

regard the Holy Spirit as guiding the universes illustrated in Figure 4.4 to follow the definite trajectories pictured. The guiding influence—the Holy Spirit in His Immanence—proceeds from the Father and the Son. By contrast, the Holy Spirit in His transcendence—the Ultimate Past Singularity—is best thought of as proceeding from the Father *through* the Son. That is, the Ultimate Past Singularity arises from the Ultimate Future Singularity by means of the All-Presents Singularity.

Christology has to avoid falling into either the Modalist heresy or the Monarchianist heresy.¹⁷ The Monarchianist heresy errs in the Arian direction, in that it claims the Son is not fully united with the man Jesus. Monarchianism also holds that the Son does not exist eternally as the Father exists eternally, so it tends to make the Son a mere creation of the Father. This aspect of Monarchianism will not concern us, since I have already established the eternal nature of the Son Singularity. The Monarchianists picture Jesus as being controlled by the Holy Spirit, or as being filled with the Holy Spirit, but not as being truly united with God. The unity of the Son with Jesus is definitely not Monarchian, as I shall discuss in more detail when I come to the theory of the Incarnation in Chapter 9. One way to see this is to note that Figure 4.4 is misleading in suggesting that our universe of the multiverse is fairly far away from the Son. If this were true, then the Son would necessarily have to be distinct from the man Jesus, who became part of our universe.

To study the distinction between the singularity of a quantum cosmology and the multiverse, it is necessary to use a technique such as the Cauchy completion technique to induce a topology on the combined multiverse and singularity. The Penrose c-boundary works only within a universe. The boundary produced by this technique is called the Schmidt b-boundary. The b-boundary has been shown to yield a topology in which the singularity is not Hausdorff separated from the points of spacetime. Roughly speaking, this means that the singularity is extremely close to every point in spacetime. Literally it means that, for any point on the singularity, it is not possible to put an open set of points between this singularity point and *any* point in spacetime proper. This "infinite nearness" shows that Figure 4.4 is misleading in suggesting that the singularity is "far away" from our universe. The b-boundary technique applied to the quantum Son Singularity pictured in Figure 4.3 also yields the fact that the Son Singularity is "infinitely close" to all points of the multiverse, just as it does in the case of the Holy Spirit and Father Singularities.

Miracles Do *Not* Violate Physical Law

If anyone says that divine revelation cannot be made credible by external signs, and that therefore men should be drawn to the faith only by their personal internal experience or by private inspiration, let him be anathema.

FIRST VATICAN COUNCIL, 1870

The Definition of Miracle

Ever since the eighteenth-century philosopher David Hume, most people have defined a "miracle" as a violation of physical law. But as the famous German theologian Wolfhart Pannenberg has emphasized in a recent paper, this is not the orthodox Christian definition.¹ Indeed, this definition is not implied by the biblical words for "miracle." The Greek *thaumasion*—the Latin equivalent is *miraculum*—just means "that which evokes wonder or astonishment." The Hebrew word for "miracle," *oth*, just means "sign," namely an event that indicates something other than itself. Pannenberg in his paper discusses St. Thomas Aquinas's and St. Augustine's arguments for the nonviolation of physical laws by a miracle. I would like to add to Pannenberg's discussion a mention of Aquinas's definition of *miracle* in *Summa Contra Gentiles* (Chapter 102): an event that is beyond the natural power of any creature to produce. The standard Catholic definition is due to Pope Benedict XIV (1675–1758): "a miracle is an event whose production exceeds the power of visible and corporal nature only."² Benedict XIV requires further that, to count as a miracle, the event must be of religious signif-

icance. Nothing is said in any of these orthodox definitions about a violation of physical law. Indeed, why should God violate His own laws? He knows what He wants to accomplish in universal history and has therefore set the laws of physics accordingly. Thus, to claim, as many modern theologians do (regrettably, even the English theologian Richard Swinburne),³ that a miracle violates physical law is in effect to deny either God's omniscience or His omnipotence.

The claim that a miracle violates physical law also undermines the Christian doctrine of the Atonement. God could have forgiven us humans our sins without sending His Son into the universe, but doing so would have violated His laws of justice. God never, ever sets aside His laws. Therefore, His Son, the only completely sinless human being, had to suffer in our stead. God never, ever sets aside His moral laws, nor does He ever set aside His laws of physics. If we cannot trust God to keep inviolate His physical laws, then we cannot trust Him to keep His word that we will one day be resurrected to live with Him forever.

The idea that a miracle violates the laws of physics was introduced in the English-speaking world by the Deists, whose motivation was to deny the Resurrection and the Incarnation.⁴ If a miracle violated physical law, if the Resurrection and the Incarnation violated physical law, then the Deists could use the strong evidence that physical laws were never violated as evidence against the Resurrection and Incarnation. Hume just continued and expanded this Deist strategy. As Pannenberg emphasizes in his paper, if we accept Hume's definition of *natural law* as a rule that is never violated, then by definition, a miracle cannot occur, and Christianity is refuted by definition.

The famous Christian apologist C. S. Lewis (1898–1963) devoted an entire book to the study of miracles and provided a defense of the orthodox position that a miracle never violates natural law.⁵ Many readers, however, did not seem to understand that Lewis did defend this orthodox position on miracles. Indeed, in his article "Rejoinder to Dr. Pittenger," Lewis writes:

I turn next to my book *Miracles* and am sorry to say that I here have to meet Dr. Pittenger's charges with straight denials. He says that this book "opens with a definition of miracles as the 'violation' of the laws of nature." He is mistaken. The passage (chapter 2) really runs: "I use the word *Miracle* to mean an interference with Nature by supernatural power" [p. 5]. If Dr. Pittenger thinks the

difference between the true text and his misquotation merely verbal, he has misunderstood nearly the whole book. I never equated nature (the spatio-temporal system of facts and events) with the laws of nature (the patterns into which these facts and events fall). I would as soon equate an actual speech with the rules of grammar. In chapter 6 I say in so many words that no miracle either can or need break the laws of Nature; that "it is. . . inaccurate to define a miracle as something that breaks the laws of Nature" [p. 59], and that "The divine art of miracle is not an art of suspending the pattern to which events conform but of feeding new events into that pattern" [p. 60].⁶

Lewis's specific examples of miracles are unfortunate, because were they to occur as he describes them, they *would* violate physical law. He writes, "If God annihilates or creates or deflects a unit of matter He has created a new situation at that point. Immediately all Nature domiciles this new situation, makes it home in her realm, adopts all other events to it." Unfortunately, annihilating or creating a unit of matter in space-time would violate the law of conservation of mass and energy—unless the annihilating and creating were done by the direct conversion of energy into mass, a process I shall use in Chapter 8 to explain how Jesus was raised by the Holy Spirit, and to describe how a few fish and loaves of bread could be turned into enough food to feed 5,000 men. Deflecting a unit of matter would violate the law of conservation of linear momentum—unless the deflection came from the momentum carried by invisible neutrino particles. I shall show in Chapter 8 that this particular process could explain how Jesus walked on water. I doubt that Lewis had in mind these subtle physical processes, since they were not discovered until after his death.

Lewis's second example of a miracle was "If God creates a miraculous spermatozoon in the body of a virgin, it does not proceed to break any laws. The laws at once take it over."⁷ But again, the creation of a spermatozoon out of nothing would violate the law of conservation of mass and energy. God could have begun a virginal conception of a male in a much cleverer way, which I shall describe in Chapter 7, and as we shall see in that chapter, the DNA evidence strongly suggests that the cleverer way was in fact the way God decided to arrange the Virgin Birth of Jesus.

Nevertheless, Lewis's heart was in the right place. Indeed, it is the in-

fluence of the supernatural—that is to say, the Cosmological Singularity, God, the only supernatural entity that really exists—acting through, not against, the physical laws of the natural world He has created, that causes miracles. I shall describe in detail in Chapter 9 on the Incarnation, which Lewis calls, correctly, the Grand Miracle, exactly how the Singularity exerts an influence in the universe of the multiverse without violating the laws that govern His creation.

Statements that miracles do not violate physical law are legion in the Christian literature. John Roach Straton, a leading self-described “fundamentalist” in the early twentieth century, denied that a “miracle” violates physical law in his famous debate with a self-described “modernist.”¹⁰ John Driscoll, a twentieth-century Roman Catholic theologian, denies that a “miracle” violates physical law in his article on miracles for the *Catholic Encyclopedia* on the Internet.¹¹ As St. Augustine, Lewis, Pannenberg, and a long list of Christian writers have emphasized for many centuries, for a Christian, a miracle is a very improbable event that has religious significance. Or more precisely, a miracle is an event that is very improbable from the human point of view and that can be seen to be the direct action of God—the Cosmological Singularity—in the natural world, a direct action exerted in order to make a point to us humans or to guide the universe (or individual humans) into the goal He has set.

In my description of the Omega Point theory in Chapter 3, I used past-to-future causation language, which is standard in everyday life and in most physics papers. This may have given the reader the impression that it is life that is creating the Omega Point (God) rather than the reverse. Nothing could be further from the truth. It is more accurate to say that the Omega Point, acting backward in time, via future-to-past causation, creates life and His multiverse. The quantum law of unitarity, which I used to prove the existence of the Omega Point, actually is the mathematical requirement that the two causal languages, past-to-future causation and future-to-past causation, can be translated exactly into each other. That is, quantum physics justifies teleology and, indeed, requires teleology to be true. (For a mathematical proof of this statement, see any book on quantum mechanics.)¹² Generally, however, past-to-future language will be the simpler, since the complexity of the universe, quantified by its entropy, increases with time.

There will be exceptions, however, and I will make these exceptions central to my own definition of *miracle*. I say that an event is a miracle

if it is very improbable according to standard past-to-future causation from the data in our multiverse neighborhood but is seen to be inevitable from knowledge that the multiverse will evolve into the Omega Point. This definition incorporates the idea that a miracle is a very unlikely event (as in the sentence “It was a miracle he survived the car accident”), as well as Benedict XIV’s requirement that a miracle have some religious significance. My definition of *miracle* thus includes both the Greek-Latin meaning and the Hebrew meaning. I further require that a miracle never, never violate any physical law.

Before a person is declared a saint of the Roman Catholic Church, a Church committee, the Congregation for the Causes of Saints, must establish that at least two miracles have occurred which can be interpreted as due to that person’s intercession. Usually the miracles are cures that occurred after the potential saint was prayed to for help. The miracle is considered to be not the act of the saint but rather the act of God, Who performed it in part to give evidence that the person prayed to was in fact a holy person. In Catholic doctrine, it is God, not the saint, Who performs the miracle. The first step in being canonized—being added to the list, or canon, of saints—is beatification, an announcement that the person being investigated has passed the initial tests for sainthood. Beatification requires that at least one miracle be established as due to the potential saint’s intercession. Mother Teresa has been beatified, which means the Church is satisfied that at least one miracle can be attributed to her intercession.

The agnostic Christopher Hitchens has written a book very critical of Mother Teresa, in particular arguing that the miracle attributed to her is no miracle at all.¹³ Using nothing but the information provided in his book, I shall now show that, by the Catholic Church’s and my definition, the event in question was indeed a miracle. Hitchens errs in using Hume’s definition of a miracle, that it violated physical laws. Indeed, the event in question is not a Humean miracle, not surprising, since miracles in Hume’s sense cannot exist.

According to Hitchens, the first major miracle associated with Mother Teresa occurred in 1969, when she was completely unknown to the general public. Malcolm Muggeridge, who was interviewing Mother Teresa at the time for BBC television, describes the miracle:

This Home for the Dying is dimly lit by small windows high up in the walls, and Ken [Macmillan, the BBC photographer] was

adamant that filming was quite impossible there. We had only one small light with us, and to get the place adequately lighted in the time at our disposal was quite impossible. It was decided that, nonetheless, Ken should have a go, but by way of insurance he took, as well, some film in an outside courtyard where some of the inmates were sitting in the sun. In the processed film, the part taken inside was bathed in a particularly beautiful soft light, whereas the part taken outside was rather dim and confused. . . . I myself am absolutely convinced that the technically unaccountable light is, in fact, the Kindly Light [Cardinal John Henry] Newman refers to in his well-known exquisite hymn. . . . This is precisely what miracles are for—to reveal the inner reality of God's outward creation. *I am personally persuaded that Ken recorded the first authentic photographic miracle* [emphasis added by Hitchens].¹⁵

Ken Macmillan's description of the miracle was as follows:

During *Something Beautiful for God*, there was an episode where we were taken to a building that Mother Teresa called the House of the Dying. Peter Chafer, the director, said, "Ah well, it's very dark in here. Do you think we can get something?" And we had just taken delivery at the BBC of some new film made by Kodak, which we hadn't had time to test before we left, so I said to Peter, "Well, we may as well have a go." So we shot it. And when we got back several weeks later, a month or two later, we are sitting in the rushes theatre at Ealing Studios and eventually up came the shots of the House of the Dying. And it was *surprising* [my emphasis]. You could see every detail. And I said, "That's *amazing* [my emphasis]. That's *extraordinary* [my emphasis]." And I was going to say, you know, three cheers for Kodak. I didn't get a chance to say that though, because Malcolm, sitting in the front row, spun round and said: "It's divine light! It's Mother Teresa. You'll find that it's divine light, old boy." And three or four days later I found I was being phoned by journalists from London newspapers who were saying things like: "We hear you've just come back from India with Malcolm Muggeridge and you were the witness of a miracle."¹⁶

It is obvious that both Hitchens and Macmillan believe a miracle must involve a violation of physical law. It is equally obvious that no violation

of physical law occurred in this miracle. For miracle it was, but the miracle was the double *coincidence* that the new Kodak film was made available just in time for the Mother Teresa interview, and it was used for just the House of the Dying shot. The film quality was—in Macmillan's words—"surprising," "amazing," and "extraordinary." The film quality was a *wonder*, and "wonder" is just what the word *miracle* means. The effect of this new film was to make Mother Teresa into a worldwide star, and this in turn enabled her to preach the Gospel in India, an act the Indian government opposes. Hitchens makes clear in his book that it was Mother Teresa's star power which made the Indian government reluctant to shut down her operation. So we have an improbable event whose result is to allow the preaching of the Gospel. "An improbable event whose effect is to carry out God's plan for the universe" is a more exact expression of what Christians mean by *miracle*.

Mother Teresa herself always emphasized that a miracle is the action of Providence—which means God acting through natural law, pushing the universe in the direction He wishes it to go. Hitchens quotes another example:

One day Sister Frances, from the city of Agra, phoned Mother Teresa asking for urgent help.

"Mother, I need 50,000 rupees. Over here there is a crying and urgent need to start a house for the children."

Mother Teresa replied: "That is too much, my daughter. I will call you back; for the moment we have nothing." . . . A short time later the phone rang again. It was a press agency. "Mother Teresa? This is the editor of the agency. The Philippine government has just awarded you the Magsaysay Prize. Heartfelt compliments! It involves a considerable sum."

Mother Teresa: "Thanks for letting me know."

The editor: "What do you plan on doing with the 50,000 rupees from the prize?"

Mother Teresa: "What did you say? 50,000 rupees? I think the Lord wants us to build a home for children in Agra."¹⁷

The Philippine government did not violate physical law when it awarded Mother Teresa 50,000 rupees. Mother Teresa once again correctly interpreted as a miracle the coincidence that, just after Sister Frances requested 50,000 rupees of her, she was informed she had been awarded

exactly the amount requested. So, using only the evidence of Hitchens, Mother Teresa has two genuine miracles to her credit, enough to qualify for sainthood.

Another example is the Miracle of the Sun at Fatima. On October 13, 1917, a large crowd, estimated between 10,000 and 80,000 people, gathered in a field outside the small village of Fatima in Portugal because three small children had announced that there would be a miracle that day.¹⁸ The children said that they had seen an apparition of the Virgin Mary in that field once a month for several months, and that the Virgin had told them to come back at this particular time. She had promised the children she would provide evidence—a miracle—that she was indeed present, although none but the children could see her. The Monday, October 15, evening edition of a leading Lisbon newspaper, *O Seculo*, carried the headline "How the Sun Danced at Midday at Fatima."¹⁹ A photograph of the crowd at Fatima observing the solar phenomenon, taken by a photographer from *O Seculo* on October 13, appeared with the article.²⁰ There are no photographs of the solar phenomenon seen by the people at Fatima. This article, which appeared in a secular, not a Catholic, newspaper, began a huge controversy in Portugal. The Sun was seen to move in an unusual way at noon at Fatima, "danced" in the words of the headline, and this motion was seen by thousands. What actually happened?

The solar motion was localized at Fatima. No one in Lisbon, no astronomer anywhere, saw the Sun dance at noon on October 13, 1917. Some people in the crowd believed they saw the Sun fall out of the sky. Stanley Jaki has studied all available reports of eyewitnesses, and his best guess of what was seen is that the Sun rotated.²¹ That is, the Sun appeared to spin in its position in the sky. There was also a haze covering the Sun at noon, which was why people were able to look at it. The German meteorologist K. J. Stöckl has pointed out that, when the eye looks at the Sun directly, just before the light level becomes uncomfortable, the Sun appears to spin.²² This effect is definitely real.²³ Conditions at Fatima were ideal for this optical illusion to occur, so optical illusion is the most probable explanation of the Miracle of the Sun.²⁴

The movement of the Sun at Fatima would be a phenomenon of the human retina, not the Sun. No natural laws were violated in the Sun at Fatima. Nevertheless, it was a miracle, for two reasons. First, as Jaki recounts, it was an announced miracle. The announcement that a miracle would occur that day is why at least 10,000 people were at Fatima on

October 13. Second, Christianity was restored in Portugal by this miracle. In 1917 militant atheists formed the government of that country, and they wished to suppress the Catholic Church. A local government official, an atheist who believed the children were making up their story of seeing the Virgin Mary, had arrested the three children in September. After the Miracle of the Sun, the suppression of the Catholic Church was politically impossible.

The Gnostic Heresy and the History of Science

The idea that miracles violate physical law is actually a form of the Gnostic heresy, not Christianity.

The word *heresy* comes from the Greek *hairesis*, which means "choice," the implication being that one chooses the heresy, rather than it being forced on one, in the way that logic and experimental evidence force one to accept the laws of physics. I accept the laws of physics, in particular quantum mechanics and relativity, which is why I accept not only the existence of God but His Trinitarian nature. I have no choice in accepting the Trinity if I wish to follow where the laws of physics lead. Most physicists choose to abandon the laws of physics when they realize that these laws are leading to God. Most physicists, in other words, are heretics, not so much to Christianity but to science.

There are really only two great heresies to Christianity: the Arian heresy and the Gnostic heresy. The Arian heresy denies the full divinity of Jesus, and we shall discuss this heresy in more detail in Chapter 9. The Gnostic heresy is connected with the proper definition of *miracle*, so it will be discussed here. The Problem of Evil, which we shall resolve in Chapter 11, is the fundamental cause of the Gnostic heresy. The Problem of Evil is simply, Why is there evil at all? If God is all-powerful, all-knowing, and all-good, then why does He allow evil to exist? The Gnostics answer this problem by denying that God is all-powerful. Instead, they say, there are two gods, one good and one evil, who contend for power. This divine dualism is manifested in a further dualism, between matter and spirit. According to the Gnostics, the evil god created the material world. The spiritual world is the creation and domain of the good god. Our souls, being spiritual, are the creation of the good god and yearn to return to the spirit world to be with this good god. Unfortunately, our souls have been imprisoned in our material bodies by the

evil god, and thus are subject to pain inflicted by the evil in this evil material world.

The Gnostic heresy has arisen many times in the 2,000 years of the Christian era, and thus it has many names. It was first called the Marcionite heresy, after the Christian bishop Marcion, who was expelled from the Church for advancing this heresy in 144. Marcion argued that the picture of the God of creation, as conveyed in the Old Testament, was quite different from the loving God of the New Testament. The Old Testament God was a God of war, slaughtering people right and left.

Consider God's words to Moses just before He parts the Red Sea: "But lift thou up thy rod, and stretch out thine hand over the sea, and divide it: and the children of Israel shall go on dry ground through the midst of the sea. And I, behold, I will harden the hearts of the Egyptians, and they shall follow them: and I will get me honor upon Pharaoh, and upon all his host, upon his chariots, and upon his horsemen. And the Egyptians shall know that I am the LORD, when I have gotten me honor upon Pharaoh, upon his chariots, and upon his horsemen" (Exodus 14:16-18). Why is an all-good and all-loving God hardening the hearts of his children, encouraging them to rush to their deaths? Who but a god of war would want to win honor by destroying an army? Or consider the order of God as recorded in Numbers 31: "And they warred against the Midianites, as the Lord commanded Moses; and they slew all the males" (verse 7). "Now therefore kill every male among the little ones, and kill every woman that hath known man by lying with a male. But all the women children that hath not known a man by lying with him, keep alive for yourselves" (verses 17-18). How can an all-good God give such a monstrous order? How could an all-good God permit what the Israelites did after they took the city of Jericho: "And they utterly destroyed all that was in the city, both man and woman, young and old, and ox, and sheep, and ass, with the edge of the sword" (Joshua 6:21).

There are many passages like these in the Old Testament, and Marcion concluded that the god who gave such orders was innately evil. Since, according to Genesis, this god also created the material universe, he must also be evil. Marcion believed that the Old Testament was the document of this evil god, so he proposed eliminating the entire Old Testament, and much of the New, from the Christian canon. An implication of the Marcionite heresy is that the Jews, who carried out the evil orders described in the Old Testament, are servants of the evil god and

are thus themselves innately evil. The Marcionite heretics were expelled from the Church by the end of the fourth century. The sociologist of religion Rodney Stark has suggested that a majority of Christians in the first three centuries of the Church's existence were converted Jews, and that the Jews protected Christianity from the Marcionite heresy. The Christian Jews would naturally have been dubious of the claim that they were innately evil.

In the fourth century, the dualism of Gnosticism reappeared in the form of Manichaeism, originally of Persian, not Christian, origin. It was strongly opposed by the state, since Christianity had become the established religion of the Roman Empire in the early fourth century, and disappeared from western Europe by the end of the fifth century and from the eastern empire by the end of the sixth. Gnosticism appeared again in southern France in 1020, called then the Albigensian heresy, and was not suppressed until the fourteenth century. The Holy Inquisition was created in 1231 mainly to act against the Albigensians. St. Dominic founded the Dominican Order in 1215 in order to oppose intellectually the doctrines of the Albigensians, and the Inquisition was largely under the control of the Dominicans until it was abolished (or rather, renamed the Congregation for the Doctrine of the Faith) in the twentieth century.

The key feature of all these versions of Gnosticism is the dualism of two gods, one good and the master of a spiritual universe, the other evil and the creator of the material universe. According to the Gnostics, we humans are kept in ignorance of the spiritual world. We become aware of the spiritual world only through the invasion of the evil material world by denizens of the spirit world. These beings use their power of good to act in the material world, and these acts are what we call "miracles." In the Gnostic worldview, miracles really are violations of the laws of physics, since the physical laws are the laws that govern the evil material world. The Gnostics are uninterested in studying the laws or nature, or even in establishing if such laws exist, because the material world itself is of no importance to them. We are prisoners in this material world, and what is important is escaping from it and learning about our true spiritual nature and about the nature of the spiritual world created by the good god. This knowledge, for the Gnostics, is the only true knowledge, and this secret knowledge of spiritual reality gives them their name: *gnosis* is Greek for "knowledge."

St. Augustine, who was briefly a Manichaean himself, in his book ti-

tled *Against the Manichaeans*, makes clear why he wished to emphasize that a miracle does not violate the laws of nature: the material world in the Christian worldview was the creation of God, who knew what He was doing. God never has to act contrary to His own creation. To suggest that He does act contrary to His own creation is to suggest that it is not really His creation but the creation of another god of equal power, and thus we are forced into the Gnostic worldview. No! Spiritual reality and material reality are equally creations of the One God, and totally subject to Him, Who is unchanging. His Will is forever constant and dependable. His laws never change, just as His Will never changes. Furthermore, since His laws are His direct creation, studying His natural laws is as pious an act as studying the Bible.

If God can change His mind about His law, then salvation from Jesus' death on the Cross is at risk. God may change, without informing us, the rules about what is necessary to obtain salvation. On the contrary, God's law is eternal and never changing. Some Christians may wish to believe that there is a distinction between moral law and natural law, but the Church has always held that there is no distinction, and in fact it has always attempted to derive moral law from natural law. I shall argue in Chapter 7, where I discuss the Immaculate Conception, that there is indeed no ultimate distinction between moral and natural law. All moral judgments are really judgments about matters of fact. The value-fact distinction does not exist.

Related to the Gnostic heresy is the claim that there cannot be any laws of physics, because even saying that there are laws limits God's power to do as He wills. In practice, this is the same as saying that God can set aside the laws of physics whenever He wishes, and that to say He never will set aside the physical laws is to limit God's power. Pope Urban VIII, in a private conversation with Galileo, used precisely this argument in his rejection of the Copernican system. As Galileo summarized this argument in his *Dialogue on the Great World Systems* (the argument was presented by "Simplicio," the defender of the geocentric worldview):

I know that both of you, being asked whether God, by His infinite power and wisdom, might [generate effects by a means other than in your theory] that you would answer that He could, and also that [He] knew how to bring it about in many ways, and some of them above the reach of our intellect. Upon which I forthwith conclude

that, this being granted, it would be an extravagant boldness for anyone to go about to limit and confine Divine power and wisdom to some one particular conjecture of his own.²⁷

Urban VIII was speaking off the cuff, and indeed, his argument was heretical (as he himself later admitted). This argument would undermine the orthodox Christian view that nature is the rational creation of a rational God and, incidentally, make the scientific study of nature impossible. Earlier in the *Dialogue*, Galileo had refuted this argument:

Surely, God could have caused birds to fly with their bones made of solid gold, with their veins full of quicksilver, with their flesh heavier than lead, and with wings exceedingly small. He did not, and that ought to show something.²⁸

There is a passage in the Qur'an (6:64) that has been interpreted by most traditional Muslims to mean that there cannot be any laws of physics because having unchangeable laws would limit God:

The Jews have said, "God's hand is fettered." Fettered are their hands, and they are cursed for what they have said. Nay, but His hands are outspread; He expends how He will.²⁹

The word *fettered* can also be translated as "chained."³⁰ In other words, if there exist laws of physics that are never altered, then God would be constrained by the very existence of these laws. Instead, the Will of God must be entirely unconstrained, and He must be viewed as free to change the laws of physics from moment to moment. Further, there is a curse on the head of anyone who dares to claim that the laws of physics are fixed and unchanging. Such a worldview does not encourage the search for unchanging physical laws.

In fact, it actively discourages the very idea of physical laws. In 1982, the Institute for Policy Studies in Islamabad, Pakistan, recommended that science textbooks be modified to emphasize that all change was due not to the action of physical law but to God:

There is latent poison present in the subheading *Energy Causes Changes* because it gives the impression that energy is the true cause rather than Allah. Similarly it is unIslamic to teach that mix-

ing hydrogen and oxygen automatically produces water. The Islamic way is this: when atoms of hydrogen approach atoms of oxygen, then *by the Will of God* water is produced.²⁷

The implication being that God may change His mind in the next instant, and water would not be produced. The Muslim theologian Abu Hamid Mohammed al-Ghazali (1058–1111), famous for making Sufism (Muslim mysticism) part of orthodox Islam, wrote a book, *The Inconsistency of the Philosophers*, attacking the idea of cause and effect, and hence arguing that scientific knowledge is impossible. Rather than follow natural philosophers (scientists) and say that fire burns cotton:

This we deny, saying: the agent of the burning is God, through His creating the black in the cotton and the disconnection of its parts, and it is God Who made the cotton burn and made it ashes either through the intermediation of the angels or without intermediation. For fire is a dead body, which has no action, and what is the proof that it is the agent? Indeed the philosophers [scientists] have no other proof than the observation of the occurrence of the burning, when there is contact with the fire, but observation proves only a simultaneity, not a causation, and, in reality, there is no cause but God.²⁸

Sufi theologians followed al-Ghazali and insisted that physical laws did not exist because God destroys and re-creates the universe from one instant to the next.²⁹ In my own rather extensive studies in Islam, I have never been able to find a single significant scientific discovery made in the entire history of Islamic civilization up to the twentieth century. The examples in the literature of Islamic scientific achievements are essentially trivial. All modern physics and astronomy descends from the work of the Christians Galileo (1564–1642) and Copernicus (1473–1543), who effectively ignored the “work” of Islamic “scientists” and instead started with the work of the Greeks Archimedes (290–211 B.C.) and Ptolemy (A.D. 100–170), respectively. From the point of view of science, Islamic civilization did not exist. I attribute this fact to the Islamic theological doctrines against the idea of experimentally confirmed natural law just quoted, combined with the fact that, throughout Islamic history, anyone disagreeing with the prevailing theology has been regarded

as an apostate, and the overwhelming number of Islamic jurists have agreed: the penalty for apostasy is death. No one is going to search for the laws of nature if even suggesting they exist makes him or her subject to the death penalty. A conference of seventeen Arab university presidents was held in Kuwait in 1983. The major topic of discussion was “Is science Islamic?” The Saudi delegation argued that science is not, being intrinsically secular and, hence, automatically against Islamic beliefs.³⁰

There is a (false) tradition, possibly originating with Christian critics of Islam, that when Muslim armies took the Egyptian capital city of Alexandria, the head of the Muslims, the second Caliph Omar (‘Umar ibn al-Khattab, 586–644), ordered that the books in the library be burned to heat the bathwater of the Muslim soldiers. If the books disagreed with the Qur’an, they were heretical, and if they agreed with the Qur’an, they were superfluous. In either case, they should be destroyed. In reality, the Great Library of Alexandria ceased to be mentioned by eyewitnesses after about 100 B.C., and there are no entries in the list of head librarians after that time, so probably the library ceased to exist by 100 B.C.,³¹ possibly destroyed in the chaotic reign of the Egyptian king Ptolemy VIII, known to history as Ptolemy the Psychotic. (I’m not kidding, this really was the title given to him by Greek historians after his death; *psychon* was the word they used; “hostile” is another possible translation.) So neither the Christians (as has often been charged) nor the Muslims were responsible for the destruction of the Great Library. The claim that religious fanatics burned the library is a myth. But there was a crucial difference between the Christian and Muslim responses to this myth. Christians felt the need to apologize; many Muslim scholars, believing the myth, quoted it with approval. Indeed, books disagreeing with the Qur’an should be destroyed, and there is no need to read any book outside the Qur’an.

There is one exception to the rule that there were and are no significant Muslim scientists: Mohammed Abdus Salam (1926–1996). Salam was one of the main creators of the Standard Model of particle physics, a theory that is absolutely central to this book. I described the Standard Model in Chapter 2, and as we shall see in Chapter 8, it is crucial in understanding how the Resurrection of Jesus was accomplished. Salam deservedly received the Nobel Prize in physics in 1979 for his work on the Standard Model, and his idea that quantum gravity can make quantum

field theory finite is crucial to the Omega Point theory of the Ultimate Future, though too technically complex to describe here.³² Salam was a Muslim in the sense that he called himself a Muslim, and all who knew him are convinced that he was completely sincere in thinking himself a Muslim.

Salam is the exception who proves the rule. By an act of the Pakistani Parliament in 1974, the Ahmadi sect of Islam, to which Salam belonged, was declared heretical and subject to persecution.³³ Salam's coauthor of *Islam and Science*, Pervez Hoodbhoy, reported on his website in 2002: "My next-door neighbor, an Ahmadi, was shot in the neck and heart and died in my car as I drove him to the hospital. His only fault was to have been born in the wrong sect."³⁴ Salam himself left his native Pakistan in the 1950s, realizing that, in that country, doing serious physics would be impossible. Had Salam remained in Pakistan and nevertheless achieved what he eventually achieved as a physics professor at the University of London, he would have become the most prominent Ahmadi in Pakistan, and as such, he would probably have met the fate of Hoodbhoy's neighbor.

Muzaffar Iqbal, in a book also entitled *Islam and Science*, does not once mention the greatest Islamic scientist of all time, Abdus Salam, even though the book was written in 2002, largely to counter the book by Hoodbhoy and Salam, and claimed to be a detailed examination of the scientific achievements of Islam. Iqbal mentions only Hoodbhoy. Salam is a heretic, and hence not a Muslim. In their book, Hoodbhoy and Salam show that virtually all Muslim scientists now regarded as significant were persecuted in their own times. Like contemporary defenders of Islam, the French physicist and Roman Catholic Pierre Duhem (1861–1916) tried to prove that the Christian scholars of the Middle Ages made important contributions to physics, for example, by introducing the concept of inertia. Neither the Muslim scholars of the so-called Golden Age of Islam (roughly 700–1100) nor the medieval Christian scholars made any significant contribution to physics. As I pointed out earlier, neither Copernicus nor Galileo was aware of these "significant contributions."

Nevertheless, modern science was a creation of Christian civilization. The creative period of Greek physics and astronomy ended about 100 B.C. This end date is important, because it is occasionally claimed that it was the rise of Christianity that ended Greek science. Not so, as the following list of Greek physicists and astronomers and their dates show:

Pythagoras of Samos (580–500 B.C.), the first great Greek mathematician. His school discovered the theorem bearing his name and established the existence of irrational numbers.

Socrates (470–399 B.C.)

Plato (428–347 B.C.), the philosopher who believed all physics should be based on mathematics

Theaetetus of Athens (417–369 B.C.)

Eudoxus of Cnidus (395–337 B.C.)

Aristotle (384–322 B.C.), the philosopher who argued that motion cannot be described by mathematics. Galileo's main opponents were followers of Aristotle.

Euclid of Alexandria (f. 323–285 B.C.)

Aristarchus of Samos (f. 310–230 B.C.), the first to propose a heliocentric solar system

Archimedes of Syracuse (290–211 B.C.)

Apollonius of Perga (260–190 B.C.)

Hipparchus of Nicaea (200–127 B.C.)

Hypsicles of Alexandria (190–120 B.C.)

End of Greek science's creative period (c. 100 B.C.)

(End of the Great Library at Alexandria)

Hero of Alexandria (f. A.D. 60)

Ptolemy of Alexandria (A.D. 100–170)

Diophantus of Alexandria (f. A.D. 250)

Pappus of Alexandria (f. A.D. 320)

Hypatia of Alexandria (A.D. 370–415), killed by a Christian mob

These dates indicate that the listed mathematicians and physicists—in Greek times, there was no difference—overlapped with and could have known one another. In some cases, we know that they did know one another and were related teacher to pupil, as I was the postdoctoral student of John A. Wheeler (the man who named the black hole and whose most famous student was Richard Feynman). Wheeler was in turn the postdoc of Niels Bohr, who was the postdoc of Ernest Rutherford, who discovered the atomic nucleus, and J. J. Thomson, who discovered the electron. By 100 B.C., the overlap ceased, and Greek science with it. One of my teachers when I was an undergraduate, the historian of science Giorgio de Santillana, the greatest Galileo scholar of his generation, has given several reasons for the fall of Greek science (he gives 200 B.C. as the ending date).³⁵ Chiefly, the reasons were (1) the bureaucratization of

science with the rise of the Hellenistic empires, begun by Alexander the Great and ending with the Roman Empire, and (2) the rise of the Gnostic mystery cults, which undermined the idea that the material order was a road to ultimate knowledge.

There were no intellectual barriers preventing modern science from beginning development in 100 B.C. Basically, all Copernicus did in 1543 was restate the geocentric universe of Ptolemy in a heliocentric frame of reference. (This was not as easy as it sounds; it took a first-rate mathematician to do it. But mathematical genius the Greeks had, and all the ideas Ptolemy used had been developed by 100 B.C. Ptolemy was a textbook writer, not an original mathematical astronomer.) Aristarchus of Samos had written a book (now lost) by about 300 B.C. describing mathematically a heliocentric solar system. Copernicus even used Ptolemy's observational data, data available long before 100 B.C.

The Dutch historian of science H. Floris Cohen has given a particularly striking example of how easy it should have been for the Greeks to begin modern science in 100 B.C.³⁸

The Greeks knew well before 400 B.C. that if a vibrating string's length were cut in half, the tone would be raised an octave. The fifth corresponded to a 2:3 length ratio, and so forth. Also long before 100 B.C., the Greeks had two theories of sound, one that it is a vibration of the air (the correct explanation), and the other that it consists of some sort of particle transfer. But it was not until A.D. 1563 that the Italian Giovanni Battista Benedetti (1530–1590) developed in a mere forty-line paragraph the modern theory that the wavelength of the sound wave equals the length of the string, making for the first time a quantitative connection between the ancient theory of sound and the ancient theory of musical sound. The Greeks had all the necessary ideas, but they never made the connection, obvious as it seems to us.

If bureaucratization of science and the growth of Gnosticism are the reasons for the end of Greek scientific development, then our own civilization is gravely at risk. At the end of the nineteenth century, there began an interest in the occult, a trend that has been steadily increasing in Western civilization to the present day. A manifestation of this wide interest is the huge worldwide success of the Harry Potter fantasy novels. These novels develop the full implications of the Gnostic dualist worldview: there is the mundane world of physics, inhabited by ordinary people subject to these laws, and a hidden magical world, inhabited by wizards and witches who are capable of manipulating the more power-

ful, and spiritual, power of magic. Harry Potter himself is a young wizard who is attending Hogwarts, a school for the training of wizards and witches. Ordinary people, given the derogatory name "Muggles" by the wizard community, are unaware of the magical world. Worse, the magicians always defeat the Muggles when the former come into conflict with the latter. Not surprisingly, the wizards—even the "good" wizards such as Harry Potter and his mentor, Albus Dumbledore, the headmaster of Hogwarts—treat ordinary, nonmagical people as inferiors whose feelings need not be considered. The Gnostic leaders held a similar view of ordinary people.³⁹ The medieval Gnostics called themselves the *Cathars* (Greek for the "pure"), and their leaders were called the *Perfecti*.⁴⁰ Needless to say, neither the wizards in the Harry Potter fantasy nor any of the Gnostics who have arisen over the past twenty centuries have expressed an interest in learning the science of the natural world. There is no course in physics or chemistry at Hogwarts, and the only astronomy course is devoted to astrology. Interest in magic drives out interest in natural science.

The early Roman Catholic Church, following the lead of St. Augustine, opposed witchcraft and magic, not because it was the work of the Devil but because it did not exist! St. Boniface (675–754), the Wessex Saxon who began the conversion of Germany to Christianity, wrote that it was "unchristian" to believe in witches and werewolves.⁴¹ The emperor Charlemagne (742–814) in 785 imposed the death penalty on anyone who burned witches at the stake, on the grounds that such burning was a "pagan custom."⁴² In 820, St. Agobard, Bishop of Lyon (769–840), claimed the idea that wizards could cause bad weather was nonsense. Catholic disbelief in witches was codified for centuries thereafter as official Church law in *Canon Episcopi*, which stated that claims of broomstick flying and human-animal transformation were hallucinations, and whoever believed in them was "beyond doubt an infidel and a pagan."⁴³ Coloman (1070–1116), king of Hungary from 1095, refused to establish laws against witches, "since they do not exist."⁴⁴ John of Salisbury (1115–1180), the secretary of St. Thomas à Becket, the archbishop of Canterbury who was assassinated in his cathedral by supporters of Henry II, contended that the idea of a witches' Sabbath was a fable.⁴⁵

Alas, Roman Catholic disbelief in the power of witchcraft was not to last. In 1484, Pope Innocent VIII (1432–1492) issued the bull *Summis Desiderantes Affectibus*, wherein he denounced the increase of witchcraft in Germany and authorized the Dominican inquisitors Heinrich In-

stitor and Jakob Sprenger (who happened to be his sons) to suppress it.⁴⁴ Two years later, Institor and Sprenger published the first great encyclopedia of witchcraft, *Malleus Maleficarum*, meaning "The Hammer of Witches." The Church had completely reversed itself, for the subtitle of *The Hammer* was "to disbelieve in witchcraft is the greatest of heresies."⁴⁵ What had caused this radical change between the twelfth and fifteenth centuries?

For one thing, the Great Plague, or Black Death, which between 1347 and 1351 killed about a third of the European population, inspired a huge rise in the belief that demonic powers were active in the world. However, natural disasters, even on the scale of the Great Plague, would not have led to the belief that demons, acting through witches, caused the catastrophes unless the intellectual case had already been made for the belief. This case had been made by the Dominican friar St. Thomas Aquinas (1225–1274) in his greatest work, *Summa Theologica*. Aquinas had based his theology, including his theory of miracles, on Aristotelian physics, which, as we have seen, did not allow crucial Christian miracles such as the Virgin Birth and Jesus' Resurrection. So Aquinas modified the standard Augustinian view of miracles. Miracles for Aquinas involved God overcoming Aristotelian law. If the supernatural power of God set aside the normal course of nature, then the natural course of nature could also be set aside by the action of demons, who could be invoked by people: witches and wizards. The Old Testament commandment "Thou shalt not suffer a witch to live" (Exodus 22:18),⁴⁶ earlier interpreted as imposed because believing oneself to have magical powers from the Devil was equivalent to believing the Devil equal to God in power (i.e., believing in the Gnostic heresy), was now interpreted as a commandment to destroy the vessel of the Devil's power.

The alert reader will have noticed that the Dominican Order was founded to combat the Gnostic heresy in its medieval form, yet in the end, it was the Dominican Order that played a major role in persuading the Catholic Church to accept the existence of witches, in effect accepting Satan's power as equal to God's, which is the essence of the Gnostic heresy. In the end the Dominican Order came to defend what it had been created to fight. The historian H. R. Trevor-Roper opines that this evolution was due in part to the close association with the Gnostic heretics.⁴⁷ In hearing repeated confessions (under torture) by wizards and witches, the inquisitors started to believe that where there's smoke,

there's also fire. But I think the powerful pull of Gnostic philosophy also was a significant effect. The heresy must have deep roots in the human psyche or it would never have reappeared again and again in history. In the absence of a convincing solution to the Problem of Evil, it is only too easy to believe in an evil god of equal power to the good God.

Fortunately, the old belief that magic did not exist, that natural law was the unchanging Word of God, had sufficient inertia to inspire the first scientists, Copernicus (1473–1543) and Galileo (1564–1642). Note that Copernicus was ten years old when Innocent VIII promulgated his witchcraft bull. The idea that a personal God has decreed the unchanging laws of nature is unique to Judaism and Christianity, and there is strong evidence that this is why modern science arose in the Christian West. Stanley L. Jaki and Rodney Stark have written books arguing that Christianity and its idea of unchanging natural law arising from an unchanging God was essential for the development of modern science.⁴⁸ Jaki is a Catholic priest, and Stark is an Evangelical, so one might be tempted to suspect a bias toward Christianity in these scholars. However, the Chinese Academy of Social Sciences of the People's Republic of China came to a similar conclusion in 2002:

One of the things we [the Chinese Academy] were asked to look into was what accounted for the success, in fact, the pre-eminence of the West all over the world. We studied everything we could from the historical, political, economic, and cultural perspective. At first, we thought it was because you had more powerful guns than we had. Then we thought it was because you had the best political system. Next we focused on your economic system. But in the past twenty years, we have realized that the heart of your culture is your religion: Christianity. That is why the West has been so powerful. The Christian moral foundation of social and cultural life was what made possible the emergence of capitalism and then the successful transition to democratic politics. We don't have any doubt about this.⁴⁹

Joseph Needham, author of the monumental series *Science and Civilization in China*, may have influenced the Chinese academicians. Needham believed that the Chinese never developed modern science because they lacked the idea of unchangeable physical law, and they did not have this idea because they lacked the idea of an unchangeable Lawgiver, that is,

a personal God.⁵⁰ Modern Chinese scholars have always been open to Needham's opinions, because Needham was a very rare Westerner: a Marxist, Maoist Christian.

In astronomy, the main intellectual barrier to the Copernican system was the belief, thanks to Aristotle, that the Moon, planets, and stars were subject to different laws than the Earth. Terrestrial objects were made up of different proportions of earth, water, air, and fire (the four terrestrial elements), while the heavenly bodies were made up of the fifth element, the quintessence. This fifth element, also called *ether*, was superior to the four mundane materials, because it underwent no change. A Christian philosopher, John Philoponus (490–570), challenged this view on the grounds that everything except God underwent change, and the heavenly bodies were no exception.⁵¹ Everything in existence was subject to the same physical laws. This is essential to the Copernican system, because the Earth is the third planet from the Sun and hence must be subject to the same laws as the other planets. Unfortunately, by the sixth century, there were no astronomers alive with sufficient ability to resurrect Aristarchus's model and fit it to the Christian worldview.

However, Christianity has been considered an opponent of science because of the condemnation of Galileo for heresy by a Dominican tribunal. Indeed, Galileo was condemned, but the truth about what happened is almost the opposite of what is generally believed. Stillman Drake, the leading Galileo scholar of the past thirty years,⁵² and Giorgio de Santillana, my own teacher and the leading Galileo scholar before Drake, have set the record straight. Drake has pointed out that Galileo's actions make no sense unless one first realizes that he was a Catholic zealot—the term used by Galileo and his friends; in current terminology, Galileo was a Catholic fundamentalist.⁵³ Like all fundamentalists, Galileo believed in Bible inerrancy, and he believed that the events described in the Bible make more sense in modern physics and Copernican astronomy than they do in the physics of Aristotle. The first chapter of Genesis, for example, has always been interpreted to say that the universe had a beginning, whereas in Aristotle the universe has always existed. This inconsistency made great difficulties for St. Thomas Aquinas, who wished to base Christian theology on Aristotle's physics. Galileo hoped to persuade the Church to adopt modern physics, but he was afraid the philosophers, whose jobs at the universities depended on the Church's acceptance of Aristotle, would try to prevent this change.

The philosophers (in modern terminology, scientists) succeeded. They arranged for Galileo to be tried for heresy, a crime of which he was innocent. We have the records of the trial.⁵⁴ The charge was made to Galileo, and he produced a document that would conclusively prove his innocence. The trial was immediately recessed. The next day Galileo confessed his guilt. Why?

The Galileo trial is similar to the war crimes trial of the Japanese general Hideki Tojo after World War II. The American plan after the war was to picture the Emperor Hirohito as the ignorant tool of powerful Japanese warlords. The Japanese people had been indoctrinated to believe they existed to serve the emperor, who was the symbol of Japan. By blaming the crimes committed by the Japanese armed forces on the warlords, the emperor could escape responsibility, and the Americans could rule Japan through the emperor. Fifty years later there is considerable evidence that Hirohito knew and approved of what his army was doing. But if this evidence had gotten out to the American people, they would have demanded that Hirohito be tried for war crimes also, ruining the American government's plan. In his trial, Tojo made the remark "Of course the Emperor knew what we generals were doing." A recess was immediately called. The next day Tojo testified that the emperor was kept in the dark about the army's war crimes. Almost certainly an American attorney told Tojo that if he testified the emperor knew and approved the war crimes, the emperor would be tried also and would probably be sentenced to hang. Tojo was going to be condemned whatever he said, but if he testified the emperor did not know, the emperor would be safe. Tojo was a loyal Japanese, taught to serve the emperor. By lying under oath, he could protect what he had sworn to protect, his emperor.

Galileo was a Catholic fundamentalist. If a Dominican privately told him that the Church's image would be harmed if he protested his innocence, he would confess to the charge of heresy, which in this case just meant that he had disobeyed an order not to discuss the Copernican theory. He confessed to this minor charge and suffered a nervous breakdown when he was sentenced to house arrest for life. In point of fact, the Catholic Church, and Christianity in general, would have been better off if he had proven his innocence. The importance of the Christian worldview for science would have been generally appreciated.

But if indeed the Christian worldview was responsible for the birth and growth of modern science, can modern science survive if Christian

belief disappears? Atheism has in the past few decades replaced Christianity as the primary belief among the faculty at American research universities,⁵⁵ so we shall soon find out. In his 1937 inaugural address as incoming president of Yale University, Charles Seymour said, "I call on all members of the faculty, as members of a thinking body, freely to recognize the tremendous validity and power of Christ in our life-and-death struggle against the forces of selfish materialism. If we lose that struggle, judging from present events abroad, scholarship as well as religion will disappear."⁵⁶ In his 1951 book, *God and Man at Yale*, William F. Buckley, Jr., the founding editor of the conservative magazine *National Review*, claimed that Christianity was being deemphasized at Yale. The reaction of the Yale administration and faculty at the time was to deny it.⁵⁷ Fifty years later, is there any doubt that Christianity has disappeared as a significant force, not only at Yale but also at all the major American universities? Today it is hard to remember that Harvard was originally established to train Episcopal ministers; Princeton, Presbyterian ministers; Yale, Congregationalist ministers. The University of Chicago was once a Baptist university.

There are many disquieting signs that Yale's President Seymour was correct: with the disappearance of Christianity from the universities, scholarship is also disappearing. The decay of belief in an unchanging God is now being followed by the decay in belief in the existence of unchanging physical law underlying the natural world. The daily newspapers are full of absurd statements made by humanities and social science faculty at the elite universities, fully justifying George Orwell's statement that some ideas are so stupid only an intellectual could believe in them.⁵⁸ Irrationality in the humanities is often termed *postmodernism*. However, in this book I am concerned only with the effect of the decay of Christian belief on the natural scientists.

In 1962, the very year Richard Feynman discovered the correct theory of quantum gravity, the philosopher Thomas Kuhn (1922–1996) published his book *The Structure of Scientific Revolutions*, the first great attack on the idea that the physical laws exist. Kuhn's theory was and is enormously influential. I know: when I was a postdoc at Berkeley in the late 1970s, Kuhn filled the largest auditorium on campus when he came to lecture on his theory. He claimed that a scientific revolution occurs by the replacement of one "incommensurable" theory by another. The older theory is based on one "paradigm," or worldview, and the newer on another paradigm, and there is essentially no overlap

between the paradigms of the two theories. Thus, the newer theory cannot be said in any sense to approach more closely the true laws of physics. The experimental evidence that supposedly persuaded physicists to replace the older theory with the new was actually incidental. The real reason physicists accepted the new theory was aesthetic—spiritual—namely, they found its paradigm more intellectually appealing. Since the newer theory does not approach reality more closely than the older theory, we cannot say that there is any evidence that true and fundamental laws of physics even exist.

Kuhn's examples were all taken from the (then) recent history of physics, primarily the replacement of classical Newtonian mechanics with quantum mechanics and general relativity. Forty years later, we can say with assurance that Kuhn did not understand the true relationship between the old and the new physics. I described that correct relationship in Chapter 2. Kuhn insisted on comparing classical mechanics in its simplified, more primitive single-universe formulation with the full multiverse formulation of quantum mechanics. This is comparing apples with oranges. To compare classical and quantum mechanics correctly, one must compare classical mechanics in *its* multiverse formulation—Hamilton-Jacobi theory—with quantum mechanics. Then and only then can one see that they are based on the identical paradigm, the multiverse. Similarly, to compare Newtonian gravity theory with Einsteinian gravity theory—namely general relativity—correctly, one must first formulate Newtonian gravity theory in its most powerful form: Cartan curvature theory. Then one sees that Newtonian gravity and Einsteinian gravity are based on the same paradigm: gravity is curvature.

Unfortunately, most physicists at the elite research universities are unwilling to accept the unique paradigm and the unique theory indicated by experiment and mathematical consistency. They want instead to impose their own aesthetic principles on physics, and to the Devil with experiments. Instead of the unique Theory of Everything discovered some thirty years ago, they insist that nature must obey "supersymmetry" theory, usually in the form of superstring physics, or brane physics. *Supersymmetry* is a mathematical transformation of bosons into fermions—of integer spin particles into half-integer spin particles—and vice versa. A necessary implication of a supersymmetric theory is that each particle we actually observe must have a "superpartner": for each boson—the gluon, say—there must exist a fermion with similar properties, the gluino. For each fermion—the electron, say—there must

exist a boson, the selectron, with properties otherwise similar to those of the electron (except for mass). The experimental problem with this proposal is that no supersymmetric particle has ever been detected. I have heard innumerable times, "We have discovered *half* of the particles predicted by supersymmetry, we only need to search for the other half." By *half* these "physicists" are referring to the known particles, not to their supersymmetric partners. By the same logic, we can say we have observed Cornish pixies. That is, we have observed their home, namely Cornwall. We need now only to search a little bit more before we observe the pixies themselves. In reality, there is no evidence whatsoever for pixies, and no evidence whatsoever for supersymmetry. If there is no supersymmetry, there are no supersymmetric strings, or branes. To argue that supersymmetry exists on the basis of mathematical beauty rather than on the basis of material experimental evidence is a secular version of the Gnostic heresy.

Of course, the superstring theorists deny that mathematical beauty is their main reason for working on supersymmetry. They claim an experimental justification, namely the absence of a consistent quantum gravity theory. This claim is nonsense. Richard Feynman discovered a consistent (*renormalizable* is the technical term) theory of quantum gravity forty years ago, and this theory is essentially unique. However, the superstring theorists find the Feynman theory "spiritually" unacceptable because it necessarily has a cosmological singularity. Thus we come to the real reason why many modern physicists find standard quantum gravity unacceptable: *it implies the existence of God!* If the existence of the Cosmological Singularity—God—is accepted, then it becomes mathematically possible to transform the renormalizable theory of quantum gravity into a theory that not only is term-by-term finite but, in addition, has a finite power series in the coupling constants. In effect, infinities that would otherwise occur in the laboratory are transferred to the Cosmological Singularity. In other words, God stabilizes the multiverse, thereby preventing it from collapsing into nonexistence. But for secularists, God must be eliminated at all costs. If necessary, they are willing to abandon experimental science itself.

But the most pernicious form of Gnostic dualism in modern science is not superstring theory but Darwinism. The idea of evolution in the sense of common descent is completely consistent with Christianity; theologians made this clear in the nineteenth century, and it has been confirmed in recent times by Popes John Paul II and Benedict XVI. A

comparison of the DNA in chimpanzees and humans indicates that the two species had a common ancestor between 5 and 6 million years ago, and were we to see this common ancestor, we would probably call it an "ape." Furthermore, all metazoans—living beings made up of more than one cell—had a common ancestor, a single-cell organism, approximately 2 billion years ago. This fits nicely with the creation account in Genesis 2:7: "And God formed man out of the slime of the Earth." Being descended from an ape is better than being descended from slime, but indeed our one-cell ancestor was slime. However, Darwinism goes beyond the fact of common descent and claims that the mechanism was natural selection acting on "random" variation. There is no objection to natural selection, but the idea that evolution has no goal and is undirected—in short, is "random"—is an attack on Christian theology at its heart.

It is also an attack on the central foundation of physics. Newtonian physics was based on determinism: given the state of the universe at one time, the laws of physics would uniquely determine the state of the universe at all other times. However, as I pointed out in Chapter 2, the mathematical physicists of the late nineteenth century discovered that Newtonian physics in its most powerful form, Hamilton-Jacobi theory, was not fully deterministic as originally expressed. This difficulty was resolved in 1926 by Erwin Schrödinger, who added a term itself subject to a second equation to the Hamilton-Jacobi equation, and the pair of equations was equivalent to what we now call Schrödinger's equation, which is completely deterministic and, as a bonus, correctly describes the behavior of atoms and molecules. The history of physics, in other words, can be understood as the development of the full implications of determinism. As I emphasized in Chapter 2, determinism in quantum mechanics is called *unitarity*, and unitarity means that we can think of determinism as acting from the ultimate future backward in time. The evolution of matter is fundamentally teleological. What matter does in the present is constrained by the fact that it must evolve into the Omega Point, the Final Singularity, which is the First Hypostasis of the Cosmological Singularity.

In particular, unitarity requires that intelligent life must necessarily evolve independently on planets around stars several billion light-years apart in order that these intelligent life-forms can cancel the acceleration of the universe, which would otherwise destroy unitarity. The Cosmological Singularity in effect has always been directing the variations that have appeared in the genome of the biosphere, and has been direct-

ing which individuals actually mate. The term for this in Christian theology is *God's Providence*. Christians can never abandon trust in God's Providence. Physicists can never abandon trust in unitarity.

In the last two pages of his 1868 book, *The Variation of Animals and Plants Under Domestication*, Charles Darwin (1809–1882) eloquently described the central contradiction between his theory of evolution and the determinism of physical law, although he expressed the contradiction in terms of theology:

And here we are led to face a great difficulty, in alluding to which I am aware that I am traveling beyond my proper province. An omniscient Creator must have foreseen every consequence which results from the laws imposed by Him. . . . If we assume that each particular variation was from the beginning of all time preordained, the plasticity of organization, which leads to any injurious deviations of structure, as well as that redundant power of reproduction which inevitably leads to a struggle for existence, and, as a consequence, to the natural selection or survival of the fittest, must appear to us superfluous laws of nature. On the other hand, an omnipotent and omniscient Creator ordains everything and foresees everything. Thus we are brought face to face with a difficulty as insoluble as is that of free will and determinism.⁵⁹

We shall see in Chapter 11 how to resolve the conflict between free will and determinism, and Darwin showed great insight when he connected the resolution to the Problem of Evil. But Darwin is also correct in pointing out that his proposal for the mechanism of evolution, natural selection acting on “random” variation, is inconsistent with physical determinism of all events in the multiverse. I am in complete agreement with Albert Einstein, who said in response to the claim that there is a fundamental indeterminism, or “randomness,” in nature: “That nonsense is not merely nonsense. It is objectionable nonsense.”⁶⁰

Darwinists are ultimately responsible for introducing this objectionable nonsense into physics by their unfortunately successful efforts to change the meaning of the word *probability*. The great French mathematical physicist Pierre-Simon de Laplace (1749–1827) made *probability* mathematically rigorous by defining it as a measure of human ignorance. In Chapter 2, I showed how probability arises in quantum mechanics, a consequence of human ignorance of the existence of the

other universes of the multiverse. Probability was introduced in quantum mechanics by Max Born (1882–1970) in the 1920s. However, Born did not interpret probability as human ignorance. Instead, he believed it to be a frequency: if the spin, for example, of the electron were measured repeatedly, the probability that the spin is up is the ratio of the number of times it is measured to be up to the number of times it is measured. Furthermore, the true probability is measured only if the spin of the electron is measured an infinite number of times. It is possible, though improbable, that an electron whose wave function corresponds to being spin-up in half of the universes nevertheless measures spin-up in five consecutive measurements.

The problem with the frequency interpretation from the scientific point of view is obvious. It is not possible to carry out an infinite number of measurements. The human ignorance definition of probability does not have this difficulty. Pierre de Laplace, Carl F. Gauss, Augustin-Louis Cauchy, and Simeón-Denis Poisson, the four greatest mathematical physicists of the late-eighteenth and nineteenth centuries, developed the human-ignorance interpretation of probability. Why were Born and the other physicists of the early twentieth century unaware of their work?

Darwinism needed a different interpretation of probability. According to Darwin's theory of evolution, species evolve by natural selection acting on “random” variation. The words *random* and *chance* are synonyms for whatever it is that probability measures. Suppose that “probability” indeed was a measure of human ignorance. Then a typical Darwinian explanation would read: “Approximately 200 million years ago, mammals evolved from therapsid reptiles by means of natural selection acting on *human ignorance*.” Expressed in this way, Darwinism is obvious nonsense. But were “chance” seen to be an ultimate feature of reality, if such “chance” replaced “human ignorance” in the preceding sentence, then Darwinism would be a possible theory. So beginning in the middle of the nineteenth century, Darwinians went to work on the theory of probability. John Venn, Karl Pearson, and Sir Ronald Fisher created a new theory of probability, based on frequency and not human ignorance. Darwinism made sense in this new theory. Its creators, particularly Pearson and Fisher, were also convinced Darwinians. This frequency theory negatively influenced the development of physics because it delayed the acceptance of the multiverse interpretation of quantum mechanics for at least half a century.⁶¹

There is no “chance” in reality. The time evolution of the universe is unitary. This means that the multiverse has a goal, the universe has a goal, and each atom has a goal in the Ultimate Future. Since animals and plants are made up of atoms and are small parts of the universe, they also have goals. One goal of the biosphere on Earth is to give rise to intelligent life so it can expand out and cancel the acceleration. In Chapter 11 we shall see the purpose of the other life-forms, those that have no obvious role in generating intelligent life. Cardinal Christoph Schönborn, the archbishop of Vienna, in a controversial 2005 *New York Times* op-ed piece, defended the traditional Christian view that evolution of body forms is consistent with the Bible—there is nothing unchristian about chimps and humans having a common ancestor 5 million years ago—but Darwinism is not: “An unguided evolutionary process—one that falls outside the bounds of Divine Providence—simply cannot exist.” Physics says exactly the same: there is nothing in reality that is outside unitary time evolution: Final Cause. To accept chance as an ultimate is to accept human ignorance as an ultimate. In the words of Cardinal Schönborn, “In the modern era, the Catholic Church is in the odd position of standing in firm defense of reason as well. . . . Scientific theories that try to explain away the appearance of design as the result of ‘chance and necessity’ are not scientific at all, but as John Paul put, an abdication of human intelligence.”⁶²

Can science itself survive an “abdication of human intelligence”? If science was born from a Christian worldview, can it survive if a Christian worldview disappears from people who hold the title “scientist”? There is considerable evidence that it cannot. We have seen that Greek science disappeared in 100 B.C. even though Greeks with the title “scientist” (natural philosopher or mathematician) continued for several hundred more years. Superstring theory has replaced experimental physics in physics departments worldwide. The life expectancy of a white male who reaches the age of seventy in the Western countries has increased only two years since 1950, in spite of a huge increase in expenditure on medical research.⁶³ If “scientists” no longer believe in an unchanging natural order, created by an unchanging God, they will no longer search for laws that they no longer believe exist.

A final manifestation of the Gnostic heresy I wish to refute is the idea that religion and science belong in distinct categories: religion is concerned with moral questions and science with factual questions. Religion is concerned with the spiritual world and science with the material

world, in other words. Obviously, this is the ancient Gnostic dualism reborn. Like the ancient Gnostics, many moderns who espouse this view argue that it is blasphemous to use science to prove the existence of God, or to justify any particular religion—Christianity, say. These claims are nonsense on several levels.

People who assert that religion and science are to be kept strictly separated generally also say that the two are separate but equal. I grew up in Alabama in the 1950s, when blacks and whites were racially separated by law. “Separate but equal” was the slogan used by the segregationists of my home state at the time. But I knew from my own experience that the actual reality was separate but very unequal. Similarly, those who advocate “separate but equal” in segregating science and religion really mean that religion should be kept out of science because religion is factually false. These people truly believe that God does not exist and hence does not have any effect on reality. Those who claim that religion is concerned with morality are the same people who tell Christian leaders, especially the Roman Catholic bishops, to stick to religion when the Christians express their moral opposition to abortion. In other words, Christianity has nothing to say about anything that happens in material reality. This would be true if the Gnostics were correct that there is a spiritual reality outside the control of the god who created the material universe. But it is not true, since the God Who created the material world also created the spiritual world, and the latter is based on the former, as discussed in Chapter 3. I shall show in Chapter 7 that moral questions are ultimately factual questions: if one knew all the facts—only God Himself can know all the facts—then there would be no argument over moral questions.

The claim that it is blasphemous to attempt to establish religious truth by science, particularly by scientific experiment, is refuted by a glance through either the Old or the New Testament. In 1 Kings, the prophet Elijah proposed to the people of Israel that they put to the experimental test which god, Baal or Yahweh, is the true God: “Let them therefore give us two bullocks; and let them choose one bullock for themselves, and cut it in pieces, and lay it on wood, and put no fire under: and I will dress the other bullock, and lay it on wood, and put no fire under. And call ye on the name of your gods, and I will call on the name of Yahweh, and the God that answers by fire, let him be God. And all the people answered and said, It is well spoken” (18:23–24).

The people of Israel 3,000 years ago had more sense than many

scholars today. If Yahweh cannot “answer by fire”—perform miracles today—then He is not God. If His existence and actions in the worlds cannot be seen by science, then He does not exist. The Gospels emphasize that Jesus was considered to be from God because of the miracles He performed, and the same was true of His apostles: “Then Philip went down to the city of Samaria, and preached Christ unto them. And the people with one accord gave heed unto those things Philip spoke, hearing and seeing the miracles he did. For unclean spirits, crying with loud voices, came out of many that were possessed with them; and many that were taken with palsies, and that were lame, were healed” (Acts 8:5–7). These miracles are the same miracles that are now converting many throughout the world. People now, as 2,000 years ago, are being converted by seeing with their own eyes the action of God in the material world. To say these acts are blasphemous is to say Christianity and Judaism are blasphemous.

A miracle must be more than an improbable event interpreted by us as an act of God. It must in addition be *proven* to be an act of God. In the most famous debate of the eighteenth century, between the two greatest scientists of the time, Sir Isaac Newton (1642–1727) and Gottfried Leibniz (1646–1716), this point was emphasized by Newton:

The Notion of the World’s being a great *Machine*, going on *without the interposition of God*, as a Clock continues to go without the Assistance of a Clockmaker; is the Notion of *Materialism* and *Fate*, and tends (under pretense of making God a *Supra-Mundane Intelligence*) to exclude *Providence* and *God’s Government* in reality out of the World. And by the same Reason that a *Philosopher* can represent all Things going on from the beginning of the Creation, *without* any Government or Interposition of Providence; a *Sceptick* will easily Argue still farther Backwards, and suppose that Things have from Eternity gone on (as they now do) *without* any true Creation or Original Author at all, but only what such Arguers call *All-Wise and Eternal Nature*. If a *King* had a *Kingdom*, wherein all Things would continually go on *without* his Government or Interposition, or *without* his Attending to and Ordering what is done therein; it would be to *him*, merely a *Nominal Kingdom*; nor would he in reality deserve at all the Title of King or Governor. And as those Men, who pretend that in an Earthly Gov-

ernment Things may go on perfectly well *without* the *King himself* ordering or disposing of any Thing, may reasonably be suspected that they would like very well to set the King aside: So whosoever contends, that the Course of the World can go on *without* the Continual direction of *God*, the Supreme Governor; his Doctrine does in Effect tend to Exclude God out of the World.⁶⁴

This passage is taken from the opening of what has become known as the “Leibniz-Clarke correspondence,” because although it was really a debate between Newton and Leibniz, the former did not appear in his own name. The English theologian and philosopher Dr. Samuel Clarke instead represented Newton. The debate, in the form of an exchange of letters between Clarke and Leibniz, began when the latter sent a letter to Caroline, Princess of Wales, complaining that the study of natural theology had declined in England as the result of the pernicious influence of Sir Isaac Newton’s physics. Newton could not afford to ignore this attack, because it threatened not only his work as a scientist but also his livelihood as a government official. Having earlier charged Leibniz with plagiarizing his invention of differential and integral calculus, Newton refused to debate Leibniz directly; his friend Clarke stood in his place. But Princess Caroline, who knew all three men, assured Leibniz, “You are right about the author of the [letters of] reply; they are not written without the advice of Chevalier Newton.”⁶⁵

Newton believed that his law of universal gravitation showed the solar system to be unstable, and by his calculations, the solar system would fly apart about 10,000 years after being set in motion. Since this number was approximately equal to the time since the creation of the world accepted then, 4000 B.C., Newton thought his physics had verified the traditional date for the creation of the universe. The French mathematical physicist Pierre Laplace showed in the late 1700s that Newton had ignored some crucial terms in his calculation, and when a few additional terms were taken into account, the solar system could be shown to be stable. Unfortunately for Laplace, the English mathematical physicist John Couch Adams showed in the late 1800s that Laplace himself had ignored a few terms himself, and if even more terms were considered, the question of the solar system’s stability was once again put in doubt. Even today, with our supercomputers to help us with the calculations, we don’t know if the solar system is stable under Newton-

ian gravity. But we do know that if the solar system is unstable, it is nevertheless stable for far longer than the 10,000 years that Newton defended.

There are several lessons in this story of stability calculations. The first is that Newton truly believed he had established using standard physics that God had directly intervened in the world at the traditional time given for the creation of the universe, approximately 4000 B.C. Let me emphasize that this traditional date is not restricted to Christians. The Jewish calendar's first year is computed to be the first year the universe existed, and this year is held to be 3760 B.C., so the year 2007 is the year 5767 in the Hebrew calendar.⁶⁶ The second lesson is that Newton believed this instability established a breakdown in the known laws of physics. But this was an error, not only a mathematical error but also an error from the traditional Christian view of miracles: God *never* sets aside fundamental laws of nature. The laws of God are never violated, only our human understanding of what these laws actually are.

Miracles of Conversion

Christianity is the religion founded on a miracle—the Incarnation—and justified by reference to a miracle—the Resurrection. Even today, conversions to Christianity occur mainly through miracles, the same miracles that are described in the New Testament: raising the dead, healing the sick, casting out demons, and seeing visions of Jesus or angels. In the United States, most conversions occur in the form of “born again” experiences, which are versions of the vision experienced by St. Paul on the road to Damascus. According to the leaders of the “house churches” of China, “As many as 80 percent of believers first come to Jesus because they receive a miraculous healing or deliverance from the Lord.”⁶⁷ In house churches, the parishioners meet in someone’s house rather than in a formal church building. This is the main form of Christianity in nations where Christian worship is illegal or strictly controlled by the government, as it is in China today. In colonial Virginia a few decades before the American Revolution, many people—for example, Patrick Henry—attended house churches because all denominations other than the official Church of England were banned. To get a feel for how important miracles of healing are in the growth of Christianity, I advise you to check out books on the experiences of Chinese apostles—for example,

Back to Jerusalem or *The Heavenly Man: The Remarkable True Story of Chinese Christian Brother Yun*, both by Paul Hattaway. I call the people described in this book “the Chinese apostles” because their stories sound almost exactly like those recorded in the New Testament’s Acts of the Apostles.

Let us now consider how the main miracles of conversion today might work in a manner consistent with the laws of physics. There are four main miracles of conversion:

1. Raising the dead
2. Healing the sick
3. Casting out demons
4. Seeing visions

Raising the Dead. First, we need a definition of the word *dead*. The image of a dead man in most people’s minds is a human skeleton, but it is exceedingly rare that Christian apostles put flesh on the bones of skeletons. God could put flesh on a skeleton without violating the laws of physics, by the mechanism that I describe in Chapter 8, but He rarely does so. All accounts I have been able to find indicate that the people who are raised from the dead have been dead no more than three days.⁶⁸ The body is identified as “dead” by ordinary people with no medical training. Even doctors can make mistakes when declaring a person to be dead. A person’s heart can stop for a short period and yet be restarted, by an electrical shock or even spontaneously. The fact that death can be misdiagnosed and a person buried only later to reanimate in a coffin is what led nineteenth-century legislators to pass laws requiring the “dead” to be embalmed before burial. Embalming entails replacing the blood with embalming fluid. This procedure makes certain that the body in the coffin is indeed dead. Before embalming became standard procedure in the United States, some exhumed coffins had scratch marks on the tops from the fingernails of “corpses” that woke up inside the buried coffins.

If a “dead” body suddenly wakes up after being prayed over in full view of an assembled body of skeptics who are convinced that the person is dead, the skeptics often cease to be skeptics. If indeed prayer had the effect of waking up the “dead” body, then the Christian apostles can take the credit. No experiment has been carried out to determine if prayer can raise the dead. One could, for example, compare the number

of reports of the “dead” spontaneously waking without prayer with the number of reports in which this occurs with prayer. However, there is no report of the dead being raised that is not consistent with a person in deep suspended animation suddenly being reanimated. No physical law is violated in such a case.

Healing the Sick. Examples of healing the sick include the healing of almost any disease one can name. However, the healing occurs after the doctor has given the patient up for lost or when the sick person is too poor to afford medical treatment. The patient, after being prayed over, is observed to recover spontaneously. The cancer tumor disappears, the bacteria of the infection disappear, the lame walk. If a person is partially or totally convinced the prayer will work, there is a chance the person’s conviction will be communicated to his or her body. In conventional medical parlance, this is called the *placebo effect*. In any test of a new drug, researchers know that giving patients a pill containing nothing but sugar will cure a statistically significant fraction of the sick. The sugar pill does nothing; the patient’s mind does everything.

There is at present no known way of separating placebo-effect cures from prayer-effect cures. However, there is no example of a cure occurring after a prayer that is inconsistent with physical law. One of the healing miracles attributed to the saint at Lourdes was a broken bone that healed “instantaneously.” But the healing times of a broken bone follow a Gaussian (bell-shaped) distribution, with a mean time of several weeks. The distribution means that the healing time will vary from individual to individual. It is not physically impossible for a bone to heal in a day or less, just gigantically improbable by human ways of measuring probability. Once again, a miracle is an event allowed by natural law but improbable according to human knowledge. Recall that “probability” is a measure of human ignorance, not human knowledge.

Casting Out Demons. When I am asked, “Do you really believe in demons?” I reply, “Do I believe in computer viruses? Yes, I most certainly do.” In other words, demons exist, but they should be thought of as forms of computer viruses running on the computer that is the human brain. It scarcely needs emphasizing that Christians have no choice; we must believe in demons. Jesus, according to all the Gospels, spent much of his time casting them out of people who had been possessed. If demons do not and did not exist, what was He doing? Com-

puter viruses are small programs, generally sent from one computer to another via e-mail, that take control of the computers in which they find themselves. A personal computer infected by a virus still employs its basic operating system (most often some version of Microsoft Windows), but the memory and processing hardware of the computer are no longer used for the purposes of the computer’s owner. Rather these resources are used to carry out the purposes of the virus (in present-day computer viruses, these purposes are usually making copies of the virus in the memory of the personal computer and sending out additional copies to all e-mail addresses the virus can find in the computer’s memory). In a few years, computer experts expect computer viruses to become more sophisticated and take over the infected computer and use it to perform more complicated computations.

In human brains, the equivalents of computer viruses are called *multiple personality disorder* (MPD) or, in recent times, *dissociative identity disorder*.⁶⁹ People with this mental disease appear to have several personalities in the same body. In the last century in the West, the different personalities have considered themselves merely different human personalities, but in the past, many of these personalities claimed to be supernatural beings: demons.⁷⁰ There are several “cures” for MPD, all of which involve suppressing all but one of the personalities. The “central” personality—usually the personality the clinical psychologist treating the patient finds most congenial—is persuaded to ignore the other personalities. If the alternate personalities are never allowed to “run” on the human brain, they eventually disappear. Effectively, the computer virus that corresponds to the alter ego is deleted. All reports by Christians who claim to have cast demons out of “possessed people” that I have been able to find are consistent with the demons being manifestations of MPD.⁷¹ If one or more of the personalities claim to be a demon and the central personality is persuaded (consciously or unconsciously) that the religious ceremony will destroy the demonic personality, then it probably will. As in raising the dead and healing the sick, no physical laws need be broken in order for demons—the computer viruses of MPD—to exist and to be cast out.

Christianity, of course, claims that there is a chief demon—Satan—who is the master of the lesser demons. In Chapter 7, I shall suggest that such an entity does indeed exist, but that he is a computer virus not in our brains but in our DNA, and indeed in the DNA of most metazoans. He can manifest himself in our brains only by generating evil behaviors,

one of which is the possibility of MPD. In such a case, Satan not only exists but indeed is the master of the lesser demons.

Seeing Visions. A classic example of a vision miracle is the Annunciation: the angel Gabriel appeared to Mary to announce that she would bear a son though she had never known a man.

In South Africa, 42 percent of new converts from Islam accept Christianity because they see visions in which they are told that Jesus is God.⁷² The son of the famous atheist Madalyn Murray O’Hair became a Baptist minister after seeing a vision of an angel.⁷³ In all cases, those who see visions of angels are first exposed to the Christian belief that such visions are to be expected. No skeptic would have difficulty accepting the possibility of autosuggestion—the belief that one *can* see a vision itself generates the vision—but, of course, no convert to Christianity interprets the vision this way. The cumulative evidence for Christianity in

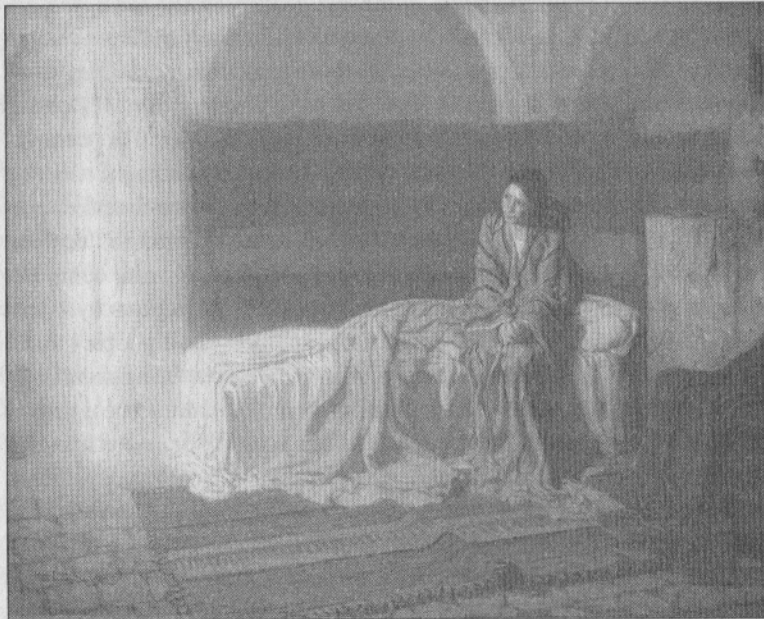


Figure 5.1. *The Annunciation* by Henry Ossawa Tanner. The Annunciation, Mary being informed by the angel Gabriel that, though a virgin, she would bear a son, is an example of a “vision” miracle. Like all miracles, vision miracles do not in any way violate physical laws.

the following chapters will show that they are probably correct, and the skeptics wrong. The God who has resurrected His Son to show us how to use that power needs Christians in plenty for this purpose.

Christians claim that the dead are raised, the sick are healed, the demons are cast out, and angels appear not by any power they possess but by the aid of Jesus, in Whose Name these miracles are performed. I shall show in Chapter 9 how this could in fact be true, and how to test experimentally if it is.

In the following chapters I shall show that the Virgin Birth, the Resurrection, the Incarnation, and all of Jesus’ “nature” miracles were miracles in the orthodox Christian sense. All are manifestations of the direct action of God in the material world, not in violation of physical law but in conformity to it. Not against God’s Word but in conformity to God’s Word: physical law. I shall show exactly how these miracles are completely consistent with known physical law.