

MIRACLES IN SCIENCE AND THEOLOGY

by Terence L. Nichols

Abstract. Miracles are not “violations” of nature. Contemporary miraculous healings seem to follow natural healing processes but to be enormously accelerated. Like grace, miracles elevate but do not contradict nature. Scriptural miracles, but also contemporary miracle accounts, have something to tell us about how God acts in the world.

Keywords: Augustine; Alexis Carrell; divine action; grace; David Hume; miracle; special providence.

What is a miracle? In educated circles and the sciences, the usual understanding is “a violation of the laws of nature.”¹ This definition, which goes back to David Hume, seems calculated (as in fact it was) to turn people against the very possibility of miracles. For what many persons (especially scientists) find so beautiful about nature is precisely its lawful complexity. As Paul Davies said in his Templeton Prize address, “To me, the true miracle of nature is found in the ingenious and unswerving lawfulness of the cosmos, a lawfulness that permits complex order to emerge from chaos” (Davies 1995, 34). Nothing could be more repellent, both scientifically and theologically, than a God who capriciously intervenes to heal this person while ignoring that person or who arbitrarily interrupts natural processes to produce a “wonder” to astonish the multitudes.

In this article I argue that the idea of miracle as a “violation” is misleading, and I advance a notion of miracle as an event that is consistent with, but transcends, natural processes. This, I believe, is more in keeping with both good science and good theology.

In traditional theism (Judaism, Christianity, Islam, and some branches of Hinduism) miracles have been understood theologically as signs: events

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in which divine action is unusually apparent and so testify to divine authorship. The miracles worked by Yahweh through Moses in Egypt were done so that “The Egyptians shall know that I am the LORD” (Exodus 7:5 NRSV). Jesus’ miracles, especially in the Gospel of John, “revealed his glory, and his disciples believed in him” (John 2:11 NRSV). Nicodemus says to Jesus, “Rabbi, we know that you are a teacher who has come from God; for no one can do these signs that you do apart from the presence of God” (John 3:2 NRSV). Muslims also accept some of the miracles of Jesus but consider the greatest miracle to be the Qur’an itself, which could not have been produced by an illiterate person (as Muhammad was) and so must be the words of Allah.

What challenged this traditional perspective on miracles was the rise of modern science and its view of nature. Nature came to be seen no longer as a system open to divine action, as it was in traditional Western and Eastern religious thought. Rather, it became understood as a more or less closed system, in which God could intervene only from the outside, as it were, as a mechanic would intervene to alter the workings of a clock or watch (a favorite metaphor of the Deists). This led to Hume’s famous definition of a miracle as “a violation of the laws of nature” (Hume [1748] 1939, 656). Defined in this way, miracles came to be seen as immensely improbable—so improbable, in fact, that, as Hume argued, any reported miracle would always be less probable than the possibility that the laws of nature had been violated. Miracles became, therefore, effectively impossible by definition. Furthermore, implicit in the very idea of a miracle as a violation is the sense that miracles are irrational and outside any lawlike order, a notion deeply repugnant to scientists.

For these reasons miracles have been largely ignored in modern science and in discussions of science and theology. There is an *a priori* attitude that pays scant attention to any contemporary evidence for miracles (which is in fact extensive). Miracles are dismissed as inherently impossible or unworthy of attention, on both scientific and theological grounds. Thus, an unsigned editorial in *Nature* in 1984 stated, “Miracles, which are inexplicable and irreproducible phenomena, do not occur—a definition by exclusion of the concept” (*Nature* 1984, 310:171). And the famous German theologian Rudolf Bultmann asserted that miracles were “mythology.” In a passage that might have pleased the editors of *Nature*, he wrote, “Modern men take it for granted that the course of nature and history . . . is nowhere interrupted by the intervention of supernatural powers” (Bultmann 1958, 16). Neither the editors of *Nature* nor Bultmann, however, felt it necessary to actually investigate evidence for putative miracles. We know, they assert, that miracles cannot happen; therefore they can be dismissed as impossible.

Yet, if the hallmark of empirical science is impartial openness to evidence, such a way of proceeding can hardly be called scientific. If scientific

laws are held to be not only descriptive but also prescriptive, telling us what can and cannot occur in nature, then we have to dismiss all evidence that cannot be explained by present scientific theory. For example, recent experimental evidence, which has established that widely separated “entangled particles” interact nonlocally (or else communicate at faster-than-light speeds), would have to be rejected because it is inexplicable according to current scientific theory (Browne 1997, C1). A letter from Donald MacKay (Department of Communications and Neuroscience, University of Keele, United Kingdom), responding to the editorial in *Nature*, explained this well:

In scientific laws we describe, as best we can, the pattern of precedent we observe in the sequence of natural events. While our laws do not prescribe what must happen, they do prescribe what we ought to expect on the basis of *precedent*. If by a “miracle” we mean an unprecedented event . . . then science says that miracles ought not be expected on the basis of precedent. What science does not (and cannot) say . . . is that the unprecedented does not (or cannot) occur. . . . We cannot dogmatically exclude the everpresent possibility that the truth about our world is stranger than we have imagined. (MacKay 1997, 502)

I will argue here for four points: (1) The evidence for miracles, ancient and modern, is respectable and deserves attention; it is unscientific to simply ignore it. (2) Hume’s definition, which has monopolized modern discussions of miracle, is misleading, both scientifically and theologically. (3) Miracles are better understood as signs of divine action, which, like grace, do not violate nature but work through it, perfect it, and reveal its divine ground. Nature is not a closed system but an open system within a larger, divine context; viewed within this context, miracles can be seen as rational and even lawlike events that express the divine ground within which nature exists. Just as the laws of nature behave in extreme ways in unusual contexts (for example, superconductivity or black holes), so it may be that the ordinary laws of nature, within a context of faith, behave in unexpected ways. (By a context of faith I mean one in which persons of faith and holiness relate to God in prayer.) (4) A consideration of miracles has something to contribute to the contemporary discussion (prominent in science-and-theology dialogues) about the nature of divine action in the world. I do not argue here for theism or for the existence of divine action, only for the position that, if God exists and does act in nature by what theologians call special providence, or special action,² miracles can be understood as instances of this in a way that makes sense theologically and scientifically.

Let us begin with some evidence for miracles. There is a great deal of scriptural testimony for miracles: almost one-third of Mark’s Gospel, for example, is made up of miracle stories. But these stories are so distant in time, so scantily described, and in some cases so laden with symbolism (such as in the turning of water into wine) that it is hard to tell exactly

what happened. A basic axiom of science and historiography is that we assume that the same natural laws and kinds of events that are operative today were operative in the past. Thus, if we could find well-attested miracle stories in contemporary times, they would lend support to the ancient accounts. Let us then consider some modern accounts.

A famous example comes from Dr. Alexis Carrell. In 1902 Carrell, a young surgeon from Lyons, traveled by train to Lourdes to investigate reports of extraordinary healings there. At the time, he did not believe in the possibility of miracles, but a few of his patients had returned healed from Lourdes, and Carrell, as a good scientist, wanted to investigate. During the journey he was asked to care for a young girl, Marie Bailly, who was dying of advanced tuberculosis. Carrell examined her and confirmed the diagnosis; her abdomen was badly distended and hard, her heart racing; she was near death. He described her case to a friend on the train:

This unfortunate girl is in the last stages of tubercular peritonitis. I know her history. Her whole family died of tuberculosis. She has had tubercular sores, lesions of the lungs, and now for the last few months a peritonitis diagnosed both by a general practitioner and by the well-known Bordeaux surgeon, Bromilloux. Her condition is very grave. . . . She might die at any moment right under my nose. If such a case as hers were cured, it would indeed be a miracle. I would never doubt again; I would become a monk! (Carrell 1950, 22)

Upon reaching Lourdes, Bailly was carried on a stretcher to the grotto but not immersed in the pool, because the attendants feared that it would kill her. Carrell meanwhile kept a detailed record of his observations:

Condition very serious. . . . Abdomen very sore and distended. Pulse irregular, low, almost imperceptible at 160; respiration jerky at 90; face contracted very pale and slightly cyanosed. Nose, ears, extremities cold. Dr Geoffroy of Rive-de-Gare arrives, he looks at the girl, feels, strikes, and auscultates the heart and lungs and pronounces her in the last agony. As there is nothing to be lost and the patient wishes to go to the Grotto again, she is taken there on a stretcher. (Boissarie 1933, 197)

And yet, at the grotto, she was healed. Carrell and several other physicians examined her carefully at the Lourdes Medical Bureau (where their signed attestations are on record). The physicians' report reads (in translation):

May 28, 7 P.M. Our stupefaction was profound on seeing the girl who was so ill this morning sitting on her bed, chatting with the nurses and answering our questions smilingly, also at seeing the enormous swelling of the abdomen had disappeared. The tumors which had encumbered it had melted away visibly; respiration and heart had resumed their normal play. This is a sudden, wonderful cure, a veritable resurrection. (Boissarie 1933, 199)

Dr. Geoffroy added in his own hand: "This medical authentication which I am signing is the simple truth; so grave an affection [*sic*] has never been cured in a few hours like the case on record here" (Boissarie 1933, 199).

Some months after her cure, in perfect health, Bailly joined the Sisters of St. Vincent de Paul. Carrell, though dumbfounded by the cure, did not become a monk. Because of his interest in miracles, however, he was told that the Lyons Medical School would never open its doors to him. He left for America to join the Rockefeller Institute and in 1912 was awarded the Nobel Prize in physiology and medicine. His recollection of Marie Bailly's cure was published as *The Voyage to Lourdes* (Carrell 1950).

A second case, also from the annals of Lourdes, is that of Joachime Dehant, a 29-year-old Belgian woman who in 1878 made a pilgrimage to Lourdes by train. She sought healing for a massive gangrenous ulcer (twelve inches by six inches) on her right leg, an ulcer that had penetrated to the bone, destroying muscles and tendons, and caused the foot to invert. The wound had been tended by local physicians for twelve years, but it had not healed; it had been years since Dehant had walked or worn a shoe on her right foot. Her trip to Lourdes was agonizing and humiliating: the stench from her gangrenous wound so sickened her companions on the train that they vomited. Yet, on her second bathing in the pool at Lourdes, the wound was healed; muscles, tendons, and skin were restored, leaving a well-formed scar. This cure was attested by physicians at Lourdes, by her traveling companions, by the townspeople of Gesves, Belgium (Dehant's home) who had known her for years, by the physicians who had treated her for twelve years at Gesves, and by her family. It was subsequently investigated by professors at the Catholic University at Louvain, who gathered testimony from all concerned, including physicians. Dehant enjoyed perfect health for more than thirty years after the cure (Boissarie 1933, 2–9).

There are hundreds of stories like this scattered through Christian literature as well as the writings of other religions, such as Hinduism (see, for example, Leuret and Bon 1957). Of course, many such stories can be explained by coincidence, wishful thinking, autosuggestion, fraud, and superstition. Everyone knows of accounts in which a disabled person flings away his crutches at the behest of the faith healer, only to collapse in a worse condition later. But amid all the chaff there are some grains of wheat: some accounts so well attested, by responsible persons (sometimes scientists) who have everything to lose and nothing to gain by so testifying (like Carrell), that it is difficult to dismiss them lightly. Many of the cures are of deep-seated organic diseases that resisted treatment for years, yet the cures were swift and permanent. At least within Roman Catholicism, no event may be claimed miraculous if it can possibly be explained by natural causes. This means that part of the process for discerning a miracle is a thorough scientific investigation. Only after such an investigation has concluded that there is no scientific explanation for the event can it be declared a miracle, and then, only if it has occurred in a context of faith and prayer.

My claim, then, is simple: such evidence deserves our attention and should not be dismissed because we are convinced on a priori grounds that miracles cannot happen. How they might be explained is another and subsequent question; the first obligation of any dispassionate investigator is to be open to the evidence. Then we can consider causes and explanations.

What about Hume's contention that miracles are a violation of nature? There are some interesting points to notice about both of the healing accounts just cited. First, it appears that neither of the healings was instantaneous (a term used too readily in describing miracles). Each appears to have taken some time—perhaps a half hour in the case of Dehant (she was in the pool twenty-seven minutes and experienced great pain, but the wound was not sore when she emerged) and perhaps two or three hours in the case of Bailly. Second, in Dehant's case, the healing terminated in a pronounced scar. Now, both of these facts, but particularly the second, suggest that the healing was not instantaneous but was rather a greatly accelerated natural process. This conclusion is supported by other observations. In an article, Carrell wrote, "I believe in miraculous cures, and I shall never forget the impact I felt watching with my own eyes how an enormous cancerous growth on the hand of a worker dissolved and changed into a light scar. I cannot understand, but I can even less doubt what I saw with my own eyes" (in Monden 1966, 195). Carrell concluded, "The miracle is chiefly characterized by an extreme acceleration in the process of organic repair" (Carrell 1935, 149). Many other observers have also stated that cures take place as natural processes but at much greater speeds (Monden 1966, 235). Such accounts suggest that if miracles are the result of divine activity, such activity does not violate nature or work around it but rather works through it to heal. In this respect its action in miracles is similar to its action in what theologians call grace, which does not work against nature but builds on nature, healing and perfecting it (Nichols 1990, 23–41). This explanation also follows Christian tradition. R. M. Grant writes, "In the first five centuries there is a tendency to explain God's working in miracles as beyond or above nature but coordinated with nature rather than contrary to it" (Grant 1952, 214). Medieval authors, such as Thomas Aquinas, also usually described miracles as *praeter naturam* (beyond nature) rather than as *contra naturam* (contrary to nature) (Aquinas [c. 1250] 1941, I, 110, 4 [p. 661a]).

Certain biblical miracles, however, seem to go far beyond nature, such as the changing of water into wine (John 2), Jesus' walking on water (Mark 6:47–52), and the resurrection of Jesus. Some of these are weakly attested (the conversion of water into wine is found in only one Gospel), but others, like the resurrection, are found in all four Gospels. How can these be explained?

They are, first of all, extreme examples, scarcely encountered outside scripture. I know of no resurrection stories or water-into-wine stories in

modern literature on miracles. However, I do accept the resurrection of Jesus on the basis of Paul's testimony in 1 Corinthians 15, the dramatically changed behavior of the apostles, the fact that opponents of Christianity were never able to produce Jesus' body or even a burial site, the fact that women were the first witnesses of the risen Jesus,³ and other reasons. (For a defense of the historicity of the resurrection by a scientist, see Polkinghorne 1994, 108–23.) But an explanation will involve a theological digression.

If one believes in the God of Judaism, Christianity, and Islam, or even in the Brahman of Hinduism or the Sunyata of Buddhism, the natural world, as described by science, is not all there is to reality. Rather, the universe (or universes) exists in a wider context, which theists call a divine context. God transcends nature and holds nature in being, so we might say (to use a spatial metaphor) that nature exists in God. (It is, however, an error to imagine God as a being on the same level as other beings; such a being is not the God of the Western or Eastern religions.) I do not argue here for the existence of God but refer the skeptical reader to apologetic accounts given by others (see Polkinghorne 1994; Peacocke 1993; Ellis 1993).

Furthermore, I would argue that nature is a system that is not closed to the possibility of divine influence but open to it. This is widely accepted in theology-science discussions, but I will briefly give a few reasons here and then refer the reader to other literature. First, many have argued that the indeterminacy evinced in quantum mechanics is an ontological indeterminacy in nature itself and that therefore God can act as the “determiner of indeterminacies,” to use Ian Barbour's phrase (2000, 170; Russell 1998). John Polkinghorne argues that chaotic systems are so exquisitely sensitive that the tiniest influence (perhaps even at the quantum level) can cause significant changes in macrolevel systems (Polkinghorne 1995, 76–90). Brian Greene, a physicist, argues that string theory is the only theory that can unify both gravitational and quantum theory; it postulates that matter is formed of strings that vibrate in nine spatial dimensions. This means that even the roots of matter itself reach past what can be observed in physics and that the nature of matter itself is not yet fully understood (Greene 1999).

Now, if nature is understood as an open system within a context of divine activity, it may be the case that in some extreme circumstances, such as the presence of great faith, the laws of nature, while not changed, behave differently from the way they do in ordinary contexts. (Superconductivity and black holes are examples of the laws of nature behaving unusually in unusual contexts.) Ordinarily, divine activity works through and in coordination with the laws of nature, usually invisibly but sometimes strikingly, as in the cases of extraordinary healings. But in very rare or unique events, such as the resurrection of Jesus, nature becomes, as it were, transparent to its divine ground and behaves in extraordinary ways. Even in the

resurrection (if we can trust the biblical accounts), divine activity respects the laws of nature: the body of Jesus is transformed and appears to be in a different context, freed from the limitations of our space and time, but is still recognizably the same body as that of the crucified Jesus.

Some analogies may help to clarify this point. It is commonplace, in Roman Catholic and Orthodox theology, to speak of human nature as being elevated by grace. Take love, for instance. Human beings have some natural capacity to love, but it is limited; loving one's enemies seems to be beyond our natural capacities. But the love of God, poured into our hearts by the Holy Spirit (Romans 5:5), can elevate this love so that is no longer self-centered (we love those who love us) but universal, as God's love is. Something similar may be possible in natural processes. Just as the human psyche or will can transcend its normal state through the action of grace, so perhaps can the normal healing processes of the body transcend their usual capacities through the action of miraculous grace. Both the normal state and the transcendent state, however, are states of nature.

Let us consider another analogy. Ordinary matter can exist in several states: solid, liquid, gas, and also at much higher temperatures as an atomic plasma, in which the electrons are stripped from the nuclei. Somewhat different physical laws apply in each of these states: the laws of chemistry, for example, would not apply to the atomic-plasma state, because the atoms do not have orbiting electrons and cannot form chemical bonds. Physicist Paul Davies notes that "it was discovered long ago that the law of conservation of matter is violated when new particles and anti-particles are created in high energy processes. . . . It has been suggested that if one could drive the energy up without limit, one by one of all of our cherished laws would fail . . ." (Davies 1988, 60). So also, what we call nature may have the capacity to exist in more than one state: a ground state, normally investigated by science, but also perhaps "graced" states in which nature is elevated by the presence of miraculous grace. Such may be the case in miraculous healings or in the resurrection. But, I would maintain, even in such cases we are dealing with potentialities of nature. The resurrected body of Jesus (if it is/was really the same body that died, but in a transformed state, as traditional Christianity affirms) is also within the capacities of nature, but a nature transformed by grace or divine activity.

If this idea is correct, it means that miracles are never *only* the activity of God, as if God in a miracle acts alone, nakedly, in place of natural causes. Theologically, a miracle, even an exalted miracle such as the resurrection, is always God working through or in cooperation with nature, not against it. Augustine puts this idea well:

But God, the Author and Creator of all natures, does nothing contrary to nature; for whatever is done by Him who appoints all natural order and measure and proportion must be natural in every case. . . . There is, however, no impropriety in saying that God does a thing contrary to nature, when it is contrary to what we

know of nature. For we give the name of nature to the usual common course of nature; and whatever God does contrary to this, we call a prodigy, or a miracle. But against the supreme law of nature, which is beyond the knowledge both of the ungodly and of weak believers, God never acts, anymore than He acts against Himself. (Augustine [c. 400] 1995, 321–22)

Now, this suggests some obvious objections. If we really know so little about nature, how can we be sure that miracles are caused by divine activity and not by some yet unknown law of nature? I don't think we can be certain, at least on the grounds of reason. Belief in miracles involves faith as well as reason. A scientist, speaking as a scientist, can say, "There does not seem to be any known natural explanation for this event," but he or she cannot conclude that the event is therefore a miracle. That is a subsequent step, involving faith. It is possible, of course, that what has hitherto been regarded as miraculous will one day be explained when we have a more complete understanding of nature. It is worth pointing out, however, that the kinds of events that have been traditionally labeled miraculous—sudden and permanent healings of organic diseases, levitations, the resurrection of Jesus, and so on—are no more explainable now, after centuries of scientific advance, than they were in ancient times.

There are other reasons for doubting the unknown-law-of-nature hypothesis. First, putatively miraculous events seem to occur usually within contexts of faith and individual or communal prayer. That is why they are more common in the lives of holy men and women. (This is also true of the resurrection, whose context is the whole life of Jesus, a life surrendered to faith and prayer.) But if they were due to an unknown law of nature, that law ought to be visible in secular contexts as well. The simplest explanation seems to be that these events involve divine action.

A variant of the unknown-law-of-nature hypothesis is that healings, in particular, are attributable to some unknown capacity of the mind. An appeal to an unknown does not constitute an explanation; yet I would argue that if God does indeed work through nature and not around it, it is likely that the mind is involved in healings. How could it not be? But again, dramatic healings of long-entrenched organic diseases seem to occur mainly in faith contexts, and it makes sense to think that the best explanation is that somehow, by a mechanism we do not yet understand, divine activity, working through the mind, empowers the healing capacities of the human being in a way that transcends its usual capabilities. (This, however, would explain only some miracles, not all; it would not explain the resurrection.)

I have said that miracles usually occur within a context of faith and prayer.⁴ From a theological perspective, there are two possible ways of understanding how God may act in a miracle. The first is the traditional way: God responds to prayer, faith, and holiness. If a person or group of persons of holiness and faith pray to God for a healing, God may respond.

A second way is this: Perhaps God's activity, or "energy," to use a modern analogy, is always and everywhere available, like an extended field or supporting context. Wolfhart Pannenberg has written that the Spirit of God may be viewed (analogically) as a dynamic field (Pannenberg 1994, 83). If so, it is a field that can be accessed only by those who open themselves to God in faith, holiness, and prayer. An analogy might be tuning in to a radio broadcast. The radio waves are always present, but we are unaware of them unless we have a receiver tuned to the proper frequency. The first model envisions God's action in terms of personal response; the second represents it as a field or context phenomenon—the field is always present, but only some access it. I think that both of these models are necessary to understand miracles, just as both particle and wave models are necessary to understand subatomic particles. The models are complementary, and either without the other is incomplete. The first model explains the fact that many miracles do seem to be responses to prayer, but by itself it is open to the objection, Why doesn't God heal everyone who prays? The reason may be that to access the divine energy one must be surrendered to God in faith and prayer and that few people are. It is not that God plays favorites and rewards those who grovel the most. It is that those who are not deeply surrendered to God cannot access God's power because they are not "tuned in." For God to act fully in our lives, we have to be receptive.⁵ If there really is divine activity in miracles, however, can we explain how it influences physical processes? What, in other words, is the "causal joint" between divine and physical activity?

I do not think that at present we understand the mechanism. It may be that God acts at the quantum level—as the determiner of indeterminacies. Quantum states, which are indeterminate, are determined by divine activity so as to influence physical processes. Robert Russell has proposed this model of divine activity as a way of explaining theistic evolution and special providence (Russell 1998). This might account for an accelerated healing. It is hard to see, however, how it could account for more dramatic miracles like the resurrection. My own suspicion is that theologically, and even logically, God cannot be completely separate from the created order. If God were wholly other, God could not influence the world and the world could not influence God. This is not the Christian idea of God. Rather, it is the Deist idea, a consequence of viewing the universe as a self-enclosed mechanical system that leaves God on the outside. In traditional Christian theology, the theology of the Greek Fathers and of Augustine and Aquinas, God is other than creation; indeed, God transcends creation infinitely, but there is also an analogous commonality in being. As Aquinas expresses it, God's essence is to exist; God is the Act of Existence from which all other existent things derive their existence. There is therefore a continuity as well as a discontinuity between God and creation. Karl Rahner has advanced the notion that matter/energy and what theologians call fi-

nite spirit exist in a kind of continuity (Rahner 1965, 53–61). If so, (finite) spirit (such as the soul) could influence matter directly, and God, in turn, could influence the soul. (This is how Aquinas explains the resurrection.) I do not think, though, that God ever acts as one force alongside other physical forces. Rather, God acts in creation mediately, so as to empower nature to transcend itself.

This leads us to a further point: namely, that we do not yet completely understand what matter/energy is. Grene's book on string theory (2000) indicates as much. Its roots may extend past the boundaries that can be measured by physics, perhaps into higher dimensions (Grene 2000; Arkani-Hamed, Dimopoulos, and Dvali 2000). Therefore, at present we cannot say exactly how divine activity might influence matter; perhaps when we have a better idea of what matter is, and what its boundaries are, we will be in a better position to explain, however sketchily, the divine activity in miracles. Or perhaps such knowledge will be forever beyond our ken. But the fact that we cannot presently explain *how* a process works does not mean *that* it does not work. Isaac Newton and his successors could not explain how gravity worked, but that did not prevent their believing that gravity existed. No one knows right now how to explain the nonlocal interactions of so-called entangled particles. The phenomenon, well established by experiment, seems completely beyond what we presently know of the laws of nature. If we followed Hume's dictum, we should say that the regular workings of nature are so well understood that these reports of nonlocal interactions must be spurious, and we would reject the evidence. We do not reject it, however; we accept the evidence that something inexplicable happens in nature, and we hope to be able to explain it sometime in the future, perhaps with a modified understanding of natural laws.

What, then, is a miracle to a scientist and to a theologian? Miracles might, of course, simply be illusions—events that are really fabrications, coincidences, or the results of some mysterious power of the mind or an unknown law of nature and not of any divine activity. In other words, there are no miracles, theologically speaking; there are only unusual events. This, of course, is a hypothesis that remains to be proven. But if part of the cause of a miracle is divine activity, then, I think, to a scientist, a miracle will appear simply as an inexplicable event—a mystery that (like the healings observed by Dr. Carrell) seems to go beyond what can be explained by natural causality. Natural causes will still be involved in the event (the healing of Dehant terminated in a scar, indicating that the healing had followed natural pathways), but it cannot be explained completely by natural causes. To a theologian who believes in miracles (and there are theologians who do not), there are two questions to ask in discerning a miracle. First, can it be fully explained by natural causes? Second, did it take place in a context of faith and prayer, as an apparent response to prayer? If the answer is no to the first question, and yes to the second, it may be a miracle.⁶

In the discernment of a miracle, the work of both the scientist and the theologian is indispensable. No responsible theologian is going to object to scientific investigation of a miracle (or miracles generally). The claim of miracle should never be used to block attempts at scientific explanation, to claim that this class of events is off limits to scientific analysis.

Finally, if the traditional claim is true that in miracles divine activity is unusually apparent, or, to put it another way, that in miracles nature is unusually transparent to its divine ground, then miracles can be seen as similar to laboratory experiments, in which one causal factor is isolated so that it can be studied apart from other factors. If divine activity is suggested, miracles ought to be of interest to all those who are trying to understand how God acts in the world.

NOTES

1. In journalistic parlance, a miracle is anything amazing, from a purported apparition of the Virgin Mary in the clouds to an amazing football catch. But this notion is so imprecise as to be almost useless for an analysis of miracle.

2. The type of God's action in a miracle theologians call special providence, as distinct from God's general providence, by which God guides all events universally, and God's *creatio continua*, the continuous sustaining of every created thing.

3. In the ancient world, women were not considered credible witnesses. So, if the disciples had invented the resurrection stories, they would not have had women as witnesses.

4. I would not want to limit God's miraculous activity only to contexts of faith and prayer. Perhaps God works miracles for skeptics (though the biblical witness suggests otherwise—cf. Matthew 27:39–44; Luke 11:29). Or perhaps God works miraculously in nature when humans are not present. But such instances of God's activity would not be signs, and so not miracles as defined here. They would be better described by another term, such as special providence.

5. Philip Hefner (in personal communication) pointed out cases of persons' being healed through the intercession and faith of others (for example, the Centurion's servant, Luke 7:1–10). Such cases seem to fit both models of miracle: God's response to a request and also a context of faith, holiness, and prayer, in which someone is open to the transforming power of God.

6. There may be miracles that do not apparently break the chain of natural causality but instead seem to be responses to prayer. The crossing of the Red Sea (Exodus 14) or the miraculous draft of fishes (Luke 5) may be such events.

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