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Miracles

Miracles (*sign or omen; something difficult or wonderful; a creation, a novelty; an act or work; a sign, an omen or wonder, power, strength, mighty work*).

There are at least three reasons for studying the subject of miracles. First, one may wish to judge the claims of Roman Catholicism to continue the apostolic power of faith healers. The recent growth of the charismatic movement needs appraisal as well. Second, the so-called scientific view of the world declares that miracles are and always have been impossible. To meet this objection the believer must work out a theory of natural law, a philosophy of science, or in some way relate miracles to ordinary events without impairing the unity of his world-view. Third, a Christian thinker has a divinely imposed obligation to know what the Bible teaches, for "All scripture is inspired by God and profitable for teaching" (2 Tim. 3:16). Since miracles are part of scripture, they too must be understood. Does the Bible define miracle? Does it state the purpose of miracles? What is the Biblical doctrine of miracles?

1. Biblical data
2. Theology and science
3. Science and theology
4. Modern miracles

1. Biblical data. A knowledge of the Biblical material is essential to the satisfaction of the first two motivations, and it is with an elementary description of the Biblical accounts that this article will begin.

The first miracle is the creation of the heavens and the earth. Or is this perhaps not a miracle? No doubt the formation of Eve out of one of Adam's ribs is a miracle, but is the initial creation properly so classified? What then is a miracle? How is it defined? If one knew what the word miracle really means, he could go through the Bible and enumerate them. Without a knowledge of this definition how could one tell whether or not to include the birth of Samuel? Was David's escape from Saul's javelin a miracle? Unless one has the definition first, no list at all can be constructed. On the other hand, if there is no inclusive list, if the various miracles cannot be identified, how can one discover their common characteristics or otherwise study them? There is no escape from this dilemma without a survey of the Biblical accounts and a tentative identification of the events that might possibly be miraculous.

Here only a selection, nothing like a complete list, can be made. After the creation of the physical world, the animals, Adam and Eve, and after their expulsion from the Garden, we come to the account of the Deluge. The Deluge was spectacular enough, and if this is the test of the miraculous, the Deluge was certainly a miracle. Rain, however, is not a miracle; hurricanes and typhoons are not miracles; the earthquakes and the breaking up of the fountains of the deep

which accompanied the rain may not be miracles. How much rain, then, and upheaval are needed to make a storm a miracle?

The confusion of tongues at Babel seems to qualify. Was the destruction of Sodom a miracle, or a natural disaster?

Exodus 4:2-4 tells how God commanded Moses to throw his staff on the ground, whereupon it became a snake. When Moses picked it up again by the tail, it changed back into his staff. Again, God told Moses to put his hand into his bosom, and when he took it out, it was leprous as snow. Repeating the action, his hand was restored (4:6-7). Consider the ten plagues: Aaron smote the Nile with his rod and the water turned to blood; next he brought frogs to cover the land of Egypt. Then the magicians with their enchantments also turned the water into blood, and also brought frogs upon the land. Can heathen magicians perform miracles as well as Moses and Aaron?

For the third plague Aaron produced gnats (lice, Exod 8:16 KJV), but this time the magicians failed to duplicate the phenomenon and said to Pharaoh, "This is the finger of God." What is there about lice, as distinguished from frogs, that would indicate the third plague to be the finger of God? Finally, the first-born in every Egypt. family died in one night. Death is a natural event, and if two people die at once, it is not a miracle. But when the first-born of every family, and not younger children, die, all during the same night, it seems to be more than a coincidence. But if this is a miracle, may a miracle be nothing more than many ordinary events happening at the same time?

Consider the Exodus itself. The Israelites had begun their march out of Egypt; now they faced the Red Sea and Pharaoh was in pursuit. Here the Scripture reads, "Moses stretched out his hand over the sea; and the Lord drove the sea back by a strong east wind all night, and made the sea dry land, and the waters were divided" (Exod 14:21).

Miracle is sometimes defined as an immediate act of God, i.e. an act in which God uses no means. If there were such an act, it undoubtedly would be a violation of natural law, for all natural processes involve means. But most of the events commonly called miracles were accomplished with the use of means. In the present instance, the crossing of the Red Sea, it is expressly stated that God used a strong E wind. Possibly one might insist that no means were used in the virgin birth (except Mary herself) and in the resurrection of the dead. In that case these would be the only miracles in the Bible. However, Mary is a means in the Incarnation, and if no one is sure how the Resurrection was effected, there remain only two divine acts which by their nature completely exclude all means. These two are the creation of the world from nothing and the continuous upholding of the existence of the universe in its entirety. Yet neither of these is ordinarily considered a miracle.

To return to the Exodus, note once more that the E wind was not only a means, but also a natural phenomenon. Strong winds have blown back water at other times and in other places. At these other times no persecuted slaves escaped from a pursuing army. May one then call the escape of the Israelites a miracle? Or, a coincidence?

Literally, the safe crossing of the Red Sea was a coincidence. Two events took place at the same time. There is a good reason why Christians do not like to use the word “coincidence” for its connotation suggests an unforeseen, unplanned, accidental event. On the other hand God had planned this coincidence from all eternity. Not only did He control wind and wave at the crucial moment, but he also prepared Moses, hardened Pharaoh’s heart, and instilled courage into the Israelites to accept Moses’ leadership.

For a final instance in the life of Moses, there was the pillar of cloud by day and the pillar of fire by night. By these means God directed the Israelites when to march and when to make camp. These pillars seem to be neither natural, nor a coincidence (except in the trivial sense in which everything is a coincidence). They also were noteworthy because in the absence of any indication as to how they were produced, they could be thought of as immediate acts of God. On the other hand, if God rested from his work of creation, as stated in Genesis, one cannot suppose that now He created something from nothing.

Numerous other miracles follow in the OT accounts, such as: Balaam’s talking ass (Num 22:28-30); the fall of the walls of Jericho (Josh 6:1-21); the fall of Dagon’s image (1 Sam 5:1-5); Elijah and the widow’s oil (1 Kings 17:8-16); her son raised from the dead (1 Kings 17:17-24); the fire from heaven on the soaked sacrifice at Mount Carmel (1 Kings 18:20-40); and the chariot of fire with the fiery horses, when a whirlwind took Elijah to heaven (2 Kings 2:1-12).

Two other persons were raised from the dead (2 Kings 4:32-37 and 13:20, 21). The Assyrian army was destroyed in one night (19:20-37). Then there were the three young men who were not burned by Nebuchadnezzar’s superheated furnace (Dan 3:1-30); the handwriting on the wall (5:1-30); and Daniel in the lion’s den (6:1-28); and finally there was Jonah and the great fish (Jonah 1; 2).

The NT miracles may be divided into two groups. The first are those in which no human agent was involved. Such are the virgin birth of Christ, the star of Bethlehem, the earthquake that rent the veil of the Temple and opened the graves for some saints to rise, and the Resurrection of Christ Himself. The second set in which human agents are prominent, may be subdivided into two subsets: first the miracles of Jesus; and, second, those of the apostles.

The miracles of Jesus are also of two varieties. First, the healing miracles include the three cases in which Jesus raised the dead, as well as His expulsion of demons. The other and more ordinary miracles of healing are not only those of named individuals, but also of large crowds (cf. Matt 8:16 and 12:15).

Second, there are certain “nature miracles,” few in number; and while it is obvious that the gospels do not record all the healing miracles, it seems likely that the nature miracles are exhaustively enumerated. They are: the water turned into wine (John 2:1-11); Peter’s draught of fishes (miracle, coincidence, or exercise of omniscience?) (Luke 5:1-11); the stilling of the storm (Matt 8:23-27; Mark 4:35-41; Luke 8:22-25); the multiplication of the loaves and fishes (Matt 14:15-21; Mark 6:30-44; Luke 9:10-17; John 6:1-14); walking on the water (Matt 14:22-44; Mark 6:45-51; John 6:15-21); the second miraculous feeding (Matt 15:32-39; Mark 8:1-10); the coin in the fish’s mouth (omniscience rather than miracle?) (Matt 17:24-27); and the withering of

the fig tree (Matt 21:28-20; Mark 11:27-33; Luke 20:1-8). The accounts of these nature miracles have a bearing on the claim that miracles, if they can be defined, have occurred in medieval and modern times.

The miracles of the apostles and some of their converts, include the deaths of Ananias and Sapphira (Acts 5:1-11); Peter's deliverance from prison (12:1-19); certain undescribed miracles by Stephen (Acts 6:8); Philip transported from Gaza to Azotus (8:39); the light on the Damascus road (9:3); Paul's blindness and his recovery (9:8, 18); several healing miracles, some by means of Paul's handkerchiefs and aprons (19:12); Eutychus raised from the dead (20:9-12), and, if it is a miracle at all, Paul's not being hurt by the viper (28:3-6). To these one may add the widespread and spectacular instances of speaking in tongues (10:45, 46; 19:6). The list, of course, is not exhaustive.

The Biblical accounts may be completed by an addition to one point already mentioned. During the life of Moses the magicians were able to duplicate some of his miracles. Deuteronomy 13:1, 2 warns against the miracles of false prophets, even when their prophecies prove true. The NT as well teaches the possibility and the actuality of miracles by evil powers. Matthew 24:24 reads, "For false Christs and false prophets will arise and show great signs and wonders, so as to lead astray, if possible, even the elect." In Acts 8:9 "there was a man named Simon who had previously practiced magic in the city." Whether this magic or sorcery was miraculous or whether it was merely clever tricks is uncertain. The RSV ascribes to Satan "pretended signs and wonders," suggesting that the events referred to are not real miracles (2 Thess 2:9). This, however, is a poor tr., or at best an unnecessary interpretation. The actual phrase is "wonders of falsehood," and can mean either miracles produced by a false and evil power, or wonders intended to produce falsehood in men's minds. The Gr. does not suggest that the wonders are merely magic tricks.

Another reason for rejecting the RSV mistr. is the analogy of Scripture. In Deuteronomy the evil miracles were not merely apparent or pretended; nor in Matthew, nor are they such in Revelation 13:13, which ascribes great signs, even making fire come down from heaven, to the beast that spoke like a dragon (cf. Rev. 16:14; 19:20).

The occurrence of miracles wrought by evil powers complicates the theological problem of defining a miracle and rules out the popular definition of a miracle as an event wrought by the immediate power of God. As some divine miracles are not immediately wrought, so too Satan, and not God only, works miracles.

To avoid some of the theological and scientific tangles hinted at, one may point out that Scripture does not really speak of miracles at all; that is to say, the Heb. and Gr. words do not carry the precise connotations of the modern Eng. Word.

It may be that the term "wonder" indicates that such events are wonderful and amazing; similarly the word "power" shows the need of a more than human endowment; and the word "sign" refers to the purpose of these events. But a knowledge of Heb., Gr., or Eng. words as such will neither take us beyond their ordinary meanings, much less avoid any real problems, and still less solve them.

As a transition to these problems one should note that, contrary to some recent, uninstructed views, regeneration and ordinary answers to prayers are not considered miracles. In Genesis 19:21, 22 the answer to Lot's prayer, namely, that a certain small city not be destroyed along with Sodom, does not look like a miracle. After Eliezer prayed, standing by the well, none of Rebekah's words and actions, which answered his prayer, was in any way miraculous (Gen 24:10ff.). Nor was Ezra's safe journey, prayed for in Ezra 8:21-23 and answered in Ezra 8:31, a miracle. Neither is regeneration a miracle, for the events to which Scripture applies the designation are public, visible spectacular events.

They must be visible events, for this is essential to their purpose. One of the words by which Scripture designates these events is "sign." They are signs, not so much to the agent as to the general public; hence they must be easily observable. In various places Scripture states the purpose of miracles. In Exodus 4:5 God told Moses to perform miracles in order "that they may believe that the Lord, the God of their fathers, ... has appeared to you." Thus the miracles attested Moses' divine mission. In the NT miracles attested Christ's claims. The man born blind reproached the Pharisees: "Why, this is a marvel! You do not know where he comes from, and yet he opened my eyes" (John 9:30; cf. John 3:2, and Matt 9:6; 14:33).

The miracle does not always so directly attest the divine messenger; sometimes in a more general way it impresses the beholder with the nature and attributes of God. The series of miracles mentioned in Exodus 15:13 express God's mercy; the miraculous punishment of Dathan and Abiram declared them to have been enemies of the Lord and so served as a warning to others (Num 16:30), and God's mighty acts demonstrate His greatness and power (Deut 3:24). There is also the miracle of the virgin birth. Thus, miracles by their purpose must be events in the external world, and not inward workings of providence and grace.

2. Theology and Science. This survey of the Biblical data has touched on two closely intertwined problems. The first may perhaps be called theological because theologians would like to have a definition of miracle. Yet the desire to frame such a definition is not motivated in all these events, but rather, to relate these events to the ordinary course of nature. In particular, since secular science often has denied the possibility of miracles, a Christian must know what they are before he can relate them to scientific law.

This problem early attracted the attention of Augustine. Holding the view that God created nature and that therefore any event in the visible world was natural, he concluded that miracles violate not nature itself, but what we know about nature. In one place he gives the impression that a miracle consists of accelerating natural processes, for when Christ turned the water into wine, He took only a moment to do what rain does by being absorbed by the vine and then fermenting into wine. Christ's healing miracles also can easily be thought of as an acceleration of natural recuperation. But surely the virgin birth, walking on the water, and the resurrection from the dead do not easily fit Augustine's theory.

The scheme of Thomas Aquinas is more intricate than that of Augustine, and in the following quotations one must note the definitive phrases and the references to nature.

Aquinas (*Summa Theologica I*, Q. 105, A. 6) asserts that “God can do something outside this [natural] order created by him, when he chooses—for instance, by producing the effects of secondary causes without them.”

Apparently this means that natural events are tied together in a series of causes and effects. The law of nature then is the law of causality. On this showing a miracle is an event, that has no cause—no natural, secondary cause, but the primary cause only, i.e. God. The secondary causes are presumably the efficient causes rather than the material causes, for in the case of Christ’s turning the water into wine, it is obvious that Christ used water as the matter on which He imposed the form of wine.

This miracle seems to be a proper example of the definitive phrase. Yet the example Aquinas actually gives is that of a man who lifts a heavy body: this, he says, is against nature, for it is against the nature of a heavy body to move upward. To our modern scientific mind there is nothing “against” natural law in picking up a rock; and to our Protestant Christian minds picking up a rock is a poor example of a miracle.

Strangely enough, Aquinas immediately proceeds to argue that “Where God does anything against that order of nature which we know and are accustomed to observe, we call it a miracle.”

This may be merely a repetition of Augustine; nevertheless there is some difficulty in the explanation of this proposition. What is the relation between a miracle and our knowledge? Is it our knowledge, or, rather our ignorance that makes an event a miracle? Aquinas allows that an eclipse does not seem miraculous to an astronomer, who knows its cause; though to a rustic who does not know its cause the eclipse seems miraculous. Is then the same event a miracle to a rustic and a natural occurrence to an astronomer?

Of course Aquinas does not settle for any such simple unsatisfactory account of miracles. An eclipse is not a miracle, even if the rustic thinks so; for a miracle is not an event whose cause is hidden merely from uneducated people. The cause of a miracle is hidden from all people, and this cause is God.

Some difficulty still remains. There are undoubtedly orders of nature still undiscovered and unknown by learned scientists. Nuclear fission was universally unknown only a few years back; and if this is what takes place in the sun and in novae, were these processes miraculous in the last cent.? Similarly there must be other discoveries yet to be made. We do not know the cause of cancer—nobody does—but does this make cancer a miracle? Then when the secondary cause is discovered, will it no longer be a miracle?

If, now, these suggestions are unacceptable, the explanations must be amended. Aquinas wrote, “Therefore those things which God does outside the cause which we know are called miracles.” He ought to have written that those things are miracles whose causes will never be known.

Even this amendment faces difficulties. First, no one can tell what new laws may be discovered; therefore no one could possibly know that an event was a miracle. This first

objection depends on the indefinite extension of knowledge of how nature works. There is also a second and more modern difficulty, a supposition that would not have occurred to Aquinas. It is the supposition that science never has discovered, and never will discover, any laws of nature. In this case every event would be a miracle because of our total ignorance of how nature works.

Absurd as this would have sounded to Aquinas, it is no idle speculation today. Operationalism, a contemporary philosophy of science, discussed below, is such a theory; and combined with the last quotation from Aquinas, it would imply that every event is a miracle.

Even aside from operationalism, Sir Isaac Newton freely admitted that he did not know the cause of gravitation but surely this does not make the fall of a pebble a miracle.

Another difficulty in Aquinas' view is that God must be the immediate and sole cause of a miraculous event. The "effect" must occur without the aid of secondary causes. There are, in fact, two difficulties in this conception. First, although cancer might thus be quickly ruled out of the category of miracles on a superficial view, yet more profoundly it seems necessary to know what the cause of cancer really is in order to know that God is not its cause. As long as we remain ignorant of the cause, the possibility remains open that God is the cause and every case of cancer is a miracle. The second difficulty is this: if God must be the cause of a miracle then demons cannot work miracles, as the Bible says they can. Naturally, Thomas is well aware that the Bible attributes signs and wonders to demons and false prophets. He tells us that "Pharaoh's magicians made real frogs and real serpents; but they will not be real miracles, because they will be done by the power of natural causes, as stated in the First Part, Q. 114, A. 4" (*Summa Theologica II ii*, Q. 178, Art. 1, Reply Obj. 1).

The reference in the First Part says, "If we take a miracle in the strict sense, the demons cannot work miracles, nor can any creature, but God alone; for in the strict sense, a miracle is something done outside the order of the entire created nature... But sometimes miracle may be taken, in a wide sense, for whatever exceeds human power and experience. And thus demons can work miracles..."

This explanation seems to be an evasion and subterfuge. There are indeed certain Biblical miracles where no created being was the agent; for example, the virgin birth, in which Mary was the patient, not the agent. But if the term miracle is to be restricted to such as this, the miracles of Moses are ignored. If, on the contrary, one wishes to explain the mighty works of Paul, one cannot rule out demons. Both Paul and the demons are created beings. To ignore their miracles by an arbitrary choice of "a strict sense," is to neglect the greater part of the material.

Therefore, Aquinas must and did say something about miracles "in a wide sense." Aquinas explains how the magicians produced frogs: "All the transformation of corporeal things which can be produced by certain natural powers, to which we must assign the seminal principles [that exist in the elements, and by which nature transmutes matter from one form to another], can be produced by the operation of the demons, by the employment of these principles; such as the transformation of certain things [a staff, or the water of the Nile] into serpents or frogs, which can be produced by putrefaction."

One should not judge Aquinas too severely for his reliance upon the science of his medieval society; but it still seems within the realm of scholarly propriety to question whether, apart from the science, the paragraph adds to our understanding of demonic miracles. Even if frogs are not produced by putrefaction, the account pictures the demons as advanced scientists, able to utilize the laws of nature in a manner not yet discovered in the 13th cent. And were the apostles advanced scientists also?

The Catholic Encyclopedia bases its theory of miracles on the Thomistic position. It insists, as Aquinas had done, that miracles must be evident to the senses. This is essential because of their purpose. They are to excite admiration, accredit a prophet, or in some way impress God's glory on the beholder. When, however, miracles are said to be evident, the intention must be, not only to rule out invisible spiritual experiences, but chiefly to maintain that the visible event is identifiable as a miracle. Identification, however, requires a criterion. By what criterion can a miracle be distinguished from any other unusual event?

To be identifiable as a miracle, says the Catholic Encyclopedia, the event must be either "above" nature, i.e. something nature cannot do, like the resurrection of Lazarus; or, "outside" nature, like the multiplication of the loaves, which nature can do, but not in the manner actually used; or, third, "contrary" to nature, of which no example is given.

The Encyclopedia continues: "In a miracle God's action relative to its bearing on natural forces is analogous to the action of a human personality [who uses nature but does not violate natural law]. Thus, e.g., it is against the nature of iron to float, but the action of Eliseus in raising the axe-head to the surface of the water (IV Kings 6) is no more a violation, or a transgression, or an infraction, of natural laws than if he raised it with his hand."

Now, it is surprising that a Catholic theologian would reduce Elisha's miracle to the level of picking up the iron with his hand. Confusion follows surprise because in the next paragraph the argument seems to assume that miracles violate natural laws. The question is, how can a miracle be identified? The encyclopedia explains that this depends on knowledge of natural forces: if certain events are natural, others that do not qualify are miracles. To quote: "In enlarging our knowledge of natural forces, the progress of science has curtailed their sphere."

The Catholic author prob. did not mean what he said, for the advance of science has curtailed the sphere of miracles, and he actually concludes: "Hence as soon as we have reason to suspect that any event, however uncommon or rare it appears, may arise from natural causes... we immediately lose the conviction of its being a miracle."

This view, however, seems to abolish all miracles. For, if knowledge of natural law enables one to identify a miracle (on the supposition that by this knowledge one can know what is not natural), no event could be so identified as long as science can advance and eventually bring the event in question under a law not now known.

Protestant theologians also have fallen into similar confusion. One of them summarily disposed of objections to miracles on the ground that if we can violate the law of gravitation by picking up a weight, there is no reason to suppose that God cannot. Unfortunately, on the basis of

Newtonian science, picking up a weight neither violates the law nor interrupts its action. To avoid such confusion theologians should consider the status of natural law.

3. Science and theology. Thus the discussion of miracles requires a philosophy of science. At this point the modern attack on the possibility of miracles begins.

David Hume (1711-1776), the most famous opponent of miracles, defined a miracle as a transgression of a law of nature. He then argued that since the laws of nature have been established by a firm and unalterable experience, there must be a uniform experience against every miraculous event.

This simply stated argument contains several complexities. First, it is not consistent with Hume's main position. In arguing against miracles Hume appeals to certain laws of nature, firmly established by uniform experience. But Hume's empiricism does not permit the assertion of any uniform or universal law of any kind. This was one of Kant's main points against Hume (cf. article on KNOWLEDGE).

If, in the second place, one wishes to retain the attack on miracles, and avoid inconsistency by dropping Hume's empiricism, several other difficulties come into view.

First, from the standpoint of strict logic the argument is invalid. To say that an unalterable experience has established these laws and that therefore violations cannot have occurred is to beg the question. The argument says no more than that miracles cannot have happened because no one ever saw a miracle. Such an argument offers as proof the very proposition it claims to prove.

Though the circularity of the argument is obvious, naturalistic scientists support it with massive buttresses. Experimentation, so they claim, has repeatedly confirmed certain mathematical equations, and these equations accurately describe the phenomenon in question; therefore these equations, so repeatedly confirmed, must describe phenomena outside the laboratories, both in the distant past and in the distant future.

Of course, neither the distant past nor, much less, any of the future has ever been observed. This was precisely Hume's point in his argument against universal truths, and it is difficult for an experimenter to escape the strictures of Hume's skeptical empiricism. The claim that all nature must conform to a minuscule section is a statement of faith based on something other than a firm and unalterable experience. It is not based on experience at all. To produce a philosophy that would justify this claim is difficult to do. With the help of a somewhat intricate argument, the thesis may be shown to be both impossible and even implausible.

The argument must proceed in two stages: first, the Newtonian science, regnant from 1685 to 1900, under which Hume's argument and the scientific materialism of the 19th cent. were formulated, must be analyzed and evaluated; second, the scientific revolution of the 20th cent. also must be taken into account.

Newtonian science was essentially the philosophy of mechanism. Mathematical equations, formulated on the basis of experimentation, were supposed to be accurate descriptions of how

natural processes took place. These equations enabled scientists both to predict and to understand. As Laplace put it: Given the positions and velocities of every particle in the universe, one can calculate their positions at any future time. Lord Kelvin claimed to understand if, and only if, he could construct a mechanical model of a natural phenomenon. When these laws and others not yet discovered are universalized, that is, when every motion and process throughout the universe is said to be describable by differential equations, miracles are ruled out. Life and mind are ruled out too, unless these words are used behavioristically to designate certain sets of physical motions.

This mechanistic philosophy was asserted with great confidence. Ludwig Büchner's *Kraft und Stoff*, which passed through at least seventeen Ger. and twenty-two foreign editions, claims absolute certainty on several pages and states that, "It follows with absolute certainty that motion is as eternal and uncreatable... as force and matter" (English ed. 1891, pp. 58-66); and, "With the most absolute truth and with the greatest scientific certainty can we say this day: There is nothing miraculous in the world" (*ibid.*, pp. 74-81).

Similarly Karl Pearson, in his *Grammar of Science* ([1911], pp. 14, 24) wrote, "The goal of science is... the complete interpretation of the universe... It claims that the whole range of phenomena, mental as well as physical—the entire universe—is its field." And he further asserted that science can pronounce "absolute judgments." Ernest Nagel's presidential address in 1954 before the American Philosophical Association depends substantially on Hume's type of argument when he said, "The occurrence of events... and the characteristic behaviors of various individuals are contingent on the organization of spatio-temporally located bodies, whose internal structures and external relations determine and limit the appearance and disappearance of everything that happens. That this is so, is one of the best-tested conclusions of experience... There is no place for... an immaterial spirit directing the course of events..." Hans Reichenbach expresses similar confidence: the results of science are "established with a superpersonal validity and universally accepted" (*Modern Philosophy of Science* [1959], pp. 136, 149).

This confidence is misplaced, and it is strange that Professor Reichenbach repeats a sentiment of 1900 sixty years later. So wide-sweeping are the changes science has undergone this cent., that the Newtonian laws are no longer universally accepted; and so rapid and so profound have these changes been, promising still wider changes to come, that no one can any longer believe that science has the absolute and final truth. If anything is universally recognized, it is that the results of science are tentative.

But to convince a stubborn mechanist who may still think that the new laws, however different from Newton's, and if not the new laws, some further equations will describe nature and rule out miracles, an analysis of laboratory procedures can show that such equations do not describe natural processes.

To justify these criticisms, the law of the pendulum will serve as an adequate example. The law of the pendulum states that the period of the swing is proportional to the square root of the length. If, however, the weight of the bob is unevenly displaced around its center, the law will not hold. The law assumes that the bob is homogeneous, that the weight is symmetrically

distributed along all axes, or more technically, that the mass is concentrated at a point. No such bob exists, and hence the law is not an accurate description of any tangible pendulum. Second, the law assumes that the pendulum swings by a tensionless string. There is no such string, so that the scientific law does not describe any real pendulum. And third, the law could be true only if the pendulum swung on an axis without friction. There is no such axis. It follows, therefore, that no visible pendulum accords with the mathematical formula and that the formula is not a description of any existing pendulum.

Further analysis supports the same conclusion. All experimentation depends on measuring a line, perhaps the length of mercury in a thermometer, perhaps the distance on a balance between the zero mark and another mark on the scale, or perhaps some other line. Whatever the line may be, the scientist measures it many times, and his readings all differ. The temperature is never the same and the weight always changes. Now, when the scientist adds up his readings and computes their mean, one may ask why the arithmetic mean describes the natural object more accurately than one of the actual measurements. One also may ask why, if an average must be used, the arithmetic mean is a more accurate description of nature than the mod, or perhaps the median.

These two considerations, the example of the pendulum and the measurement of a line, suffice by themselves to show that the laws of science are not descriptions of nature's workings. A third and more technical point is utterly conclusive.

After the scientist calculates his mean, he calculates the variable error. That is, he subtracts each reading from the mean and takes the average of these differences. This gives him some such figure as $19.31 \pm .0025$. The plus or minus quantity designates a length and not a point. The significance of this lies in the fact that when the scientist draws his curve (equation) on a graph, he is not restricted to points, but may draw his curve anywhere through certain areas. This means that the experimental observations, already modified mathematically, never limit the scientist to any one law, but allow him to choose from among an infinite number of equations. Since in this situation there is zero probability of selecting the law that actually describes nature, it would be a miracle if he did so. What is worse, even if the miracle should occur, the scientist would never know it.

Therefore Newtonian science, quite apart from the amazing 20th cent. advances, could never rule out miracles because its methods do not result in a knowledge of how nature works.

Twentieth-cent. science is no more successful in this regard, although it is incredibly more successful in other ways. Newtonian physics was overthrown for several reasons. Its first law of motion is scientifically unverifiable; its need for simultaneous measurements cannot be met; the quantum theory replaced the untenable wave theory of light, and produced a confusion that scientists can utilize but cannot explain; a new equation for the addition of velocities was needed; and the law of gravitation proved inconsistent with the distribution of galaxies in distant space.

What is important in this for miracles is not any of the scientific details, but the new philosophy of science which these advances simulated.

Traditionally science had been regarded as an attempt to understand and describe nature. This is still the popular view, but it no longer commands universal assent among scientists. Many physicists consciously accept a new theory called operationalism, and presumably all physicists have at least some operational ideas embedded in their thinking.

Operationalism is the theory that the concepts of science, instead of referring to or describing natural objects, are defined by and express the operations of laboratory procedure. Length, for example, is not a characteristic of a pendulum, it is a set of operations. Since the operations of measuring a pendulum are quite different from those by which the diameter of a molecule is measured, and these are vastly different from the operations of measuring distances in stellar space, there is not one concept of length or distance, there are three. In ordinary Eng. one word may be used, but it has three vastly different meanings; it refers to three different things; it refers to three sets of operations.

The aim of science therefore is not to understand or describe the actual processes of nature. The aim of science is to utilize nature for human purposes. That utilization can occur without an understanding of natural processes can easily be made clear; and it is worthwhile to make it clear because intervention and its accompanying prediction often are used to defend the truth of scientific laws.

The argument claims that if a scientist can predict an eclipse or produce television, the result confirms the laws he used and proves them true. This argument is a logical fallacy that goes by the name of "asserting the consequent." It may be true that a given equation implies the occurrence of an eclipse at a certain moment, or that other equations imply the success of television; but the occurrence of the eclipse does not imply or justify the law. One might as well argue: if it is raining, I carry an umbrella; look, I am carrying an umbrella, therefore it is raining.

The flaw in the fallacy of asserting the consequent lies in the fact that although Kepler's laws actually imply an eclipse, many other sets of possible laws also imply the same eclipse. Therefore the occurrence of the eclipse does not confirm one set rather than another. Successful prediction and invention, accordingly, is no evidence of the truth of any law of science.

If one were now to brush aside considerations of logic and were to make the optimistic claim that, whatever flaws Newtonian science may have suffered with, the second half of the 20th cent. has at last discovered the absolute and final truth, so final that no more changes will ever occur, it would remain undeniably obvious that the invention of the steam engine, telegraph, incandescent bulb, and airplane was accomplished through the application of laws we now know to be false. Why then cannot the present laws be false without preventing still more amazing interventions?

The argument therefore is this: since science can make no pronouncement on how nature operates in its ordinary course, it has no basis on which to conclude that miracles cannot happen.

This defense of the possibility of miracles has been rather minimal or negative; it has put the matter in the worst possible light. No doubt this is proper strategy against enemy attack, but the full force of the case for miracles requires something more positive.

It has been shown that the attack on miracles was not based solely on laboratory observation; nor even on the subsequent mathematical manipulation. Rather there was a non-observational, a priori assumption that mechanism was universal and that either there is no God at all, or at most some impersonal principle unable to operate in the world otherwise than through mechanism.

The Christian position on miracles is not set in such a materialistic or pantheistic background, nor even in a more neutral or noncommittal background. Under any such conditions miracles would be suspicious, freakish, or out of place.

When, however, one adopts a view of the world as God's creation, and when God is regarded as a living, acting, personal Being, the appropriateness of miracles depends on God's purposes. In such a theistic world-view, where God desires to have some converse with mankind, the occurrence of miracles is no longer an anomaly.

Also to be noted is the fact that apart from the purpose of God no connotative definition of miracles can be derived from the Biblical events usually so regarded. A denotative list is all that can be had and is all that is necessary. The Christian is not obliged to defend a "transgression of a law of nature" or any other definition: he needs only defend the occurrence of the events described in the Bible.

Furthermore, the Biblical view takes account of human sin, another anomaly in pantheism or scientism; and if God has plans of redemption, miracles may be confidently expected.

When the Biblical miracles are taken out of their proper setting, the argument against them can seem plausible. Hume tried to compare the Resurrection of Christ with a hypothetical resurrection of Queen Elizabeth. Since few people would believe that Queen Elizabeth had risen from the dead, even if twelve or five hundred witnesses said so, Hume wished to conclude that we should not believe that Christ rose.

In spite of a superficial plausibility, Hume's argument contains several defects. First, even he admits that he could not account for the apparent death of Elizabeth, although this apparent death is necessary if witnesses to a resurrection are to be mistaken. Second, Queen Elizabeth may have been the virgin queen, but she was not virgin born, nor did she work miracles, nor was her reign prophesied hundreds of years beforehand. Hume is trying to place a resurrection in a life where it does not fit. Christ's life was quite otherwise.

Then, finally, and most profoundly, Hume's argument acquires its superficial plausibility by refusing to face the question of divine providence and revelation. He shows that a resurrection is alien to his concept of world history. But this is irrelevant, for the miracles of Christianity take place in a different sort of world.

If God lives, miracles are not only possible, they are appropriate; and whether or not one has occurred is not a question for secular science, but is a matter of testimony by divinely appointed witnesses.

4. Modern miracles. At the beginning of this article one of the reasons given for studying the subject was the evaluation of certain post-Biblical claims. The Roman church claims to have performed miracles throughout the Middle Ages and down to date. Currently there are popular evangelists who claim to heal. One publishes a magazine advertising a prayer cloth, which when placed on the forehead will relieve a headache. Then there is the phenomenon of speaking in tongues, earlier restricted to the Pentecostals, but now having spread to other denominations.

The scientific argument just completed does not permit a common argument often used against faith healing. Instead of denying the cures claimed by the Romanists and Pentecostals, some people admit the events occur, but assert that they can be explained by natural, perhaps psychological, laws, and therefore are not miraculous. The analysis of scientific procedure shows that no one has ever discovered a natural law, and therefore these cases of healing cannot be so classified.

Nor did the earlier examination of Scriptural data discover any common characteristics of all miracles, on the basis of which one could decide whether a contemporary cure exhibits the necessary traits. The only characteristic discoverable in Scripture is the fact that miracles are unusual and amazing; otherwise, to all appearances, they were performed in a variety of ways. But amazement comes in many degrees, for which reason the question under consideration is difficult.

Many alleged miracles are patently fraudulent. B. B. Warfield in his *Counterfeit Miracles* gives some medieval examples, such as the starving Christina Mirabilis nourishing herself with her own virgin milk. But no matter how many fraudulent miracles there may be, it does not prove that all are. Similar is Warfield's comparison of the cures at Lourdes with sudden and remarkable cures in hospitals by the command of a physician, without any medical treatment, all in a situation where no suggestion of divine intervention is present. This may be sufficient to cause us to lose confidence in Lourdes; but it provides no valid implication with respect to other alleged miracles.

One must admit the same thing concerning speaking in tongues. The phenomenon was fraudulent and contrived in the Irvingite movement; presumably it is usually the result of extraordinary emotional strain, and in no way amazing; but the possibility still remains that some cases are a gift of the Holy Ghost.

It does not seem possible therefore by any direct and conclusive argument to demonstrate that miracles do not occur today. Even if they were not very numerous, an advocate of modern miracles could point out that Biblical miracles were not equally numerous in every cent. Sometimes two, three, or even four centuries went by without a recorded miracle.

Yet this fact of the sporadic occurrence of Biblical miracles lends itself to a somewhat indirect argument, not technically valid, but which nonetheless decreases one's confidence in modern claims.

The miracles of the Bible occurred at times of great crises, and, as has been shown, were intended to attest a divine messenger—Moses, Elijah, or Christ—and thus to initiate a new stage of religious history. The present world crisis is more political than religious, and resembles the fall of Rome. Civilization more than a religious upheaval such as Christ and the apostles accomplished. The charismatic movements have not brought a new revelation on par with the Bible; thus their tongues and faith healing must be viewed with suspicion.

This indirect and not quite conclusive argument against modern miracles is well stated by Warfield in the book already mentioned: miracles ceased to occur in the 1st cent.; 2nd cent.—writers do not mention any as having happened in their day; the beginning of the medieval superstitions is in the late 3rd or 4th cent.; and since true miracles were intended to support the authority of the apostles, none have occurred since.

The crux of this argument lies in connecting miracles exclusively with special revelation. And indeed this is consistent with the Biblical statements about the purpose of miracles. Support for this conclusion also may be found in 1 Corinthians 13:8, “as for prophecies, they will pass away; as for tongues, they will cease.”

But if the exegesis is doubtful and the tie between miracles and revelation a little loose, a firm conclusion may nonetheless be drawn that there is no conclusive proof that miracles actually have taken place since apostolic times. The burden of proof lies heavily on those who assert modern miracles.

Their claims would become more plausible if one of them were to walk on the Sea of Galilee, feed five thousand people with five loaves and two fishes, or raise the dead. This would be amazing; it would indeed be miraculous.

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