians who are otherwise great admirers of C. S. Lewis may be troubled by this passage. Doesn't a compromise on Genesis 1 and 2 start the believer down a slippery slope, ultimately resulting in the denial of the fundamental truths of God and His miraculous actions? While there is clear danger in unrestrained forms of "liberal" theology that eviscerate the real truths of faith, mature observers are used to living on slippery slopes and deciding where to place a sensible stopping point. Many sacred texts do indeed carry the clear marks of eyewitness history, and as believers we must hold fast to those truths. Others, such as the stories of Job and Jonah, and of Adam and Eve, frankly do not carry that same historical ring.

Given this uncertainty of interpretation of certain scriptural passages, is it sensible for sincere believers to rest the entirety of

their position in the evolutionary debate, their views on the trustworthiness of science, and the very foundation of their religious faith on a literalist interpretation, even if other equally sincere believers disagree, and have disagreed even long before Darwin and his *Origin of Species* first appeared? I do not believe that the God who created all the universe, and who communes with His people through prayer and spiritual insight, would expect us to deny the obvious truths of the natural world that science has revealed to us, in order to prove our love for Him.

In that context, I find theistic evolution, or BioLogos, to be by far the most scientifically consistent and spiritually satisfying of the alternatives. This position will not go out of style or be disproven by future scientific discoveries. It is intellectually rigorous, it provides answers to many otherwise puzzling questions, and it allows science and faith to fortify each other like two unshakable pillars, holding up a building called Truth.

SCIENCE AND FAITH: THE CONCLUSION REALLY MATTERS

In the twenty-first century, in an increasingly technological society, a battle is raging for the hearts and minds of humanity. Many materialists, noting triumphally the advances of science in filling the gaps of our understanding of nature, announce that belief in God is an outmoded superstition, and that we would be better off admitting that and moving on. Many believers in God, convinced that the truth they derive from spiritual introspection is of more enduring value than truths from other sources, see the advances in science and technology as danger-

ous and untrustworthy. Positions are hardening. Voices are becoming more shrill.

Will we turn our backs on science because it is perceived as a threat to God, abandoning all of the promise of advancing our understanding of nature and applying that to the alleviation of suffering and the betterment of humankind? Alternatively, will we turn our backs on faith, concluding that science has rendered the spiritual life no longer necessary, and that traditional religious symbols can now be replaced by engravings of the double helix on our altars?

Both of these choices are profoundly dangerous. Both deny truth. Both will diminish the nobility of humankind. Both will be devastating to our future. And both are unnecessary. The God of the Bible is also the God of the genome. He can be worshiped in the cathedral or in the laboratory. His creation is majestic, awesome, intricate, and beautiful—and it cannot be at war with itself. Only we imperfect humans can start such battles. And only we can end them.

CHAPTER ELEVEN

Truth Seekers

THE IMPOVERISHED VILLAGE OF EKU lies in the delta of the Niger River, near the crook in the elbow that makes up the western coastline of Africa. It was there that I learned a powerful and unexpected lesson.

I had traveled to Nigeria in the summer of 1989 to volunteer in a small mission hospital, in order to provide an opportunity for the missionary physicians to attend their annual conference and recharge their spiritual and physical batteries. My college-age daughter and I agreed to go on this adventure together, having long been curious about life in Africa, and having harbored a desire to contribute something to the developing world. I was aware that my own medical skills, dependent as they were upon the high-tech world of an American hospital, might be poorly matched to the challenges of unfamiliar tropical dis-

eases and little technical support. Nonetheless, I arrived in Nigeria with an expectation that my presence there was going to make a significant difference in the lives of the many I expected to care for.

The hospital at Eku was unlike anything I had experienced. There were never enough beds, so patients often had to sleep on the floor. Their families often traveled with them and took on the responsibility of feeding them, since the hospital was not able to provide adequate nourishment. A wide spectrum of severe diseases was represented. Oftentimes patients arrived at the hospital only after many days of progressive illness. Even worse, the course of disease was regularly compounded by the toxic ministrations of the witch doctors, to which many Nigerians would first go for help, coming to the hospital in Eku only when all else failed. Hardest of all for me to accept, it became abundantly clear that the majority of the diseases I was called upon to treat represented a devastating failure of the public health system. Tuberculosis, malaria, tetanus, and a wide variety of parasitic diseases all reflected an environment that was completely unregulated and a health care system that was completely broken.

Overwhelmed by the enormity of these problems, exhausted by the constant stream of patients with illnesses I was poorly equipped to diagnose, frustrated by the lack of laboratory and X-ray support, I grew more and more discouraged, wondering why I had ever thought that this trip would be a good thing.

Then one afternoon in the clinic a young farmer was brought in by his family with progressive weakness and mas-

sive swelling of his legs. Taking his pulse, I was startled to note that it essentially disappeared every time he took in a breath. Though I had never seen this classic physical sign (referred to as a "paradoxical pulse") so dramatically demonstrated, I was pretty sure this must mean that this young farmer had accumulated a large amount of fluid in the pericardial sac around his heart. This fluid was threatening to choke off his circulation and take his life.

In this setting, the most likely cause was tuberculosis. We had drugs at Eku for tuberculosis, but they could not act quickly enough to save this young man. He had at most a few days to live unless something drastic was done. The only chance to save him was to carry out a highly risky procedure of drawing off the pericardial fluid with a large bore needle placed in his chest. In the developed world, such a procedure would be done only by a highly trained interventional cardiologist, guided by an ultrasound machine, in order to avoid lacerating the heart and causing immediate death.

No ultrasound was available. No other physician present in this small Nigerian hospital had ever undertaken this procedure. The choice was for me to attempt a highly risky and invasive needle aspiration or watch the farmer die. I explained the situation to the young man, who was now fully aware of his own precarious state. He calmly urged me to proceed. With my heart in my mouth and a prayer on my lips, I inserted a large needle just under his sternum and aimed for his left shoulder, all the while fearing that I might have made the wrong diagnosis, in which case I was almost certainly going to kill him.

I didn't have to wait long. The rush of dark red fluid in my

syringe initially made me panic that I might have entered the heart chamber, but it soon became apparent that this was not normal heart's blood. It was a massive amount of bloody tuberculous effusion from the pericardial sac around the heart.

Nearly a quart of fluid was drawn off. The young man's response was dramatic. His paradoxical pulse disappeared almost at once, and within the next twenty-four hours the swelling of his legs rapidly improved.

For a few hours after this experience I felt a great sense of relief, even elation, at what had happened. But by the next morning, the same familiar gloom began to settle over me. After all, the circumstances that had led this young man to acquire tuberculosis were not going to change. He would be started on TB drugs in the hospital, yet the chances were good that he would not have the resources to pay for the entire two years of treatment that he needed, and he might very well suffer a recurrence and die despite our efforts. Even if he survived the disease, some other preventable disorder, born of dirty water, inadequate nutrition, and a dangerous environment, probably lay not too far in his future. The chances for long life in a Nigerian farmer are poor.

With those discouraging thoughts in my head, I approached his bedside the next morning, finding him reading his Bible. He looked at me quizzically, and asked whether I had worked at the hospital for a long time. I admitted that I was new, feeling somewhat irritated and embarrassed that it had been so easy for him to figure that out. But then this young Nigerian farmer, just about as different from me in culture, experience, and ancestry as any two humans could be, spoke the words that will

forever be emblazoned in my mind: "I get the sense you are wondering why you came here," he said. "I have an answer for you. You came here for one reason. You came here for me."

I was stunned. Stunned that he could see so clearly into my heart, but even more stunned at the words he was speaking. I had plunged a needle close to his heart; he had directly impaled mine. With a few simple words he had put my grandiose dreams of being the great white doctor, healing the African millions, to shame. He was right. We are each called to reach out to others. On rare occasions that can happen on a grand scale. But most of the time it happens in simple acts of kindness of one person to another. Those are the events that really matter. The tears of relief that blurred my vision as I digested his words stemmed from indescribable reassurance—reassurance that there in that strange place for just that one moment, I was in harmony with God's will, bonded together with this young man in a most unlikely but marvelous way.

Nothing I had learned from science could explain that experience. Nothing about the evolutionary explanations for human behavior could account for why it seemed so right for this privileged white man to be standing at the bedside of this young African farmer, each of them receiving something exceptional. This was what C. S. Lewis calls *agape*. It is the love that seeks no recompense. It is an affront to materialism and naturalism. And it is the sweetest joy that one can experience.

In years of dreaming of going to Africa, I had felt the gentle stirrings of a desire to do something truly unselfish for others—that calling to serve with no expectation of personal benefit that is common to all human cultures. But I had let other, less noble

dreams get in the way—the expectation of receiving admiration from the Eku villagers, the anticipation of applause from my medical colleagues at home. Those grand schemes were clearly not happening for me in the gritty reality of impoverished Eku. But the simple act of trying to help just one person, in a desperate situation where my skills were poorly matched to the challenge, turned out to represent the most meaningful of all human experiences. A burden lifted. This was true north. And the compass pointed not at self-glorification, or at materialism, or even at medical science—instead it pointed at the goodness that we all hope desperately to find within ourselves and others. I also saw more clearly than ever before the author of that goodness and truth, the real True North, God himself, revealing His holy nature by the way in which He has written this desire to seek goodness in all of our hearts.

MAKING PERSONAL SENSE OF THE EVIDENCE

So here, in the final chapter, we have come full circle, returning again to the existence of the Moral Law, where this story began. We have traveled through the sciences of chemistry, physics, cosmology, geology, paleontology, and biology—and yet this uniquely human attribute still causes wonder. After twenty-eight years as a believer, the Moral Law still stands out for me as the strongest signpost to God. More than that, it points to a God who cares about human beings, and a God who is infinitely good and holy.

The other observations, discussed earlier, that point to a

Creator—the fact that the universe had a beginning, that it obeys orderly laws that can be expressed precisely with mathematics, and the existence of a remarkable series of “coincidences” that allow the laws of nature to support life—do not tell us much about what kind of God must be behind it all, but they do point toward an intelligent mind that could lie behind such precise and elegant principles. But what kind of mind? What, exactly, should we believe?

WHAT KIND OF FAITH?

In the opening chapter of this book, I described my own pathway from atheism to belief. I now owe you a deeper explanation of my subsequent path. I offer this with some trepidation, since strong passions tend to be incited as soon as one begins to differentiate from a general sense of God’s existence to a specific set of beliefs.

Most of the world’s great faiths share many truths, and probably they would not have survived had that not been so. Yet there are also interesting and important differences, and each person needs to seek out his own particular path to the truth.

After my conversion to belief in God, I spent considerable time trying to discern His characteristics. I concluded that He must be a God who cares about persons, or the argument about the Moral Law would not make much sense. So deism wouldn’t do for me. I also concluded that God must be holy and righteous, since the Moral Law calls me in that direction. But this

still seemed awfully abstract. Just because God is good and loves His creatures does not, for instance, require that we have the ability to communicate with Him, or to have some sort of relationship with Him. I found an increasing sense of longing for that, however, and I began to realize that this is what prayer is all about. Prayer is not, as some seem to suggest, an opportunity to manipulate God into doing what you want Him to. Prayer is instead our way of seeking fellowship with God, learning about Him, and attempting to perceive His perspective on the many issues around us that cause us puzzlement, wonder, or distress.

Yet I found it difficult to build that bridge toward God. The more I learned about Him, the more His purity and holiness seemed unapproachable, and the darker my own thoughts and actions seemed to be in that bright light.

I began to be increasingly aware of my own inability to do the right thing, even for a day. I could generate lots of excuses, but when I was really honest with myself, pride, apathy, and anger were regularly winning my internal battles. I had never really thought of applying the word "sinner" to myself before, but now it was painfully obvious that this old-fashioned word, one from which I had previously recoiled because it seemed coarse and judgmental, fit quite accurately.

I sought to engineer a cure by spending more time in self-examination and prayer. But those efforts proved largely dry and unrewarding, failing to carry me across the widening gap between my awareness of my imperfect nature and God's perfection.

Into this deepening gloom came the person of Jesus Christ.

During my boyhood years sitting in the choir loft of a Christian church, I really had no idea who Christ was. I thought of Him as a myth, a fairy tale, a superhero in a "just so" bedtime story. But as I read the actual account of His life for the first time in the four gospels, the eyewitness nature of the narratives and the enormity of Christ's claims and their consequences gradually began to sink in. Here was a man who not only claimed to know God, He claimed to *be* God. No other figure I could find in any other faith made such an outrageous claim. He also claimed to be able to forgive sins, which seemed both exciting and utterly shocking. He was humble and loving, He spoke remarkable words of wisdom, and yet He was put to death on the cross by those who feared Him. He was a man, so He knew the human condition that I was finding so burdensome, and yet He promised to relieve that burden: "Come unto me all ye that are weary and burdened, and I will give you rest" (Matthew 11:28).

The other scandalous thing that the New Testament eyewitnesses said about Him, and that Christians seemed to take as a central tenet of their faith, is that this good man rose from the dead. For a scientific mind, this was difficult stuff. But on the other hand, if Christ really was the Son of God, as He explicitly claimed, then surely of all those who had ever walked the earth, He could suspend the laws of nature if He needed to do so to achieve a more important purpose.

But His resurrection had to be more than a demonstration of magical powers. What was the real point of it? Christians have puzzled over this question for two millennia. After much searching, I could find no single answer—instead, there were several interlocking answers, all pointing to the idea of a bridge

between our sinful selves and a holy God. Some commentators focus on the idea of substitution—Christ dying in the place of all of us who deserve God’s judgment for our wrongdoings. Others call it redemption—Christ paid the ultimate price to free us from the bondage of sin, so that we could find God and rest in the confidence that He no longer judges us by our actions, but sees us as having been washed clean. Christians call this salvation by grace. But for me, the crucifixion and resurrection also provided something else. My desire to draw close to God was blocked by my own pride and sinfulness, which in turn was an inevitable consequence of my own selfish desire to be in control. Faithfulness to God required a kind of death of self-will, in order to be reborn as a new creation.

How could I achieve such a thing? As had happened so many times with previous dilemmas, the words of C. S. Lewis captured the answer precisely:

But supposing God became a man—suppose our human nature which can suffer and die was amalgamated with God’s nature in one person—then that person could help us. He could surrender His will, and suffer and die, because He was man; and He could do it perfectly because He was God. You and I can go through this process only if God does it in us; but God can do it only if He becomes man. Our attempts at this dying will succeed only if we men share in God’s dying, just as our thinking can succeed only because it is a drop out of the ocean of His intelligence: but we cannot share God’s dying

unless God dies; and He cannot die except by being a man. That is the sense in which He pays our debt, and suffers for us what He Himself need not suffer at all.¹

Before I became a believer in God, this kind of logic seemed like utter nonsense. Now the crucifixion and resurrection emerged as the compelling solution to the gap that yawned between God and myself, a gap that could now be bridged by the person of Jesus Christ.

So I became convinced that God’s arrival on earth in the person of Jesus Christ could serve a divine purpose. But did this mesh with history? The scientist in me refused to go any further along this path toward Christian belief, no matter how appealing, if the biblical writings about Christ turned out to be a myth or, worse yet, a hoax. But the more I read of biblical and non-biblical accounts of events in first-century Palestine, the more amazed I was at the historical evidence for the existence of Jesus Christ. First of all, the gospels of Matthew, Mark, Luke, and John were put down just a few decades after Christ’s death. Their style and content suggests strongly that they are intended to be the record of eyewitnesses (Matthew and John were among the twelve apostles). Concerns about errors creeping in by successive copying or bad translation have been mostly laid to rest by discovery of very early manuscripts. Thus, the evidence for authenticity of the four gospels turns out to be quite strong. Furthermore, non-Christian historians of the first century such as Josephus bear witness to a Jewish prophet who was crucified by Pontius Pilate around 33 A.D. Many more ex-

amples of evidence for the historical nature of Christ's existence have been collected in many excellent books, to which the interested reader is referred.² In fact, one scholar has written, "The historicity of Christ is as axiomatic for an unbiased historian as the historicity of Julius Caesar."³

EVIDENCE DEMANDING A VERDICT

So the growing evidence of this unique individual, who seemed to represent God in search of man (whereas most other religions seemed to be man in search of God) provided a compelling case. But I hesitated, afraid of the consequences, and afflicted by doubts. Maybe Christ was just a great spiritual teacher? Again, Lewis seemed to have written one particular paragraph just for me:

I am trying here to prevent anyone saying the really foolish thing that people often say about Him: "I'm ready to accept Jesus as a great moral teacher, but I don't accept His claim to be God." That is one thing we must not say. A man who was merely a man and said the sort of things Jesus said would not be a great moral teacher. He would either be a lunatic—on a level with a man who says He is a poached egg—or else He would be the Devil of Hell. You must make your choice. Either this man was, and is, the Son of God: or else a madman or something worse. You can shut Him up for a fool, you can spit

at Him and kill Him as a demon; or you can fall at His feet and call Him Lord and God. But let us not come with any patronizing nonsense about His being a great human teacher. He has not left that open to us. He did not intend to.⁴

Lewis was right. I had to make a choice. A full year had passed since I decided to believe in some sort of God, and now I was being called to account. On a beautiful fall day, as I was hiking in the Cascade Mountains during my first trip west of the Mississippi, the majesty and beauty of God's creation overwhelmed my resistance. As I rounded a corner and saw a beautiful and unexpected frozen waterfall, hundreds of feet high, I knew the search was over. The next morning, I knelt in the dewy grass as the sun rose and surrendered to Jesus Christ.

I do not mean by telling this story to evangelize or proselytize. Each person must carry out his or her own search for spiritual truth. If God is real, He will assist. Far too much has been said by Christians about the exclusive club they inhabit. Tolerance is a virtue; intolerance is a vice. I find it deeply disturbing when believers in one faith tradition dismiss the spiritual experiences of others. Regrettably, Christians seem particularly prone to do this. Personally, I have found much to learn from and admire in other spiritual traditions, though I have found the special revelation of God's nature in Jesus Christ to be an essential component of my own faith.

Christians all too often come across as arrogant, judgmental, and self-righteous, but Christ never did. Consider, for instance, the well-known parable of the Good Samaritan. The

nature of the participants in this morality play would have been immediately apparent to listeners in Christ's day, though less so in modern times. Here are Jesus' words, as recorded in Luke 10:30-37:

A man was going down from Jerusalem to Jericho, when he fell into the hands of robbers. They stripped him of his clothes, beat him and went away, leaving him half dead. A priest happened to be going down the same road, and when he saw the man, he passed by on the other side. So, too, a Levite, when he came to the place and saw him, passed by on the other side. But a Samaritan, as he traveled, came where the man was; and when he saw him, he took pity on him. He went to him and bandaged his wounds, pouring on oil and wine. Then he put the man on his own donkey, took him to an inn and took care of him. The next day he took out two silver coins and gave them to the innkeeper. "Look after him," he said, "and when I return, I will reimburse you for any extra expense you may have." Which of these three do you think was the neighbor to the man who fell into the hands of robbers? The expert in the law replied, "The one who had mercy on him." Jesus told him, "Go and do likewise."

Samaritans were much hated by the Jews, because they rejected many of the teachings of the Jewish prophets. The fact

that Jesus would put forward the behavior of the Samaritan as more virtuous than that of a priest or a lay leader (a Levite) must have been scandalous to his hearers. But the overarching principle of love and acceptance appears throughout Christ's teachings in the New Testament. It is the most important guide of how we are to treat others. In Matthew 22:35 Christ is queried about which is the greatest of God's commandments. He answers simply, "Love the Lord your God with all your heart and with all your soul and with all your mind. This is the first and greatest commandment. And the second is like it: Love your neighbor as yourself."

Many of these principles can be found in other great religions of the world. Yet if faith is not just a cultural practice, but rather a search for absolute truth, we must not go so far as to commit the logical fallacy of saying that all conflicting points of view are equally true. Monotheism and polytheism cannot both be right. Through my own search, Christianity has provided for me that special ring of eternal truth. But you must conduct your own search.

SEEK AND YE SHALL FIND

If you have made it this far with me, I hope you will agree that the scientific and spiritual worldviews both have much to offer. Both provide differing but complementary ways of answering the greatest of the world's questions, and both can coexist happily within the mind of an intellectually inquisitive person living in the twenty-first century.

Science is the only legitimate way to investigate the natural world. Whether probing the structure of the atom, the nature of the cosmos, or the DNA sequence of the human genome, the scientific method is the only reliable way to seek out the truth of natural events. Yes, experiments can fail spectacularly, interpretations of experiments can be misguided, and science can make mistakes. But the nature of science is self-correcting. No major fallacy can long persist in the face of a progressive increase in knowledge.

Nevertheless, science alone is not enough to answer all the important questions. Even Albert Einstein saw the poverty of a purely naturalistic worldview. Choosing his words carefully, he wrote, "Science without religion is lame, religion without science is blind."¹⁵ The meaning of human existence, the reality of God, the possibility of an afterlife, and many other spiritual questions lie outside of the reach of the scientific method. While an atheist may claim that those questions are therefore unanswerable and irrelevant, that does not resonate with most individuals' human experience. John Polkinghorne argues this point cogently by a comparison to music:

The poverty of an objectivistic account is made only too clear when we consider the mystery of music. From a scientific point of view, it is nothing but vibrations in the air, impinging on the eardrums and stimulating neural currents in the brain.

How does it come about that this banal sequence of temporal activity has the power to speak to our hearts of an eternal beauty? The whole range

of subjective experience, from perceiving a patch of pink, to being enthralled by a performance of the Mass in B Minor, and on to the mystic's encounter with the ineffable reality of the One, all these truly human experiences are at the center of our encounter with reality, and they are not to be dismissed as epiphenomenal froth on the surface of a universe whose true nature is impersonal and lifeless.⁶

Science is not the only way of knowing. The spiritual worldview provides another way of finding truth. Scientists who deny this would be well advised to consider the limits of their own tools, as nicely represented in a parable told by the astronomer Arthur Eddington. He described a man who set about to study deep-sea life using a net that had a mesh size of three inches. After catching many wild and wonderful creatures from the depths, the man concluded that there are no deep-sea fish that are smaller than three inches in length! If we are using the scientific net to catch our particular version of truth, we should not be surprised that it does not catch the evidence of spirit.

What obstacles lie in the way of a broader embrace of the complementary nature of the scientific and spiritual worldviews? This is not just a theoretical question for dry philosophical consideration. It is a challenge for each one of us. I hope you will forgive me, therefore, if I address you somewhat more personally as we approach the end of this book.

AN EXHORTATION TO BELIEVERS

If you are a believer in God who picked up this book because of concerns that science is eroding faith by promoting an atheistic worldview, I hope you are reassured by the potential for harmony between faith and science. If God is the Creator of all the universe, if God had a specific plan for the arrival of humankind on the scene, and if He had a desire for personal fellowship with humans, into whom He had instilled the Moral Law as a signpost toward Himself, then He can hardly be threatened by the efforts of our puny minds to understand the grandeur of His creation.

In that context, science can be a form of worship. Indeed, believers should seek to be in the forefront among those chasing after new knowledge. Believers have led science at many times in the past. Yet all too often today, scientists are uneasy about admitting their spiritual views. To add to the problem, church leaders often seem to be out of step with new scientific findings, and run the risk of attacking scientific perspectives without fully understanding the facts. The consequence can bring ridicule on the church, driving sincere seekers away from God instead of into His arms. Proverbs 19:2 warns against this kind of well-intentioned but misinformed religious fervor: "It is not good to have zeal without knowledge."

Believers would do well to follow the exhortation of Copernicus, who found in the discovery that the earth revolves around the sun an opportunity to celebrate, rather than diminish, the grandeur of God: "To know the mighty works of God; to comprehend His wisdom and majesty and power; to appreciate,

in degree, the wonderful working of His laws, surely all this must be a pleasing and acceptable mode of worship to the Most High, to whom ignorance cannot be more grateful than knowledge."⁷

AN EXHORTATION TO SCIENTISTS

On the other hand, if you are one who trusts the methods of science but remains skeptical about faith, this would be a good moment to ask yourself what barriers lie in your way toward seeking a harmony between these worldviews.

Have you been concerned that belief in God requires a descent into irrationality, a compromise of logic, or even intellectual suicide? It is hoped that the arguments presented within this book will provide at least a partial antidote to that view, and will convince you that of all the possible worldviews, atheism is the least rational.

Have you been turned off by the hypocritical behavior of those who profess belief? Again, keep in mind that the pure water of spiritual truth is carried in those rusty containers called human beings, so there should be no surprise that at times those foundational beliefs can be severely distorted. Do not rest your evaluation of faith, therefore, on what you see in the behavior of individual humans or of organized religion. Rest it instead on the timeless spiritual truths that faith presents.

Are you distressed by some specific philosophical problem with faith, such as why a loving God would allow suffering? Recognize that a great deal of suffering is brought upon us by

our own actions or those of others, and that in a world where humans practice free will, it is inevitable. Understand, also, that if God is real, His purposes will often not be the same as ours. Hard though it is to accept, a complete absence of suffering may not be in the best interest of our spiritual growth.

Are you simply uncomfortable accepting the idea that the tools of science are insufficient for answering any important question? This is particularly a problem for scientists, who have committed their lives to the experimental assessment of reality. From that perspective, admitting the inability of science to answer all questions can be a blow to our intellectual pride—but that blow needs to be recognized, internalized, and learned from.

Does this discussion of spirituality simply make you uncomfortable, because of a sense that recognizing the possibility of God might place new requirements on your own life plans and actions? I recognize this reaction clearly from my own period of "willful blindness," and yet I can testify that coming to a knowledge of God's love and grace is empowering, not constraining. God is in the business of release, not incarceration.

And finally, have you simply not taken the time to seriously consider the spiritual worldview? In our modern world, too many of us are rushing from experience to experience, trying to deny our own mortality, and putting off any serious consideration of God until some future moment when we imagine the circumstances will be right.

Life is short. The death rate will be one per person for the foreseeable future. Opening one's self to the life of the spirit can be indescribably enriching. Don't put off a consideration of

these questions of eternal significance until some personal crisis or advancing age forces a recognition of spiritual impoverishment.

A FINAL WORD

Seekers, there are answers to these questions. There is joy and peace to be found in the harmony of God's creation. In the upstairs hall of my home hangs a beautifully decorated pair of scripture verses, illuminated in many colors by the hand of my daughter. I come back to those verses many times when I am struggling for answers, and they never fail to remind me of the nature of true wisdom: "But if any of you lacks wisdom, let him ask of God, who gives to all men generously and without reproach, and it will be given him" (James 1:5). "The wisdom from above is first pure, then peaceable, gentle, reasonable, full of mercy and good fruits, unwavering, without hypocrisy" (James 3:17).

My prayer for our hurting world is that we would together, with love, understanding, and compassion, seek and find that kind of wisdom.

It is time to call a truce in the escalating war between science and spirit. The war was never really necessary. Like so many earthly wars, this one has been initiated and intensified by extremists on both sides, sounding alarms that predict imminent ruin unless the other side is vanquished. Science is not threatened by God; it is enhanced. God is most certainly not threatened by science; He made it all possible. So let us to-

gether seek to reclaim the solid ground of an intellectually and spiritually satisfying synthesis of *all* great truths. That ancient motherland of reason and worship was never in danger of crumbling. It never will be. It beckons all sincere seekers of truth to come and take up residence there. Answer that call. Abandon the battlements. Our hopes, joys, and the future of our world depend on it.

APPENDIX

The Moral Practice of Science and Medicine: Bioethics

MANY MEMBERS OF THE GENERAL PUBLIC are excited about the potential of advances in biomedical research to prevent or cure terrible diseases, but are also anxious about whether these new technologies are leading us into dangerous territory. The discipline that considers the morality of applications of biotechnology and medicine to humanity is called bioethics. In this Appendix, we will consider a sample of some of the bioethical dilemmas that are inspiring significant debate today—though this is by no means an exhaustive list. I will focus particularly on advances that are arising from the rapid progress in understanding the human genome.