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# The Philosophy of Science 5: A Biblically Based Approach to Science

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**Abstract**

I conclude my survey of the nature, practice, and history of science with recommendations for a truly biblical approach to science. Given the ancient pagan roots of what we know as science, and the post Enlightenment hijacking of science, one may be tempted to reject all of science as practiced today and start over. However, science is a useful tool to study the natural world. A careful examination of what science is and how we do science can result in salvaging a God-honoring and biblically faithful philosophy and practice of science.

**Keywords:** science, philosophy of science, ontology, epistemology

## Introduction

This is the final paper in a series of five papers. In Paper 1 (Faulkner 2022), I discussed what science is and how we do science, but I avoided discussion of the history of science, leaving that to the next three papers. In Paper 2 (Faulkner 2023a), I briefly traced the origin of science from the ancient Greeks through the Middle Ages. In Paper 3 (Faulkner 2023b), I continued my brief history of science through the transition from the Middle Ages to what we now recognize as science that developed in the seventeenth century. In Paper 4 (Faulkner 2023c), I finished my brief survey of the history of science through the revolution of modern physics that began a century ago. In my discussion of the history of science, I focused on physics and astronomy, partly because these are my fields of expertise. However, there was a second reason. Astronomy and physics played significant roles in the development of science, as evidenced by the Galileo affair that still casts a long shadow today. I certainly would welcome responses of those in the other sciences who think my approach may have not treated the other sciences fairly.

Paper 2 (Faulkner 2023a) discussed how the ancient Greeks appear to have been the first society that approached the study of the natural world in a way that resembles the way science is done today. That is, the Greeks drew inferences from what they observed to reach general conclusions about phenomena. It is not clear why other ancient cultures failed to approach the study of the world this way or what aspect of ancient Greek culture made it unique in this regard. Paper 2 (Faulkner 2023a) also pointed out that the common belief that people did not do science this way during the Middle Ages is false. It is true that in the late Middle Ages some thinkers developed an attitude of using deductive reasoning rather than inductive reasoning to study the world, but others, such as Roger Bacon and later Francis Bacon, opposed this movement.

Paper 3 (Faulkner 2023b) discussed the revival four centuries ago of a vigorous empirical approach to studying the world which led to the modern scientific revolution. Some of this change can be attributed to developments in technology that provided scientific instruments, such as the telescope, microscope, barometer, and air pump, as well as progress in mathematics, such as calculus and analytical geometry. However, one may ask what prompted the invention of these things in the first place. Perhaps creating these things was motivated by a shift in thinking about the natural world. That shift in thinking was the Protestant Reformation, which fostered the early growth of modern science. The Reformation tore down the barrier between the terrestrial and celestial realms that had held sway for two millennia, producing an underlying assumption of the universality of physical law. But even in this revolution, humanistic thoughts were mixed in, becoming more evident during the so-called Enlightenment in the eighteenth century. This evil seed took root in the nineteenth century with the introduction of a more secular (atheistic) approach to science. This is best expressed by Auguste Comte's positivism. Positivism asserts that all knowledge is either analytic (true by definition) or synthetic (derived from observation). A corollary of positivism is that the natural world is all that exists, which amounts to an atheistic assumption. This has led to methodological materialism, which excludes the possibility of Divine intervention in the world. While positivism is not discussed in the natural sciences today and few scientists are aware of this term, most scientists' thinking is influenced by positivism. Since positivism is not discussed in science today, some people may prefer the term metaphysical naturalism or just naturalism.

### Metaphysical Naturalism

Of course, if there is no God, then miracles cannot occur. It's not that creationists are quick to invoke miracles. Creation scientists recognize that miracles, defined in the sense of departures from the way that physical processes normally operate, are rare in the world. In this sense, both creation scientists and secular scientists conduct science in much the same way. Secular scientists frequently accuse creationists of invoking a God of the gaps. The God of the gaps is usually meant as a derogatory term. Skeptics argue that theists invoke God when there is a gap in our knowledge. Common examples are thunder and lightning. Until relatively modern times, thunder and lightning were not understood, so throughout much of history some deity or deities were claimed as the cause of these phenomena. However, as man's understanding of the natural world expanded, the gaps in man's knowledge shrank, along with the need for deities to explain phenomena. Presumably, with greater knowledge, the remaining gaps will be closed, and there will be no need of God.

However, this mischaracterizes creationists in at least two ways. First, this introduces a false dilemma, that either God directly causes things, or natural forces do. It is true that today we have a good understanding of the physical processes such as those that cause thunder and lightning. However, secular scientists never question the origin of those physical processes, assuming that is just how the world works. Creationists understand that God ordained the physical processes that cause things such as thunder and lightning. Therefore, while God may not be the immediate cause of natural phenomena as assumed in the God of the gaps argument, God is the ultimate cause of natural phenomena.

Second, creationists acknowledge that we do not fully understand the world. For instance, there are many unresolved issues in modern physics, as briefly discussed in Paper 4 (Faulkner 2023c). But this is operational science, which is not the point of contention. Creation scientists' disagreement with secular scientists is over the origin and history of the world. Evolutionary biologists often admit that they don't know how life began, but they are quick to add that this is merely a gap in our knowledge, indicating faith that one day this gap will be filled. But abiogenesis is no mere gap in knowledge. Rather, abiogenesis contradicts all that we have observed about living things. The insistence that abiogenesis happened at least once in the past on the earth negates well-established science, and so amounts to a faith statement. I sometimes call this thinking "evolution of the gaps."

The problem of the supposed naturalistic origin of life is an example of the problem that arises when discussing possible past processes that we did not observe and hence cannot test. This difficulty has led some scientists to make a distinction between operational science (the science of the here and now) and historical, or origin, science. Early in the scientific revolution, scientists busied themselves with studying and describing the world as it now exists. This did not prohibit scientists then from speculating about the past, but such musings were not put on the same level of discussions of operational science. But today those two very different studies of the natural world are merged to the point that most people, including scientists, do not know the difference between the two. For instance, many critics of creationists say that "disbelieving evolution is like disbelieving gravity." Of course, gravity is a phenomenon that can be observed and studied in the world today, but biological evolution is a hypothetical past process that cannot be studied the same way that gravity can be studied.

How did such blurring of operational and historical/origin science come about? The physical world is real and exists. We can study the physical world in the here and now without necessarily any consideration of how and when the world came to be. However, positivism asserts that there is no supernatural, leaving only natural processes to explain everything. As the influence of positivism took root, scientists came to believe that only natural processes could lead to what exists. Since science is the study of the natural world, then it followed, given the atheistic assumption underlying positivism, that studying the origin and history of things in the physical world is just as legitimate as operational science. It is unlikely that creationists and non-creationists can ever come to agreement on this point because it is a philosophical/religious question, not a scientific one.

Suppose for a moment that a physical entity has a supernatural origin. Since positivism excludes metaphysical explanations and thus permits consideration only of natural, or physical, explanations, then a positivist scientist must make up a natural explanation. It does not matter how illogical, contrived, or ill-founded the natural explanation may be, it must be true. This sort of reasoning follows the dictum attributed to the fictional character Sherlock Holmes that "when all possibilities are eliminated, whatever remains must be true." This sort of thinking has blinded many scientists to the problem of naturalistic origins. A rare exception to this trend is Denton (1986). Though not a creationist, Denton recognized many problems with biological evolution.

The origin of life is a good example. There is no satisfactory natural explanation of how life began on earth (abiogenesis), but that has not deterred people

from believing in abiogenesis anyway. Going back to the ancient Greeks, people thought that living things arose out of non-living things. For instance, it was once thought that rotting meat gave rise to maggots. More than three centuries ago, Francesco Redi's experiments demonstrated that this belief was false. Many other experiments, culminating in those of Louis Pasteur in the nineteenth century, put to rest the notion of spontaneous generation of life. In retrospect, it is shocking that belief in spontaneous generation was widely accepted well into the nineteenth century, finally resulting in establishment of the law of biogenesis, that life arises only from living things.

Ironically, as Pasteur was hammering the last nails into the coffin of spontaneous generation, the seeds of a new abiogenesis, the naturalistic origin of life, were being sown. Many people blame Charles Darwin for this, but is he the one most responsible? Darwin published his *Origin of Species* in 1859, but in that book and his subsequent writings, Darwin never addressed the ultimate origin of life.[1] That task fell to later scientists, such as Alexander Oparin, who began publishing his theory of the origin of life in the 1920s. Why have so many scientists ignored the law of biogenesis in favor of a naturalistic origin of life? This is the fruit of Comte's positivism. Life is an incredibly complex system that defies naturalistic origin, but if one eliminates supernatural origin a priori, then a natural origin is the only remaining option, even if there is good evidence that contradicts such an idea.

This nontheistic approach to science has been called "methodological naturalism," a term that Ronald Numbers credits to Paul De Vries in 1983. According to Numbers (2003, 320),

> DeVries distinguished between what he called "methodological naturalism," a disciplinary method that says nothing about God's existence, and "metaphysical naturalism," which "denies the existence of a transcendent God."

At least in Christian circles today, the person most associated with the discussion of methodological naturalism is Phillip Johnson, one of the founders of the intelligent design movement. In a series of books, Johnson (1991; 1995; 1997; 1998; 2000) criticized the assumption of methodological naturalism in science as well as other fields. Johnson was criticized for allegedly failing to distinguish between methodological naturalism and metaphysical naturalism (aka philosophical naturalism).

Was Johnson guilty of equivocation as his critics insist, or were Johnson's critics in error? Those same critics maintain that creationists deny methodological naturalism by resorting to a God-of-the-gaps philosophy. However, when discussing operational science, both creationists and evolutionists, as well as Phillip Johnson, practice a form of methodological naturalism in that none of them sees God necessarily intervening in the world in a manner that is out of the ordinary.[2] Thus, there is no real disagreement between secular scientists and creation scientists when studying the world as it now exists and operates. The problem arises when one considers origins. Application of methodological naturalism to origins immediately transforms into metaphysical naturalism. This transition is so subtle and so quick that virtually no secular scientists are aware of it. This is the stark divide between creationist scientists and secular scientists.

There appear to be two points of contention creationists have with the way that science is conducted today. One point of contention is the philosophical exclusion of God from any discussion involving science. It is not that creationists are eager to invoke God's intervention in a willy-nilly fashion. Creationists are very sparing in invoking miracles, generally reserving those where scripturally warranted, such as the Creation, Jesus' virgin birth, His miracles, and His resurrection from the dead. Creationists recognize that these miracles are not subject to scientific investigation, so creationists do not suggest that science can be used to confirm that they happened. Thus, one may question why creationists have a point of contention here. The problem is that while many secular scientists believe that they practice methodological naturalism, they really have assumed a position of metaphysical naturalism in their operational scientific work (even though in their private lives they may believe in God). Metaphysical naturalism is then extrapolated into the past to assert that these miracles did not occur. Such a conclusion is far beyond the purview of science. Since past events, including miracles, cannot be subjected to scientific investigation, then this conclusion is not a conclusion at all but rather a

[1] Although Darwin did state in a private journal entry (later published by his son Francis) his belief in abiogenesis "It is often said that all the conditions for the first production of a living organism are now present, which could ever have been present. But if (and oh! what a big if!) we could conceive in some warm little pond, with all sorts of ammonia and phosphoric salts, light, heat, electricity, &c., present, that a proteine compound was chemically formed ready to undergo still more complex changes, at the present day such matter would be instantly devoured or absorbed, which would not have been the case before living creatures were formed.

[2] Jason Lisle would disagree with this. Lisle (2009) argued that Christian scientists assume that God has ordained the world to work in a consistent, orderly way, but that secular scientists have no such expectation. Hence, secular scientists can practice their trade only by stealing from the Christian worldview.

starting assumption. Just because a scientist denies miracles and the supernatural does not make it true. It doesn't even make it science.

This problem was probably best illustrated by Carl Sagan (1980, 4), who said

> The cosmos is all there is, all there ever was, and all there ever will be.

Upon hearing or reading this quote, many people, including scientists, consider it to be a profound scientific statement. However, there is not a whit of science in it. As a scientist, how could Sagan have made such a statement with any confidence? Sagan would have needed to go outside of the cosmos (the totality of the physical existence in which we live) and see that there was nothing there. Furthermore, Sagan would have needed to have done this at all times in the past, as well as all times in the future. To be able to do this, Sagan would have needed to possess the qualities that we associate with the Supreme Deity. That is, to confidently reach this conclusion, Sagan would have to be an entity (the Creator) that his conclusion denies exists. Therefore, rather than being a scientific conclusion, Sagan's quote is a bold assertion of his worldview, denying the possibility of there being a Creator. Sagan was free to hold this philosophical position; but he had no right to pass this off as a scientific conclusion. Whether Sagan intended the latter is unknown. Whatever Sagan meant, many people took his statement as a scientific conclusion.

## Limitations of Science

Ontology is the study of the nature of being. The question of what exists and the nature of what exists is the central question that philosophers have always addressed. Of necessity, ontology intersects with epistemology, the study of knowledge, what we know and how we know it. As discussed in previous papers in this series, what we now call natural science originally was called natural philosophy, for it was viewed as the philosophical study of the natural world. As discussed in Paper 2 (Faulkner 2023a) and Paper 3 (Faulkner 2023b), the emerging natural philosophy in the late Middle Ages and early modern times resulted in tension between the natural philosophers and "classical" philosophers. Traditional philosophy heavily relies upon deductive reasoning, while natural philosophy relies more on inductive, or even abductive reasoning, thus making natural philosophy a field distinct from classical philosophy. This tension between these two disciplines may have been a major factor why William Whewell proposed replacing the term natural philosophy with natural science two centuries ago. As the gap between philosophy and what we now call science widened, this tension increased.

While many philosophers are aware of this tension, few scientists appear to be. I became aware of this tension as I prepared this series of papers. There are philosophers who specialize in the philosophy of science, but relatively few scientists concern themselves with such matters anymore. Consequently, some philosophers of science seem to think that scientists do not have a grasp of the fundamental nature of what they do. I find that characterization of scientists to be a bit harsh. With my interaction with philosophers over the years, I have found that scientists and philosophers look at the world in very different ways, so perhaps the problem is that today philosophy and science are distinct disciplines to the extent that standards of evidence and reasoning in the two fields don't overlap much. However, philosophers who criticize scientists this way raise a good point. Few scientists have any formal education in the philosophy of science. It would behoove scientists to study some of the philosophical basis of their craft. As I pointed out in Paper 1 (Faulkner 2022), it is rare for a scientist to have taken a single class in the philosophy of science in his or her education. Scientists seem to assume that one comes to know what science is by doing it.

To this end, I highly recommend the recent book by Steven L. Goldman (2022). Goldman opened his book with:

> What do scientists know and how do they know it? Straightforward questions, surely, and important ones, yet over the four hundred-year history of modern science, no answers have stood up to crucial scrutiny. (Goldman 2022, 1)

On the next page, Goldman stated:

> In this book, I argue that an understanding of how scientists produce knowledge has proven elusive because there is a logical inconsistency at the heart of modern science. Modern science is based on a conflation of deduction and induction, rationalism and empiricism, realism and conventionalism.

Goldman went on to give a thoughtful history of science with emphasis on the relationship between ontology and epistemology. Scientists seek certainty about the world around them, but the natural world is physically outside of our minds, so scientists' road to knowledge is through empiricism. But an inductive method does not lead to certainty, only probability. Certainty can be gained only through deductive reasoning. As discussed in Paper 1 (Faulkner 2022), to claim certainty with inductive reasoning commits the fallacy of affirming the consequent. What about scientists' ontology of the natural world? Scientists seem to assume some things about the natural world, but those notions about the natural world are gleaned only through empiricism, so there can be no certainty about the nature of the natural world to

begin with. As Goldman observed, modern science has existed for four centuries without any agreed-upon resolution to this thorny problem, despite the best efforts of philosophers and scientists. In the next section, I will propose a solution to this problem for Christians, though I expect non-Christians will not find it satisfactory.

As discussed in Paper 4 (Faulkner 2023c), positivism is the assumption that science is the only means man has for finding truth. Expounded in the early nineteenth century, positivism is a little-known term today, even among scientists. Nevertheless, most scientists today are thoroughly invested in positivism (which we can call philosophical naturalism). This supposed single pathway to truth is fraught with limitations. One crippling limitation was discussed in Paper 1 (Faulkner 2022). Since science is a process of making inferences about the world, science largely relies upon inductive and/or abductive reasoning. But one can never be certain that the conclusions reached with this type of reasoning are true. We can consider any given scientific conclusion to have a very high probability of being true, but good scientists will always recognize that there could be some other hypothesis that better explains what we see in the world. Consider the earth's shape. Most people think the earth is a globe, and there is tremendous evidence for that conclusion. However, it is at least hypothetically possible that the earth is some other shape.[3]

This is a most distressing realization for a positivist or philosophical naturalist. The positivist begins with the assumption that science is the only way to find truth. But if one understands this limitation of science, then even science cannot be relied upon to find truth. If one can never be certain that one has found truth, then what is the point in searching for truth? With this shaky foundation, it is no wonder that in postmodern thinking there is doubt that truth even exists.

But the situation gets worse. Since science is a man-made discipline that is practiced by men and women, and since all people are fallible and distorted by sin, then it follows that all sorts of errors can creep into even the most carefully planned and executed scientific studies. What kinds of errors? We may overlook relevant data. We may misread data. Most data are measurable and hence are quantifiable. Even if we correctly read data, measurements are subject to all sorts of errors. There is no infinite precision, even in a Newtonian world. There are misunderstandings of which data are relevant and which data are not. Even the implications of data can be misconstrued. And we can certainly misinterpret data.

It is common for two scientists to reach different conclusions based upon the same data, something that Goldman (2022) repeatedly stressed. How can this be if science is supposedly objective? The obvious answer is that science as practiced is not as objective as the ideal of science. This is because people are involved. People naturally have biases which can blind them to data that contradict their theses. These biases generally are rooted in one's starting assumptions. These assumptions can be deeply rooted, so deeply rooted that one is not even aware of them. This was well stated by Stephen Jay Gould:

> Our ways of learning about the world are strongly influenced by the social preconceptions and biased modes of thinking that each scientist must apply to any problem. The stereotype of a fully rational and objective 'scientific method,' with individual scientists as logical (and interchangeable) robots, is self-serving mythology. (Gould 1994)

An example of deeply ingrained assumptions is how people in the West historically viewed the age of the universe. The ancient Greeks generally thought the universe was eternal. This thinking persisted well into the second half of the twentieth century. I have often wondered why, given the heavy influence of biblical Christianity on the development of science as we know it, few scientists did not come to reconsider the eternality of the universe prior to the twentieth century. What part of "in the beginning…" of Genesis 1:1 did they not understand? It is ironic that it was the introduction and eventual wide acceptance of the big bang model after 1965 that led to the abandonment of belief in the eternality of the universe. It ought to have been people who at least gave lip service to biblical creation leading the charge against an eternal universe, but it was not. Despite the claims of some Christian apologists, if there ever was a theistic basis to the big bang model, the big bang has now become a very atheistic model, as evidenced by the writings of men such as Steven Weinberg (1977), Stephen Hawking (1988), and Lawrence Krauss (2012).

The clearest distinction between secular scientists and creation scientists is their assumptions about the origin of the world. One group is committed to metaphysical naturalism; the other is not. Secular scientists are not open to the possibility of a Creator. Creation scientists hopefully base all their thinking upon that Creator and His Word. That is why the two groups pursue radically different explanations of the

[3] A flat-earther once asked me how certain I was that the earth is a globe. I responded that, as a scientist, I cannot be entirely certain about any scientific conclusion, but that I was more certain about the earth's shape than most other scientific conclusion. He was not satisfied with my answer. Flat-earthers fall into the trap of demanding certainty from science. Consequently, most flat-earthers proclaim that they know the earth is flat.

history of the world, even though their methodology in science is much the same, and they mostly agree on the way the world operates today. The real difference is philosophical, not scientific.

## A Biblical Approach to Science

How should biblical creationists view science? The foundational starting point is that the Bible is God breathed (2 Timothy 3:16–17). Thus, the Bible is trustworthy and authoritative in all that it addresses, and it is profitable for all good work, including the pursuit of science. The definition of science that I adopted in Paper 1 (Faulkner 2022) is that science is the study of the natural world using the five senses. The meaning of natural here is in contrast with supernatural. Since God created the natural world (Genesis 1:1; Exodus 20:11), then God comes before nature. As I pointed out in Paper 3 (Faulkner 2023b), the Protestant Reformation had a strong influence on the development of science as we know it. The Protestant Reformation tore down the barrier between the physical heaven and earth, allowing for the universality of physical laws on both earth and in the celestial realm. But before it did that, the Reformation tore down the barrier between the less literal heaven and earth. That is, it removed the separation of the sacred (higher calling) and the secular (lower calling), permitting the pursuit of science to be a calling from God as part of the dominion mandate (Genesis 1:28). This resulted in a working hypothesis that since Jesus as Creator sustains the world moment by moment (Colossians 1:16–17; Hebrews 1:3) and as God is a God of order and decrees, it follows that God imprinted onto nature a consistent pattern of how He sustains the world.

This pattern was unexpected in the worldview of the ancient Greeks and in other philosophical and religious systems around the world. Through the influence of Augustine and Aquinas, the Roman Catholic Church adopted much of ancient Greek attitudes toward the physical world. Augustine wedded Christian theology to Neo-Platonism, while Thomas Aquinas introduced Aristotelian and Ptolemaic science into Roman Catholic theology. The reformers reevaluated many things that had been assumed by Christians up to that time. While the reformers still held to much of Augustine's teachings, they were far more wary of Aquinas, which allowed the reformers to distance themselves from Aristotelian thinking. Consequently, when Galileo and others found that Aristotle's science was in error, it was much easier for Protestants to accept the developing new science than it was for Roman Catholics. For instance, early reformers of the sixteenth century had difficulty with the Copernican model, but Protestants soon were much more receptive to alternatives to the Ptolemaic model. Therefore, it is not an accident that science began to flourish in Protestant Europe four centuries ago. This sentiment was summed up very nicely by Kepler when he said that he was seeking to think God's thoughts after Him.

But just because many men who revolutionized science were heavily influenced by the Bible and true Christianity, it doesn't mean they didn't have their blind spots. Consider Isaac Newton. Newton was a serious student of Scripture. He spent far more time studying the Bible than science and math. Newton ended up writing ten times as much on the Bible and theology as he did on math and science. Newton's *Observations upon the Prophecies of Daniel, and the Apocalypse of St. John* was published in 1733, six years after his death, but much of Newton's theological writings remain in the form of notes. Those who have poured through those notes have found that Newton had some peculiar beliefs, including rejection of the doctrine of the Trinity (Iliffe 2017). And while the founders of science as we know it may have been steeped in a biblical worldview, they rarely explicitly invoked the Bible in their scientific writings. As Wise and Spivey (2015, 8) have noted,

> At least since the founding of the Royal Society of London in the seventeenth century, input from the Word of God has been excluded from the standard methodology of modern science ('Wordless science').

Indeed, the lack of explicit biblical input into science began much earlier. The Royal Society was founded in 1660, but Francis Bacon's very influential *Novum Organum* was published four decades earlier, and it lacks direct scriptural input (Mortenson 2004, 21–24).

There were early attempts to establish a clear biblical foundation for science. For instance, in 1576, the French Calvinist theologian Lambert Daneau published *Physice Christiana*, in which he argued for a scriptural basis for physics. In 1578, John Twyne published an English translation with the title *The Wonderful Workmanship of the World*. Much of what Daneau wrote was similar to Francis Bacon's *Novum Organum* nearly a half century later, so why did Bacon receive so much attention while Daneau did not? It could have been a matter of timing—earlier writers making the same case as Francis Bacon, such as Roger Bacon, failed to have the impact that Francis Bacon had. But could the reason that Daneau received so little attention be that Daneau explicitly appealed to Scripture while the latter Bacon did not? If so, then the founders of modern science who were influenced by biblical Christianity declined to make their craft truly biblically based, opting instead for a sort of baptism of ancient pagan science. So, while science as we know it today is a product of a Christian worldview, not all scientists at the time of modern science's founding were consistently Christian in

their thinking on this important philosophical issue.

The scientific revolution in the seventeenth century did not happen spontaneously. Rather, the founders of science as we know it built upon the works of those who preceded them, tracing roots back to the ancient Greeks, who were largely, if not exclusively, pagan. There is no indication that this pagan connection was viewed as a problem among the founders of science as we know it in the seventeenth century. If there were, that would have been commission of the genetic fallacy. Just because one is wrong about even basic worldview issues, it does not follow that one is wrong about everything. All humans are made in the image of God and therefore endowed with the ability and desire to seek truth, though their efforts are corrupted by sin. However, it is fair to evaluate a person's worldview to determine if hidden assumptions may have influenced their thinking. If some elements of their science were truly of pagan origin and contrary to biblical thinking, then the influence of those elements can be both very subtle and dangerous and therefore should be considered carefully. Can we sort through the worldview issues underlying science and determine whether any of them are inappropriate for our use? Yes.

Science is mostly an inductive (or, alternately, an abductive) process, drawing inferences about the natural world by what we observe. A good example of this process is determining the cause of lunar phases as I discussed in Paper 2 (Faulkner 2023a). If one observes the moon over several lunar cycles, it is very clear that the moon is spherical, and it reflects light from the sun, resulting in the lunar globe being half lit. As the moon orbits the earth each month, the amount of the lit half of the moon that is visible changes, producing lunar phases. This is a very simple, straightforward explanation for lunar phases; no other realistic proposal explains the moon's phases. While the ancient Greeks practiced inductive (or abductive) reasoning this way, they did not explicitly discuss this sort of reasoning in a formal way. This contrasts with how the ancient Greeks formally treated deductive reasoning. As I discussed in Paper 2 (Faulkner 2023a), the high regard of the ancient Greek's approach to deductive reasoning in the late Middle Ages led to some stifling of a more inductive approach. It was this school of thought that both Roger Bacon and Francis Bacon (and Daneau) opposed. It was about this time that writers began to discuss inductive reasoning in a more formal sense.

Whether one prefers deductive or inductive reasoning, the ancient Greeks practiced both (as do scientists today). Given that the ancient Greeks were pagan, should Christians reject deductive and inductive reasoning on this basis? What about mathematics? We trace the foundations of mathematics to pagan sources as well. Mathematics is abstract, something that exists in our minds. Yet, mathematics appears to be firmly rooted in the concrete world too (as Plato taught in his theory of forms). For instance, 2+2=4 is an intangible fact of mathematics, but it also reflects a tangible reality that is easily confirmed by counting real objects, such as apples (though one ought not to attempt this with apples and oranges). Perhaps I will take up this dual nature of mathematics in a future paper. If we are to reject science and deductive reasoning because of its pagan roots, might we reject mathematics as well? Obviously not. In similar manner, the mere fact that the pagan ancient Greeks may have been the first people to formally develop deductive and inductive reasoning is not sufficient grounds to reject deductive and inductive reasoning. As I noted before, that would commit the genetic fallacy. Deductive and inductive reasoning, if practiced properly, can lead to good conclusions.

Furthermore, like mathematics, rational thought (which involves deductive and inductive reasoning) has a basis in the real world. Things are true because they are true. Things make sense because they make sense. That is, truth and reason have an objective reality. Lisle (2009) argued that the existence of truth and reason only exists in a world where truth and reason objectively exist, but the objective reality of truth and reason cannot exist in a world apart from God. That is, rather than reason being opposed to a biblical worldview, reason is complimentary to, nay, required by, a biblical worldview. Hence, more than anyone else, Christians ought to be supportive of the use of reason. One only needs to read commentaries and theological writings of the past to see this. One cannot properly expound biblical passages without applying sound reasoning. Nor can one deduce theology from Scripture without good reasoning. To this end, many colleges and universities in the United States were founded primarily to educate pastors. For instance, the private universities Harvard and Yale were founded for this purpose. Indiana University, the state-supported university where I obtained my Ph.D., also started as a seminary. However, like Harvard and Yale, Indiana University quickly abandoned its original purpose. Two centuries ago, some of the most educated people in the Unites States were pastors. Sadly, that is not the case anymore, for many conservative Christians today view higher education with suspicion. One prominent preacher in the late twentieth century reportedly expressed this sentiment by saying "education is fine, if one can get it and get over it." Rather than oppose the growing secularism in higher education, by the turn of the last century many Christians were abandoning higher education. Consequently, higher education today is

given over to naturalism and is especially the home of dedicated Darwinists.

Why do so many Bible-believers view higher education so negatively? It is likely because of the antibiblical turn that education began to take in the nineteenth century, facilitated by the departure of biblical Christians from the field. Led by old-earth geology and Comte's rejection of the metaphysical, and then influenced by Darwin, scientists increasingly made their practice an entirely secular venture. The rise of theological liberalism (rooted in Deism) played a major role too, with its rejection of the inspiration of Scripture expressed in such ideas as the documentary hypothesis. This shift in thinking away from theism occurred in other academic disciplines at the same time. Rather than battling this trend as James Clerk Maxwell did, many Christians chose to abandon the field of battle. This allowed secularism to dominate education, along with science. Consequently, Christians are now stereotyped as being uneducated and foolish. It is imperative that Christians correct this wrong thinking in their midst. Creation scientists perhaps are in the best position to lead this campaign. But first, we ought to establish a biblically based philosophy of science.

Overman (2021) recently proposed a six-step process for a biblically based science:

1. Ask what does the Bible specifically say
2. Ask what biblical principles apply
3. Search existing literature and knowledge
4. Create hypotheses to fill in gaps of knowledge
5. Perform experiments to test the hypothesis
6. Draw biblically-based conclusions

Overman illustrated this approach with Russ Humphreys' accurate prediction of magnetic field strengths of Uranus and Neptune. This rubric is good as far as it goes—it describes "the scientific method" as I discussed in Paper 1 (Faulkner 2022). However, as I also discussed in Paper 1 (Faulkner 2022) there is more to science than just formulating and testing hypotheses.

Overman attempted to define science in such a way that science can be done only by explicit and continual reference to God and creation. While well intentioned, this approach is unlikely to gain much acceptance or respect among scientists, including those who otherwise agree with Overman about creation and the Creator.

Wise and Spivey (2015) have attempted a fuller treatment of the philosophy of science, what they call Asymptotic IMaging (AIM) teleology. Rather than summarizing what they said, let me quote from them:

> We believe this AIM (Asymptotic IMaging) teleology—where humans asymptotically converge on perfect imaging of God—provides a foundation for a distinctly Christian epistemology. Here we pursue the implications of AIM teleology for a Christian philosophy of science.
>
> If God created the physical world so that humans could forever grow in the knowledge of God, then several things are true about humans (*e.g.* human senses, memory, and reason are generally reliable) and several things are true about the physical world: *e.g.* it exists; it has an order simple enough to be discerned by individual humans; its regularities are unifiable and continuous in space and time; it contains truth; truths about its visible things yield truths about unseen things; there is value in understanding its truth; and its truths are cumulative. All these claims are presuppositions of science—assumptions which must be assumed to do science and must be true for science to work. AIM teleology provides a philosophical foundation for the presuppositions of science—a foundation unknown outside of Christian doctrine. Since it argues for the truth of the presuppositions of science, AIM teleology also explains why science has been so successful at acquiring truth about the physical world.
>
> At least since the founding of the Royal Society of London in the seventeenth century, input from the Word of God has been excluded from the standard methodology of modern science ('Wordless science'). AIM teleology would explain why this Wordless science has converged on many false inferences about God and interpretations of the physical world—especially in studies of pre-Abraham history. We believe that the inclusion of biblical truth should prevent some of these mistakes and increase the efficiency and accuracy of scientific studies. To justify the use of Scripture, we recommend that creationists adopt an epistemology of science (such as is suggested by AIM teleology) that embraces the use of God's Word in studying the world.

Notice that AIM teleology is more comprehensive than just "the scientific method." Rather, it is an attempt to develop a biblical epistemology that one may use to approach science. This is the sort of thing that creation scientists ought to pursue.

How do creationists view miracles? Morris (1984, 81) has described two classes of miracles. Class A miracles are miracles that violate the way the world normally works. Examples of this are many of the miracles that Jesus performed, such as changing water into wine, raising Lazarus from the dead, healing paralyzed people, and causing the blind to see. Class B miracles are those that work within the way the world normally operates but with highly unusual or even unique circumstances. An example of this would be the parting of the Red Sea by a great east wind that God used rather than a direct act of God (Exodus 14:21). In some cases, it may be difficult to discern which type a particular miracle may be.

However, it is clear enough that the creative acts of the Creation week were class A miracles. It is not as if creation scientists are eager to invoke miracles whenever it suits them. Creation scientists readily admit that miracles are the rare exception to how the world normally operates. The problem is that secular scientists are closed-minded to the possibility that miracles have ever, or ever will, occur. That is a metaphysical assumption just as much as the biblical assumptions that creation scientists make.

Since class B miracles operate within the normal processes of the physical world, it is at least hypothetically possible to replicate the circumstances of these miracles or at the very least understand them in terms of the processes through which the physical world operates. In this sense, it is possible to explore class B miracles within the scope of science. However, class A miracles cannot be studied by the process of scientific investigation.

But what of the effects of either type of miracles? Miracles tend to have physical consequences. Consider Jesus feeding the five thousand. If a scientist were present, he could have examined and tested the blessed and distributed bread and fish to confirm that they were real and probably similar to any other bread and fish. For that matter, all four gospels record that 12 baskets of leftover food were collected. Even if a scientist were not present at the miracle, for some time afterward the scientist could have conducted any number of tests on the remaining food. All four gospels record that the hunger of the crowd was satisfied. This implies that digestion of the food occurred. A proctologist or scatologist could have conducted scientific tests of the aftermath of the miracle. None of these scientific tests would have proved that a miracle had occurred, but that is not the point. The point is that miracles result in physical processes, and since physical processes can be studied scientifically, the consequences of miracles are within the purview of science.

To biblical creationists, the best and most relevant example of this is the Genesis Flood. Many models of the Flood, such as catastrophic plate tectonics, posit that the Flood was the consequence of a class B miracle. But what if the Flood really was initiated by a class A miracle? It doesn't matter because either way, the Flood was a physical process, and physical processes can be studied scientifically. That is, the aftermath of the Flood is a legitimate scientific endeavor, though we must always recognize that this is within the realm of historical science, not operational science.

Ultimately, creation scientists do not practice their trade that differently than secular scientists. This is particularly true in the realm of operational science. Even when pursuing historical science, the methodologies used by creation scientists and secular scientists are similar. The only difference is the starting (worldview) assumptions. Because of the testimony of God's Word, creation scientists believe God created the world in six normal days only thousands of years ago. On the other hand, secular scientists reject the Word of God and are committed to naturalism, which a priori eliminates the possibility of a Creator. This leaves the secular scientist with the conclusion that the world must have come about through entirely natural processes. Professing Christians who accept evolutionary ideas such as the big bang model and billions of years may think this distinction is too simplistic or even harsh. However, one must ask these people just how their beliefs about the origin of the world are different from atheists. The only difference seems to be that theistic evolutionists think that there is a God behind all that has happened in the past despite all supposed evidence to the contrary. This position seems worse than that of deists.

But even recent creationists can be lulled into thinking that God has ordained physical laws to operate in the current world, without any direct interaction of God today, excepting extremely rare miracles. How is that any different from deism? Careful reading of Colossians 1:16–17 and Hebrews 1:3 imply a much more intimate interaction of God with His creation. Both passages speak of Jesus as the creator of the world (which is strong scriptural evidence that Jesus is indeed Deity). In the English Standard version, Colossians 1:16 reads,

> And he is before all things, and in him all things hold together

and Hebrews 1:3c states

> and he upholds the universe by the word of his power.

What does it mean that in the Creator "all things hold together" and that "he upholds the universe by the word of his power?" That does not sound like a God who ordained laws that sustain the world after He created it, much like a deist might argue. Rather, it sounds like a God who moment by moment is directly involved in His creation. What would happen if God were to stop holding all things together? The implication of these two verses is that the world might cease to exist or at the very least suddenly and dramatically change. We tend to think the destruction of the cosmos prophesied by 2 Peter 3:10 will be the result of God's intervention in the world (a miracle), but perhaps it simply will be accomplished by God ceasing to uphold the world.

This puts an entirely different spin on the meaning of natural laws. Rather than laws that God has ordained to govern the world, natural laws are simply man's description of the consistent manner that God upholds the world moment by moment.

People generally view miracles as direct acts of God, as opposed to the usual course of events, what we often equate with natural laws. But since God continually acts to sustain the creation, then the agency behind natural laws is not fundamentally different from the agency acting in miracles. In that sense, even natural laws are miraculous. Therefore, study of the natural world can be very God honoring and hence the pursuit of science can be a very holy calling, as mentioned in Paper 4 (Faulkner 2023c).

In the previous section, I promised a resolution to the problem of a starting point for science that Goldman (2022) identified. Secular scientists make a metaphysical assumption of philosophical naturalism, that there is no Creator and hence there is no God. It's not that secular scientists are atheists; it's just that they practice their craft as if there is no God. With this assumption, there is no philosophical basis for knowing anything about the nature of the physical world since what we may know of the world can be gained only through empiricism. That is, even the existence of the world is empirical and hence subjective.

In contrast, creation scientists assume that God exists and that He has revealed Himself and much about the world through the Bible. Hence, we have assurance that the natural world exists. Thus, we have a deductive foundation of the reality of the physical world for our starting point. Some may object that this is a metaphysical assumption, and indeed it is. However, it is no less reasonable than the metaphysical assumption of philosophical naturalism. Of course, I don't expect any secular scientists to agree with this starting point (if they did, by definition, they would no longer be secular scientists). Nor do I expect many secular scientists to grant this metaphysical assumption legitimacy or equality with their metaphysical assumption. As Lisle (2008) has pointed out, the regularity and predictability that we see in the world is unexpected in the secular worldview, but it is demanded in the biblical worldview. That is, the reality of the physical world and the regularity of how the world operates are necessary corollaries of a biblical worldview. Hence, the biblical worldview is a surer foundation for doing science.

## Conclusion

It is often said that the Bible is not a science book. I'm inclined to agree with that. The Bible does not offer much in the way of inductive or abductive reasoning, the primary way that science is conducted. Rather, the Bible is packed with propositional truth. We either accept that truth or we reject it. That is hardly the way that science is done. This does not mean that biblical truth is not reasonable, for one can test many of the claims of Scripture. This is the importance of biblical apologetics, as expressed in 1 Peter 3:15. While the Bible may not be a science book, it is a history book. The Bible briefly describes the history of the world. Biblical history may not reveal as much detail that many of us may prefer, but it is clear enough, and that history contradicts much of what most scientists today believe and profess. This is what places creation scientists at odds with most scientists today. This has not always been the case, as science as we know it arose four centuries ago mostly in Protestant Europe by people who were heavily influenced by Scripture, and most of them believed Genesis.

However, as discussed in Paper 3 (Faulkner 2023b), post-Enlightenment thinking hijacked science, shifting the foundation from thinking God's thoughts after Him to being entirely based upon man's thoughts. As discussed in Paper 4 (Faulkner 2023c), this dramatic shift in thinking was best expressed by Comte's positivism of the nineteenth century, a philosophical basis that infuses most scientists today. Positivism is the assumption that the physical world is the only reality. Since this amounts to a denial of theism, this is just as much a metaphysical assertion as the affirmation of God's existence is. Positivism as practiced today was succinctly stated by Sagan (1980) in the opening of his book and program *Cosmos*. I hope that other creation scientists will find my modest proposal as a starting point for science helpful.

Creation scientists have a daunting task. Do we raze science and entirely reconstruct it? I think not, for that would be throwing the baby out with the bathwater. The Bible is not a textbook in which God expounded how the world currently works. Exploring how the world works is part of the dominion mandate (Morris 1995). Thus, the pursuit of science can be a holy calling, provided it is carried out with the proper attitude and biblical presuppositions (including the literal history in Genesis1–11. The task is to identify and clear away the methodology of science that is at odds with the dominion mandate. First and foremost, we must believe and understand that God has created all things and sustains all things.

As such, creation scientists are free to pursue all hypotheses about both the past and present. The touchstone must always be to question whether our ideas are consistent with or in contradiction with what God has revealed in His word. If our ideas conform to Scripture, we are free to pursue those ideas.

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