



Kathryn Applegate

A Defense of Methodological Naturalism

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Methodological naturalism, the scientific practice of limiting the explanation of natural phenomena to only natural mechanisms, is a wise and powerful means of investigating the created order. While today it is often conflated with philosophical naturalism (the view that nature is all that there is), methodological naturalism was originally upheld by philosophers and scientists who sought to honor God by discovering his work in creation and by not invoking him in place of secondary causes. Methodological naturalism, backed by an understanding of the doctrine of creation, is for the Christian a theologically motivated practice. Whatever process one studies, from the birth of stars to intracellular dynamics, it does not explain away God's activity in the world. Also, methodological naturalism has the practical benefit of allowing people of diverse worldviews to discover the workings of God's creation, whether or not they acknowledge it as such.

Common Grace in the Lab

I do not recall when I first understood the distinction between “methodological naturalism,” the convention in science of appealing to natural explanations for natural phenomena, and “philosophical naturalism,” the worldview that denies the existence of God and the supernatural realm. I do, however, remember the wave of relief that washed over me when I realized that the practice of science does not entail functional atheism, as I worried it might, but rather is compatible with a number of different worldviews.¹ I was a young graduate student working in a lab of a dozen people from almost a dozen different countries, many with religious and philosophical outlooks radically different from my own. Yet, we worked well as a team in studying the role of the cell's internal scaffold, the cytoskeleton, in the process of cell migration.

Before I understood the distinction between methodological and philosophi-

cal naturalism, I had two recurring concerns. First, I feared that I was somehow neglecting God in my work, despite an active attempt to do my work “as unto the Lord” (Col. 3:23–24). Second, the atheist and agnostic scientists around me seemed to be discovering real facts about nature. This latter observation bothered me because, having grown up in the Bible Belt, I had spent time with Christian brothers and sisters who rejected all music, literature, educational styles, and so on that were not explicitly Christian. My family did not do this, nor did my church advocate it that I can recall, but somewhere along the line I internalized the belief that the work and thinking of unbelievers were fundamentally flawed.

Kathryn Applegate is program director of The BioLogos Foundation, where she directs the Evolution and Christian Faith grants program. She earned a PhD in computational cell biology from The Scripps Research Institute in La Jolla, California, where she developed computer vision algorithms to measure the remodeling activity of the cell's internal scaffold, the cytoskeleton, and authored or co-authored papers in *Science*, *Nature*, *Journal of Cell Biology*, and other journals. This paper was originally presented as part of a panel on methodological naturalism at the annual ASA meeting in August 2011, and was later presented at Wheaton College in March 2012.

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My expectation, then, was that science as practiced by Christians should look very different from science practiced by unbelievers. Thankfully, upon coming to graduate school in San Diego, I began worshipping at a church that gave me a theological foundation that showed me why this was not necessarily so. The pastor taught that because all people are made in the image of God, we can expect everyone to reflect God's truth and goodness to some extent. Also, just as he causes the sun to rise both on the evil and the good (Matt. 5:45), God dispenses incredible skills and intellect to all kinds of people to bless the whole human family.²

We often hear the phrase "all truth is God's truth" and are rightly reminded that all knowledge and wisdom come from above, but the larger context of St. Augustine's exhortation actually centers on this idea of common grace: "A person who is a good and true Christian should realize that truth belongs to his Lord, wherever it is found, gathering and acknowledging it even in pagan literature ..." ³ These doctrines of the image of God and common grace helped me see my non-Christian scientific colleagues in a humbler and gentler light—despite our different worldviews, we were all seeking and finding a real form of truth.

Finding God's Glory through Methodological Naturalism

I still had the other concern, which was that while I could see God's purposeful hand in what I was studying, it did not translate into my experimental design or calculations or results in a manner that clearly differed from my secular colleagues. I saw God's creation when I looked in the microscope; I praised him for it; I even—tentatively—had some water-cooler conversations with my colleagues about it. But at the end of the day, how could I glorify God if he was not "allowed" as an explanation for the things I was studying? It felt contrived and dishonest to act as if God did not exist or was not at work in the world when I sensed so strongly the opposite, and yet that seemed to be the default assumption in the scientific community.

Relief came, as I said, when I discovered that acceptance of methodological naturalism does not also require acceptance of philosophical naturalism.

At that time I was ignorant of the long history of scholarly conversation on this topic—much of which has taken place in this journal.⁴ What I discovered was that not appealing to God in science is not the same as denying his activity in the world—far from it! Accepting that science is equipped to study only a subset of reality (that which is accessible to empirical investigation) is very different from asserting that everything that exists has come about by purely material causes. Furthermore, the Bible reveals a God who normally accomplishes his purposes through means such as natural processes or human activity.⁵ His sovereignty and rational character give strong support for believing that creation operates primarily by regular principles that can be discovered through science.⁶

A robust Christian theism sees science as a systematic way of discovering God's means of creating and sustaining the material world.⁷ In this light, the entire scientific enterprise brings God glory because it illuminates one of the two books of revelation he gave us, the book of nature.⁸ Also, because God is the author of all things (the "first cause"), we need not worry that discovering natural mechanisms ("second causes") will, in any way, diminish his creativity and glory.

As history has shown, appealing to nonnatural explanations in the laboratory for phenomena we cannot explain tends to short-circuit discovery and gives the impression that God is at work only in areas of mystery. Appealing to natural explanations in science, on the other hand, helps us to better appreciate those nonnatural explanations arising from other disciplines and everyday life.⁹ For example, we see God's hand and purpose at work in "knitting together" a baby in the womb, even as we marvel at the perfectly natural, regular details of the development process. Rather than causation being a zero-sum game in which teleological (that is, relating to purpose) and mechanistic explanations compete with one another, we can view them as complementary accounts of reality.

Methodological Naturalism: The Standard View

The distinction between methodological and philosophical naturalism turns up most frequently in

discussions of science and Christianity. In his impressive volume *Darwin's Pious Idea*, Christian philosopher Conor Cunningham makes the distinction in the first sentence of his 112-page chapter on naturalism, declaring methodological naturalism to be “eminently sensible” and philosophical naturalism to be “the liquidation of existence itself.”¹⁰ Scientism, the closely related philosophical position that “science is the only begetter of truth,”¹¹ is, according to Cunningham, “a massive intellectual pathology being peddled in the West.”¹²

C. S. Lewis illustrates the difference between methodological and philosophical naturalism in his characteristically colorful style:

Science works by experiments. It watches how things behave. Every scientific statement in the long run, however complicated it looks, really means something like, “I pointed the telescope to such-and-such a part of the sky at 2:20 a.m. on January 15th and saw so-and-so,” ... Do not think I am saying anything against science: I am only saying what its job is ... But why anything comes to be there at all, and whether there is anything behind the things science observes—something of a different kind—this is not a scientific question.¹³

Of course there is much more to science than simple observation, but here Lewis correctly points out that science is limited in the kinds of questions it can answer. Confusion often results when we fail to recognize whether a given question is best answered by science or by philosophy.

Philosopher Michael Peterson, in an article about Lewis's views on natural theology and science, points out that

Lewis was a purist regarding the role of science and rejected any notion that its methods can deal with qualitative matters and values, let alone prove (or disprove) a Transcendent Intelligence or God.¹⁴

Lewis frequently appealed to philosophical design arguments,¹⁵ but he rejected scientific design arguments such as those made by the Intelligent Design (ID) movement today. The problem with ID as a scientific argument, Peterson points out, is that God's explanatory role in nature is made to compete with natural explanations.¹⁶ Importantly, while several kinds of natural theology arguments either implicitly or explicitly make the case for a Transcendent

Intelligence, Lewis shows that not all design arguments are equally valid, and we ought not to feel compelled to use weak ones.

In the early days of science, the practice of methodological naturalism was an admission of the limitations of empirical inquiry. The focus and function of scientific methods were to elucidate the secondary causes through which God works.¹⁷ Methodological naturalism has been redefined over the past couple of centuries as a way to distinguish science from nonscience; now it is often used to cut the scientific wheat from the religious chaff.¹⁸ As I am not a philosopher, I cannot adequately comment on the usefulness of methodological naturalism as a demarcation criterion. Its pre-nineteenth-century usage is what I defend here.

Methodological Naturalism: Rejected and Redefined

While it seems obvious to many of the working scientists I know, even to those who are agnostics or atheists, the view that science is silent on the question of God's existence is under assault in our culture today. The so-called New Atheists loudly declare that science, especially evolutionary biology, is the “universal acid” (to borrow Daniel Dennett's image) that will dissolve traditional religion. Young earth and old earth creationists, on the other hand, reinterpret scientific findings to make them support particular readings of the Bible. Both sides fall prey to scientism and abuse the limits of scientific knowledge.¹⁹

Modern science emerged in the Christian West, and historians have demonstrated that certain assumptions consistent with a biblical worldview were important in its development.²⁰ Methodological naturalism was encouraged by devout natural philosophers such as Francis Bacon, Robert Boyle, and Isaac Newton, and the practice continues to be defended by Christian scientists today.²¹ The ID community tells a different story, however. In a primer about ID, William Dembski and Jonathan Witt argue that methodological materialism (their term for methodological naturalism) is inherently atheistic. In their view, it represents a marketing strategy for Darwinist ideology. They write,

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Only about one in ten Americans is an out-and-out atheist, but atheists have managed to extend their influence by selling religious people a related idea called methodological materialism. In its most ambitious form, methodological materialism says that we can believe whatever we want in our personal life, but when we're doing serious academic work, we should only consider and defend explanations fully consistent with philosophical materialism.²²

This view of methodological naturalism as a back door to atheism and moral relativism represents a clear departure from the traditional view, and it is curious, given the sizeable number of scientists who accept the convention and yet enjoy an abiding faith.

While not all ID advocates make this argument, it has been observed that “the center of gravity of the [ID movement] is a rejection of methodological naturalism.”²³ In his book *Signature in the Cell*, ID theorist Stephen Meyer argues that methodological naturalism is a restrictive and arbitrary standard in science. In 2005, Judge John E. Jones ruled in the famous Dover, Pennsylvania, trial that ID theory is not science. Seeking to demonstrate why the ruling was wrong, Meyer writes that Judge Jones rejected ID as science because of methodological naturalism. According to Jones's definition (which Meyer relegates to an endnote), methodological naturalism is the “self-imposed convention of science, which limits inquiry to testable, natural explanations about the natural world.” In other words, the standard definition, no supernatural explanations allowed. But Meyer argues against Jones by using a subtly different definition himself:

Methodological naturalism asserts that to qualify as scientific, a theory must explain all phenomena by reference to purely material—that is, non-intelligent—causes. As Nancey Murphy explains, methodological naturalism forbids reference “to creative intelligence” in scientific theories.²⁴

In Meyer's view, methodological naturalism stipulates that all intelligent causes, including natural ones, are outside the bounds of science. Meyer then concludes that Jones's reasoning was circular. He writes,

Intelligent design isn't science because it violates the principles of methodological naturalism [summary of Jones's ruling]. What is methodological naturalism? A rule prohibiting consideration of

intelligent design in scientific theories [Meyer's definition].²⁵

In other words, according to Meyer, ID is not science because of an arbitrary rule. Importantly, Meyer's arguments against methodological naturalism work by redefining it. He does not adhere to the traditional descriptions articulated by Judge Jones or even Nancey Murphy, whom he cites in his own definition. In the original context, Murphy's phrase “creative intelligence” clearly refers to a transcendent supernatural being, not to just any intelligent agent.²⁶ Very few scientists and scholars would agree with Meyer that science tries to explain all phenomena by reference to strictly nonintelligent causes. The true disagreement is over whether supernatural causation can be identified using the methods of science. Meyer's claim of a circular argument is a classic equivocation fallacy.

Meyer goes on to argue that methodological naturalism is constraining. As he points out, numerous fields of science study or look for signs of intelligence: archaeology uses cultural artifacts to reconstruct past human activity; forensic science examines evidence left at a crime scene to determine who was responsible; and the SETI (Search for Extraterrestrial Intelligence) project looks for alien communication from outer space. If these endeavors do not count as science according to methodological naturalism, Meyer argues, then methodological naturalism must be too restrictive a criterion for what constitutes science. It is easily seen, however, that these fields do abide by the traditional definition of methodological naturalism, which only excludes supernatural explanations, not all intelligent causes.

Meyer further contends that, in many cases, methodological naturalism does no harm, but neither is it necessary. He gives an example: if someone answers the question, “How does atmospheric pressure affect crystal growth?” by saying, “Crystals were designed by a creative intelligence,” she has, according to Meyer, entirely missed the point—the answer should be about the relationship between gases and crystals. The question itself motivates the kind of answer it receives, and there is no need to prohibit inferences to a creative intelligence.²⁷

This is true up to a point, but not all scientific questions are posed so specifically. What if the

question were instead, “What makes a crystal grow?” We could imagine a team of scientists going to great lengths to quantify crystal growth under different pressure and temperature conditions, and with different mineral compositions, only to have someone suggest that it was God—or the scientists in the laboratory!—that made the crystals grow.²⁸ While technically a legitimate response, it also misses the spirit of the question and still leaves open the question of how: the appeal to intelligence, supernatural or otherwise, does not actually answer the mechanistic question we seek to answer.

As can be seen in many of their writings, ID theorists believe that modern science is fundamentally flawed. In their view, we ought not to assume that all natural phenomena have a natural explanation. And certainly, as a Christian who believes that God sometimes chooses to work outside of his regular chosen means of ordering the world,²⁹ I agree. I question whether science is equipped to investigate miracles, not whether they occur. Miracles appear, to me at least, to be in the blind spot of science.

The great Cambridge astrophysicist Sir Arthur Eddington gave a memorable analogy to illustrate the limitations of science:

Let us suppose that an ichthyologist is exploring the life of the ocean. He casts a net into the water and brings up a fishy assortment. Surveying his catch, he proceeds in the usual manner of a scientist to systematise what it reveals. He arrives at two generalisations: (1) No sea-creature is less than two inches long. (2) All sea-creatures have gills. These are both true of his catch, and he assumes tentatively that they will remain true however often he repeats it.³⁰

One can immediately see the folly of assuming that the net can sample all the sea creatures in the ocean. Neither can science capture all of reality, including the possibility of God’s direct action in natural history.

Importance of the Doctrine of Creation

Many have framed the concept of methodological naturalism as meaning that when scientists go to work, they either pretend that God does not exist or

that he is inactive in the physical world. For example, William Dembski and Jonathan Witt write,

[Methodological naturalism] affirms not so much that God does not exist as that God need not exist. Its message is not that God is dead but rather that God is absent. And because God is absent, intellectual honesty demands that we get about our work without invoking him.³¹

Clearly, if this is how people understand the practice, as I once did, there is justifiable concern. No Christian, even for professional reasons, can or should proceed this way, for to do so would quickly lead to a deistic or even atheistic perspective.

This mistaken formulation is no doubt due in part to the use of the word “naturalism.” Biologist Denis Alexander argues that methodological naturalism is perfectly sensible as a practice but as a term it can easily be confused with philosophical naturalism.

We don’t call Christian accountants “naturalistic” because of the absence of theological terminology as they check the company accounts, any more than we expect our doctor to use theological language when she tells us that we’ve got the flu, or the mechanic to refer to biblical texts when servicing our car. The absence of specific references to God does not render our lives suddenly “naturalistic.”³²

Alexander suggests we drop the term “methodological naturalism” and simply talk about scientific explanations instead. While this seems like wise counsel indeed, it is hard to imagine that eliminating the term would resolve all problems—especially since the meaning of science itself has proven so difficult to nail down.

For scientists to consciously glorify God in their practice of methodological naturalism, I believe that they must have a full-bodied embrace of the doctrine of creation, such as that articulated by Robert Bishop in an essay on the BioLogos website.³³ Bishop points out many aspects of the doctrine that are relevant to science, but here I will comment on just two.

We have already noted that science arose out of a Christian worldview that assumed intelligibility and regularity in the created order. Theologians speak of creation having contingent rationality: not only is creation dependent on God’s continual sustaining work, but God created freely, not out of

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compulsion. He could have created in any number of ways but chose to do so in a way that is at least partially intelligible to us through the means of common experience and scientific testing. Because of this contingency, we cannot simply reason our way to an accurate picture of the natural world. Consistent with the biblical invitation to “taste and see that the Lord is good” (Ps. 34:8), we are called to explore God’s creation with our senses and their technological extensions.

Creation also has functional integrity, meaning it has the capacity to be what God intends it to be in Christ. As Bishop points out,

The regularities God established in creation that minister to and provide the capacity for creation to become what God calls it to be are the same regularities that scientists study.³⁴

Functional integrity does not entail an independently functioning creation, however. In thinking about natural laws, no doubt many of us envision a mechanical clockwork universe. But the God of the Bible is not distant from his creation—in Christ “all things hold together” (Col. 1:17). G. K. Chesterton imagines God sustaining creation with the energy and playfulness of a child:

A child kicks his legs rhythmically through excess, not absence, of life. Because children have abounding vitality, because they are in spirit fierce and free, therefore they want things repeated and unchanged. They always say, “Do it again”; and the grown-up person does it again until he is nearly dead. For grown-up people are not strong enough to exult in monotony. But perhaps God is strong enough to exult in monotony. It is possible that God says every morning, “Do it again” to the sun; and every evening, “Do it again” to the moon. It may not be automatic necessity that makes all daisies alike; it may be that God makes every daisy separately, but has never got tired of making them. It may be that He has the eternal appetite of infancy; for we have sinned and grown old, and our Father is younger than we. The repetition in Nature may not be a mere recurrence; it may be a theatrical ENCORE.³⁵

Probably few of us think about divine action in this way, but I suspect it is closer to the spirit of biblical Christianity than the functional deism so pervasive in our churches today.³⁶ Perhaps surprisingly, methodological naturalism frees us to envision God

not as periodically “intervening” in our world (a word which connotes meddling or tampering), but as faithfully and lovingly preserving, redeeming, and remaking all things in Christ. Methodological naturalism, when practiced by a Christian, presupposes the sovereignty and consistent sustaining work of God.

Some Advantages of Methodological Naturalism

Peterson calls methodological naturalism

the idea that we should view science as a certain epistemological portal that we have refined over time and through which people of different religions, philosophies, and moral theories can make progress explaining natural phenomena by reference to natural causes.³⁷

At the beginning of this article, I touched on my own pleasant experience of the communal nature and truth-generating power of science, despite the diverse worldviews of my lab-mates. Unfortunately, these dual aspects of science have contributed to a serious problem. The fact that science is so successful irrespective of one’s religious persuasion has led to the perception that science is about facts, while faith is a mere matter of opinion. In reality, science and faith are not comparable per se—the better parallel is between science and theology, both of which generate truth claims through use of faith and reason. As illogical as it is, many have concluded that science is the basis of all true knowledge (that is, scientism) and that it may even represent a promising foundation for civil society. Lest we hold science itself responsible for this unfortunate development, we should remember that it is the good and noble things in life that make for the most seductive idols.³⁸ The fact that many in our age have worshiped at the throne of scientific progress does not mean that the practice of science is deeply flawed.³⁹ As a scientist, I see the collaborative success of science to be among the strongest and most pragmatic arguments for methodological naturalism. It just works.

Methodological naturalism also spurs us on toward deeper investigation of the natural world. What journal would accept a paper in which the author argued that stars form from the spirits of our ancestors, or that a tricky step in a chemical reaction

proceeds by the help of angels? These examples are silly, but the history of science is rife with examples of now-understood phenomena that were once attributed to the divine. With each new discovery, God's sphere of activity seemed to shrink. While it may be argued that this concern does not merit a full prohibition against appeals to supernatural causation, it does seem that such examples have occurred frequently enough to cast doubt that God is ever a good explanation. Recognizing God's governance over all of creation—whether we understand it or not—helps us avoid the temptation to invoke a miracle for some particular phenomenon.

Similarly, methodological naturalism prevents us from demeaning God by pitting him against his own creation. If it is to be either God or nature, we risk bringing God down to the level of a second cause such as photosynthesis or gravity. This way of thinking also tends to diminish God's regular sustaining activity in those parts of nature that we do understand. Methodological naturalism, paradoxically, helps us to appreciate perfectly legitimate non-scientific explanations. For example, a farmer can consider a rainstorm as an answer to prayer without rejecting the meteorological explanation for why it occurred.⁴⁰ Causation is not a zero-sum game.

Methodological naturalism further prevents us from trying to use science to answer ultimate, "worldviewish" questions.⁴¹ Although it ably answers the "How" questions, science will always fail to answer the "Why" questions. How many times have we heard the New Atheists declare that science eliminates the need to believe in God? Equally disastrous are those attempts by well-meaning Christians to prove God's existence using science. Both sides give too much authority to science and fall prey to scientism. Methodological naturalism is a sensible safeguard against such worldview creep.

Finally, coming back to a practical argument, science depends on empirical evidence and testing. Since God (or the Intelligent Designer, as the ID community would say) is free and unpredictable, virtually any empirical observation could be explained as a result of design. Anyone who argues against design based on flaws in the system can be thus rebuked (and rightly so): who are we to say what the Designer would or would not do? So, then, how do we test hypotheses if we cannot make predictions?

Meyer argues that ID theory can be tested by comparing it to all other hypotheses. If design has more explanatory power than all the others, it should be accepted as an inference to the best explanation. The problem, of course, is that the correct hypothesis may not yet be on the table. By practicing methodological naturalism, one does not deny the presence of design or teleology in the created order but simply removes it from the purview of science. And this, as we have already seen, is fine—as long as we see science as just one (albeit powerful) window into reality.

Conclusion

Far from leading us down a slippery slope to deism or atheism, methodological naturalism is a wise practice for Christians. Limiting science to natural explanations may not successfully uncover all the causes at work within our world, but this should not trouble us in the least—after all, it is not the job of science to provide a comprehensive view of reality.

Today, methodological naturalism is often misused to remove all reference to God or spiritual things from science. The version of methodological naturalism I have defended here is consistent with the view of Christian natural philosophers and scientists of previous ages who sought to honor God through their study of his creation. Methodological naturalism, along with the doctrine of creation, gives us freedom to explore God's regular means of creating and sustaining the material world. In doing so, we can bring our Creator greater glory and praise. ❖

Acknowledgments

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Notes

¹Some worldviews are not compatible with certain assumptions in science, such as the regularity of processes across time and space, or the rational link between observation and reality (e.g., radical skepticism). See Hugh

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G. Gauch Jr., *Scientific Method in Practice* (Cambridge: Cambridge University Press, 2003), chap. 4.

²Consider, for example, how non-Christians demonstrated gifts of skill and intellect in ancient natural philosophy.

³St. Augustine, *On Christian Teaching* (*Oxford World's Classics*) (Oxford: Oxford University Press, 2009), II.72, 47. John Calvin expressed a similar conviction,

All truth is from God, and consequently if wicked men have said anything that is true and just, we ought not to reject it, for it has come from God. (John Calvin, *Commentary on Timothy, Titus, Philemon* [Grand Rapids, MI: Christian Classics Ethereal Library], *Commentary on Titus* 1:12, 247–8, <http://www.ccel.org/ccel/calvin/calcom43.html>)

⁴See, for example, Alvin Plantinga, "Methodological Naturalism?," *Perspectives on Science and Christian Faith* (PSCF) 49, no. 3 (1997): 143–54; David J. Krause, "Response to Plantinga," *PSCF* 49, no. 4 (1997): 285–6; Robert C. O'Connor, "Science on Trial: Exploring the Rationality of Methodological Naturalism," *PSCF* 49, no. 1 (1997): 15–30; Robin Collins, "Response to O'Connor," *PSCF* 49, no. 4 (1997): 286–7; Keith Abney, "Naturalism and Nonteleological Science: A Way to Resolve the Demarcation Problem Between Science and Nonscience" *PSCF* 49, no. 3 (1997): 162–9; Walter R. Thorson, "Legitimacy and Scope of 'Naturalism' in Science," *PSCF* 54, no. 1 (2002): 2–21; Loren Haarsma, "Can Many World Views Agree on Science?," *PSCF* 54, no. 1 (2002): 28–9; Harry Lee Poe and Chelsea Rose Mytyk, "From Scientific Method to Methodological Naturalism: The Evolution of an Idea," *PSCF* 59, no. 3 (2007): 213–8; Walter R. Thorson, David F. Siemens Jr., and Harry Lee Poe, "Author Exchange: Poe," *PSCF* 60, no. 1 (2008): 39–42.

⁵See, for example, Psalm 104, where God sustains the regular activities of the created order, and Genesis 50:20, where Joseph professes that his brothers' evil actions were used by God to accomplish his divine purposes. Daniel 2:21 states God's sovereignty over both science and history:

He changes times and seasons [a matter for science];
he removes kings and sets up kings [a matter for history] ...

As one reviewer helpfully pointed out, some who balk at scientific explanations for natural events (such as the gradual development of species, including our own) do not seem to be as bothered by purely economic, political, or sociological explanations for events in human history. Why?

⁶See Thomas Torrance, *Divine and Contingent Order* (Oxford: Oxford University Press, 1981).

⁷Indeed, this was how many seventeenth-century natural philosophers understood their activities, as demonstrated by Robert C. Bishop in this issue, "God and Methodological Naturalism in the Scientific Revolution and Beyond," *PSCF* 65, no. 1 (2013): 10–23.

⁸According to Article 2 of the Belgic Confession,

We know [God] by two means: First, by the creation, preservation, and government of the universe, since that universe is before our eyes like a beautiful book in which all creatures, great and small, are as letters to make us ponder the invisible things of God ... Second, he makes himself known to us more openly by his holy and divine Word, as much as

we need in this life, for his glory and for the salvation of his own.

⁹These points (and a number of others) are nicely argued in an essay in which Paul de Vries first coined the term "methodological naturalism." Paul de Vries, "Naturalism in the Natural Sciences: A Christian Perspective," *Christian Scholar's Review* 15, no. 4 (1986): 389.

¹⁰Conor Cunningham, *Darwin's Pious Idea: Why the Ultra-Darwinists and Creationists Both Get It Wrong* (Grand Rapids, MI: Wm. B. Eerdmans, 2010), 266–8.

¹¹Richard C. Lewontin, "Billions and Billions of Demons," review of Carl Sagan, *The Demon-Haunted World: Science as a Candle in the Dark* (New York: Random House, 1996), *New York Review of Books* 44, no. 1. (1997): 31.

¹²Cunningham, *Darwin's Pious Idea*, 300.

¹³C. S. Lewis, *Mere Christianity* (San Francisco, CA: Harper-San Francisco, 2001), 22–3.

¹⁴Michael L. Peterson, "C. S. Lewis on Evolution and Intelligent Design," *Perspectives on Science and Christian Faith* 62, no. 4 (2010): 256.

¹⁵These included the traditional teleological argument, the cosmological argument, and the moral argument, among others.

¹⁶Peterson, "C. S. Lewis on Evolution and Intelligent Design," 258.

¹⁷See Bishop's article, "God and Methodological Naturalism in the Scientific Revolution and Beyond," in this issue.

¹⁸A lovely phrase used by Bishop in private correspondence.

¹⁹See Ian Hutchinson, *Monopolizing Knowledge* (Belmont, MA: Fias Publishing, 2011) for an insightful look at scientism in contemporary science and culture.

²⁰See, for example, John Hedley Brooke, *Science and Religion: Some Historical Perspectives* (Cambridge: Cambridge University Press, 1991); Peter Harrison, *The Fall of Man and the Foundations of Science* (Cambridge: Cambridge University Press, 2007).

²¹Ronald L. Numbers, "Science without God: Natural Laws and Christian Beliefs," in *The Nature of Nature: Examining the Role of Naturalism in Science*, ed. Bruce L. Gordon and William A. Dembski (Wilmington, DE: ISI Books, 2011). Bishop's article, "God and Methodological Naturalism in the Scientific Revolution and Beyond," in this issue gives a more theologically rich treatment.

²²William A. Dembski and Jonathan Witt, *Intelligent Design Uncensored* (Downers Grove, IL: InterVarsity Press, 2010), 23–4.

²³Del Ratzsch, *Science and Its Limits: The Natural Sciences in Christian Perspective* (Downers Grove, IL: InterVarsity Press, 2000), 130.

²⁴Stephen C. Meyer, *Signature in the Cell* (New York: HarperCollins, 2009), 434.

²⁵Ibid.

²⁶Nancey Murphy, "Phillip Johnson on Trial: A Critique of His Critique of Darwin," *Perspectives on Science and Christian Faith* 45, no. 1 (1993): 33.

²⁷Meyer, *Signature in the Cell*, 556.

²⁸Meyer has voiced exactly this kind of objection in the context of chemical evolution experiments. He argues that the very design of the experiments demonstrates the need for intelligence in generating functional nucleotide sequences. Stephen C. Meyer, "Response to Darrel Falk's

Review of *Signature in the Cell*," January 28, 2010, <http://biologos.org/blog/response-to-darrel-falks-review-of-signature-in-the-cell>. This reasoning is not uncommon. For example, we read on the Answers in Genesis website,

What if a scientist could make a living organism by combining chemicals in a lab? It would only prove that intelligent actions can make life—not that life arose spontaneously billions of years ago." (Roger Patterson, "Evolution Exposed, Chapter 5: The Origin of Life," March 22, 2007, <http://www.answersingenesis.org/articles/ee/origin-of-life>)

²⁹The Westminster Confession of Faith describes God's providential governance:

God the great Creator of all things does uphold, direct, dispose, and govern all creatures, actions, and things, from the greatest even to the least, by His most wise and holy providence, according to His infallible foreknowledge, and the free and immutable counsel of His own will, to the praise of the glory of His wisdom, power, justice, goodness, and mercy. Although, in relation to the foreknowledge and decree of God, the first Cause, all things come to pass immutably, and infallibly; yet, by the same providence, He orders them to fall out, according to the nature of second causes, either necessarily, freely, or contingently. *God, in His ordinary providence, makes use of means, yet is free to work without, above, and against them, at His pleasure. (Westminster Confession of Faith, 5.1-5.3)*

³⁰Sir Arthur Eddington, *The Philosophy of Physical Science*, 4th printing (East Lansing, MI: University of Michigan Press, 1958), 16.

³¹Dembski and Witt, *Intelligent Design Uncensored*, 112.

³²Denis Alexander, *Creation or Evolution: Do We Have to Choose?* (Grand Rapids, MI: Monarch Books, 2008), 186-7.

³³Robert C. Bishop, "Recovering the Doctrine of Creation: A Theological View of Science," The BioLogos Foundation, http://biologos.org/uploads/static-content/bishop_white_paper.pdf.

³⁴Ibid.

³⁵G. K. Chesterton, *Orthodoxy* (Whitefish, MT: Kessinger Publishing, 2004), 42.

³⁶The predominant religion of America's teenagers has been described as "moralistic therapeutic deism." In this view, God created the world and wants us to be nice to each other. He only gets involved when we have a crisis, and he lets "good" people into heaven. Christian Smith and Melinda Lundquist Denton, *Soul Searching: The Religious and Spiritual Lives of American Teenagers* (New York: Oxford University Press, 2005).

³⁷Michael Peterson, personal correspondence, May 4, 2011.

³⁸According to Tim Keller,

Sin isn't only doing bad things, it is more fundamentally making good things into ultimate things. Sin is building your life and meaning on anything, even a very good thing, more than on God. ("Talking about Idolatry in a Postmodern Age," The Gospel Coalition, April 1, 2007, <http://thegospelcoalition.org/resources/a/Talking-About-Idolatry-in-a-Postmodern-Age>)

³⁹As a historical note, scientism and viewing science as a source of salvation did not originate with scientists but began in the late nineteenth century by people who were impressed by scientific progress. See James Turner, *Without God, Without Creed: The Origins of Unbelief in America* (Baltimore, MD: The Johns Hopkins University Press, 1985), chaps. 8-9.

⁴⁰This argument and example are borrowed from de Vries, "Naturalism in the Natural Sciences: A Christian Perspective," 389.

⁴¹Ibid.

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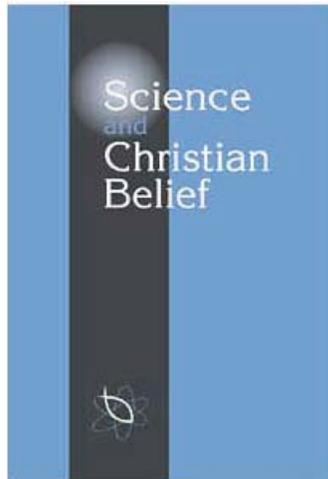
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