Q. SHORT

SCIENCE AND FAITH AT ODDS?
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By Alister McGrath

Do the natural sciences pose a challenge to the Christian faith? This is a hot question at the moment, given the high profile by works such as Richard Dawkins’ God Delusion.1 Real scientists do not believe in God! This sound byte will be very familiar to Dawkins’ readers. Many in Western culture seem prepared to accept it as the wisdom of our age. So how reliable is this idea? And how should Christians respond to it? This is one of the greatest challenges to faith in the public domain at present, and we need to know what to say.

But it’s more complex than that. It’s not just Richard Dawkins who is asserting that science—especially evolutionary biology—leads to atheism. This same slogan is found in many fundamentalist Christian circles, where it is argued that Darwinism is necessarily atheistic. Why, many wonder, are so many Christians, especially American evangelicals, so wary of science in general, and the theory of evolution in particular? Given evangelicalism’s characteristic emphasis upon the authority of Scripture, it is not surprising to find that one of the major concerns within the movement concerns apparent challenges to biblical authority arising from scientific advance. This is seen most acutely in evangelical concerns about challenges to traditional interpretations of the Genesis creation accounts posed by evolutionary biology. My goal, therefore, is to explore these important issues, beginning with Dawkins, who is now widely regarded as the high priest of the “science disproves God” belief system. But first, let me tell my own story.

MY STORY
My love affair with the natural sciences began when I was nine or ten. I was overwhelmed with the beauty of the night sky and longed to explore it further. I ransacked my school library for books on astronomy and even managed to build myself a small telescope enabling me to observe the moons of Jupiter. Around the same time, a great-uncle who had overseen the pathology department at the Royal Victoria Hospital, Belfast, gave me an old German microscope, which allowed me to explore another new world. It still sits on my study desk, a reminder of the power of nature to enthrall, intrigue, and provoke questions.

One of those questions troubled me greatly. While in my teens, I had absorbed an uncritical atheism from writers such as Bertrand Russell. Atheism was, I believed, the natural resting place for a scientifically informed person such as myself. The natural sciences had expanded to inhabit the intellectual space once occupied by the derelict idea of God. There was no need to propose, let alone take seriously, such an outmoded idea. God was a baleful relic of the past, revealed as a delusion by scientific advance.

So what was life all about? What was its meaning? As I reflected on the scope and power of the sciences, I gradually came to the view that there was no meaning to life. I was the accidental byproduct of blind cosmic forces, the inhabitant of a universe in which one could speak only of direction but not purpose. It was not a particularly appealing notion, but I found solace in the idea that its bleakness and austerity were certain indications of its truth. It was so unattractive that it just had to be right. I must confess to a certain degree of smugness at this point, and a feeling of intellectual superiority over those who found solace and satisfaction in their belief in God. It was obvious to me that science demanded atheism, and I was willing to be led wherever science took me.

And so I continued working at mathematics, physics, and chemistry, eventually winning a scholarship to Oxford University to study chemistry. Yet in the months before I went to Oxford, I began to read works dealing with the history and philosophy of science. I was suspicious of this area of study, tending to regard it as uninformed criticism of the certainties and simplicities of the natural sciences by those who felt threatened by them. Yet by the time I had finished reading the somewhat meager holdings of the college in this field, I realized that I needed to do some very serious rethinking. Far from being half-witted obscurantism that placed unnecessary obstacles in the relentless path of scientific advance, the history and philosophy of science asked all the right questions about the reliability and limits of scientific knowledge. And they were questions that I had not faced thus far.
By the time I arrived in Oxford in October 1971 to start the serious study of chemistry, I had realized that I had a lot of rethinking to do. Up to that point, I had assumed that, when science could not answer a question, there was no answer to be had. I now began to realize that there might be limits to the scientific method and that vast expanses of intellectual, aesthetic, and moral territory might lie beyond its compass.

**SCIENCE AND FAITH**

This brings us to a fundamental assertion which recurs in recent atheist writings—namely, that the natural sciences eliminate any ground for belief in God. People who believe in God are simply running away from the evidence. One of the core arguments of Dawkins' influential book *The God Delusion* is that religious faith is irrational. "Dyed-in-the-wool faith-heads are immune to argument," he opines. Faith is a "process of non-thinking," which is "evil precisely because it requires no justification, and brooks no argument." It's all typical of Dawkins' swashbuckling style, which mingles hopelessly overheated rhetoric with a scant regard for evidence and accuracy. Let's look at things in a little more detail.

Everyone agrees that science is one of the most secure forms of knowledge we possess. How do we know that the chemical formula for water is H2O? How do we know the structure of DNA? The answer is simple: because that's what the scientific evidence tells us. I don't think anyone will quibble with this. Dawkins is right to praise the sciences for their ability to give clear, reliable answers to some important questions—such as meaning to life—and therefore that there is no meaning to life. But is he right? Let's look at some wise words written by Peter Medawar (1915-87), one of Oxford's most brilliant scientists, who won the Nobel Prize in Medicine for his work on immunology. In a book published towards the end of his life entitled *The Limits of Science*, Medawar reflected on the question of how the scope of science was limited by the nature of reality. Emphasising that "science is incomparably the most successful enterprise human beings have ever engaged upon," he distinguishes between questions about the organization and structure of the material universe and what he calls "transcendent" questions, which have to be answered by religion and metaphysics. For Medawar, as for most scientists, science cannot tell us whether there is a God. It cannot tell us why we are here (although it may have some very interesting insights about how that happened). When it comes to questions of meaning, purpose, and value, science is blind. And that is no criticism of science. It is simply about recognizing and respecting its limits. Dawkins is not typical of science at this point, as most scientists are aware of the limits of their discipline and see no problems in seeking answers elsewhere when it comes to the really big issues of life.

Dawkins' *God Delusion* was published in 2006. In that same year, some other notable books were published by leading research scientists. Owen Gingerich, professor of astronomy at Harvard, published his *God's Universe*; Francis Collins, director of the famous Human Genome Project, came out with *The Language of God*. Both of these top scientists argued passionately and persuasively that their Christian faith gave them a way of making sense of the world, which resonated strongly with their scientific careers and research. It was, they argued, deeply satisfying intellectually. Now this doesn't resonate with Dawkins' somewhat simplistic take on things at
all. But it does make the fundamental point that thinking people can be both outstanding research scientists, enjoying the respect and admiration of their peers, while believing in God.

Belief in God is not irrational, but possesses its own distinct and robust rationality. It represents a superb way of making sense of things. As celebrated Harvard psychologist William James (1842-1910), James argued that human beings all need “working hypotheses” to make sense of our experience of the world. These “working hypotheses” often lie beyond total proof, yet are accepted and acted upon because they are found to offer reliable and satisfying standpoints from which to engage the real world. Whether the movement is religious or political, philosophical or artistic, a group of ideas or beliefs, are affirmed to be, in the first place, true and in the second place, important. Thinking people need to construct and inhabit mental worlds, from which they discern ordering and patterns within experience, and make at least some sense of its riddles and enigmas. As the philosopher Michael Polanyi (1891-1976) put it, a framework of beliefs enables us to hear a tune, where otherwise we would only hear a noise. And every worldview, every system of beliefs—whether Christian, atheist, political, or social—embeds beliefs that simply cannot be proved. We may have good reasons for believing them (in other words, they are warranted); but they are not proven. This applies to Richard Dawkins’ atheism as much as it does to my Christianity.

So why are so many scientists religious? Why is Dawkins so wrong in suggesting that all real scientists are atheists, or demanding that scientists ought to be atheists? The obvious and most intellectually satisfying explanation of this is not difficult to identity. It is well known that the natural world is conceptually malleable. It can be interpreted, without any loss of intellectual integrity, in a number of different ways. Some “read” or “interpret” nature in an atheist way. Others “read” it in a deistic way, seeing it as pointing to a creator divinity, who is no longer involved in its affairs. God winds up the clock, then leaves it to work on its own. Others take a more specifically Christian view, believing in a God who both creates and sustains. Others take a more spiritualized view, speaking more vaguely of some “life force.”

The point is simple: nature is open to many legitimate interpretations. It can be interpreted in atheist, deist, theist, and many other ways—but it does not demand to be interpreted in any of these. One can be a “real” scientist without being committed to any specific religious, spiritual, or anti-religious view of the world. This, I may add, is the view of most scientists I speak to, including those who self-define as atheists. Unlike Dawkins, they can understand perfectly well why some of their colleagues adopt a Christian view of the world. They may not agree with that approach, but they’re prepared to respect it.

C. S. Lewis so eloquently put it, “I believe in Christianity as I believe that the Sun has risen—not only because I see it, but because by it, I see everything else.” To use the language of philosophy, God is the “best explanation” of the way things are. We can’t prove that God is there, any more than an atheist can prove that there is no God. But all of us, whether Christians or atheists, base our lives on at least some fundamental beliefs that we know we cannot prove. That’s just the way things are.

Arguments “proving” their theories. Charles Darwin, for example, always held that his theory of evolution was the best explanation of what he observed in the natural world, but never believed that he had “proved” it was correct. It is perfectly possible to believe something is right without being able to prove it decisively—whether we are talking about science or belief in God.

This is one of the many points made in the famous essay “The Will to Believe” (1897) by the

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EVANGELICAL WARINESS

On the other side of this issue, there is no doubt that some Christians are puzzled by the natural sciences, especially evolutionary biology. This is
particularly the case for evangelicals, who often feel quite defensive about the natural sciences. Their posture partly reflects the lingering aftermath of difficult historical controversies and current concerns about tendencies within the sciences that seem to threaten the essence of the Christian gospel. Whereas Roman Catholicism, Eastern Orthodoxy, and mainline Protestantism have often found conceptual space and theological strategies to accommodate the sciences, evangelicalism generally remains wary of them, particularly in the United States. Although many evangelicals adopt a positive attitude towards science, significant concerns about issues of biblical interpretation and reductionism remain widespread within the movement, especially at the grassroots level.

It is important to note that the evangelical debates over Darwinism cannot be separated from broader cultural agendas, especially in the United States. Science is not simply an intellectual movement, it is a competitor for cultural attention and authority, at times proposing itself as an alternative to religion. One characteristic feature of the “new atheism,” found in writings such as Dawkins’ recent work and Daniel Dennett’s Breaking the Spell (2006) is that science has displaced religion as a cultural and intellectual authority, demonstrating its superiority in both respects. This means that some evangelicals see the controversy over Darwinism as part of a broader “Culture War” between secularism and Christianity.

It is a mark of the polarization that has developed within evangelicalism in recent years that some are now suggesting that a rejection of biological evolution is an essential characteristic of true evangelicalism. This is historically incorrect, in that evangelical hostility towards Darwinism only became significant in the 1920s, partly as a result of the rise of fundamentalism. For the first fifty years of Darwinism’s existence, evangelical hostility was muted, with more accommodationist approaches tending to prevail.

Let’s take a closer look at how evangelical concerns with Darwinism first emerged in the late nineteenth century. The most important of these can be set out like this.

1. Darwinism offered an account of the origins of species that appeared to many to be incompatible with a literal interpretation of the opening chapters of the book of Genesis. Evangelical concerns about the natural sciences are closely linked with issues of biblical interpretation.

2. Darwin’s theory seemed to undermine arguments for the existence of God that appealed to evidence of design in the natural world. The most famous of these, as Darwin himself acknowledged, was the form of natural theology developed by the celebrated English apologist William Paley (1743-1805).

3. The special place of humanity in the natural world was called into question by the theory of evolution. Darwin himself realized that this was a very sensitive matter, and held back from explicitly engaging with this question until The Descent of Man (1871).

4. The traditional notion of providence seemed to be contradicted by Darwin’s theory that evolution took place through random variations in the forms of living creatures.

For some evangelicals, the cumulative force of these concerns was enough to make Darwinism unacceptable. Yet most evangelical writers, both in Great Britain and the United States, held back from any dismissal of Darwinism. Each of these four concerns could be addressed in some way. To illustrate this point, let’s consider the attitude toward Darwinism of perhaps the most influential American evangelical writer of the late nineteenth and early twentieth century—Benjamin B. Warfield (1851-1921). Warfield served as professor of theology at Princeton Theological Seminary from 1887 to 1921 and is widely revered within conservative evangelical circles for his theories of biblical inerrancy and inspiration.

How did Warfield approach Darwin’s theory of evolution? He developed a sophisticated analysis of contemporary Darwinism, making two points which deserve to continue to be central to evangelical reflection on this question. First, Warfield drew the distinction between Darwinism as a scientific theory and as a grander, reductionist account of reality. No evangelical could tolerate Darwinism if it was interpreted as “supplying a complete account of the origin and state of the universe.” This, for Warfield, was “tantamount to atheism.” Here, he echoed earlier concerns about Darwinism expressed by his older Princeton colleague, Charles Hodge (1797-1878). Warfield insisted that Darwinism was to be seen as a “working hypothesis” or a “conjecture as to the method of creation,” which should be judged on the basis of its empirical adequacy.

Second, Warfield emphasized that the natural sciences were prone to speculation. A clear distinction had to be made between the empirical facts of nature and extravagant interpretations of these, especially when these involved inferring speculative metaphysical conclusions. It is at this point that we find Warfield making one of his most important criticisms of Darwinism—its rejection of any concept of purpose within nature (an idea often referred to using the term “teleology”). For Warfield, this represented metaphysical speculation on Darwin’s part, rather than rigorous scientific observation. One of Warfield’s most pointed criticisms of Darwin is
that he sought to replace any notion of purpose or teleology in the biological world with those of natural selection and random variation. For Warfield, this suggested that Darwin had an anti-theistic agenda, however subtly it may have been stated. There is, he argued, no reason why the concept of a natural developmental process should be held to entail atheism. Rather, it can be interpreted and even subsumed within a Reformed view of divine providence, which holds that God creates a world with the capacity for development and is sovereign over that subsequent process of development.

Warfield developed this point further in his analysis of the concept of divine creation. For Warfield, the term “creation” refers to God’s primal act of bringing everything into being from nothing (ex nihilo). It describes God’s initial creation of the universe, with the potential for further development under God’s sovereign providential guidance. To express this developmental aspect of things, Warfield introduced the notion of “mediate creation,” by which he meant something intermediate between natural processes and divine providence. “Mediate creation” thus refers to the direct action of God on material entities, in which God brings about novelty—that is, something that was not originally present in the primary act of creation itself. Warfield does not hold that “naturalistic evolution” and “divine creation” are identical; he does, however, insist that they are consistent with each other, provided both are interpreted correctly. Any conflict between the actual facts revealed in nature (as opposed to extravagant scientific speculation about nature) and the biblical texts should lead the responsible exegete, not to reject a scientific account of nature nor to doubt the truth of Scripture, but to seek a better interpretation of Scripture in the light of these facts.

What’s more, the assumption that a doctrine of biblical inerrancy demands a literal biblical hermeneutic was not shared by Warfield. Indeed, for Warfield, it was self-evident that a commitment to biblical inerrancy left open the question of how any passage of Scripture was to be interpreted correctly. There was no fundamental reason why an inerrantist could not adopt a non-literalist interpretation of the early Genesis texts, if that appeared to be the manner in which that text required to be understood.

AN ANCIENT HERMENEUTIC
Yet many would want to go back further, and explore the interpretation of the opening two chapters of the book of Genesis provided by the early Christian writer Augustine of Hippo (354-430), widely regarded as the most influential theologian of all time. God brought everything into existence in a single moment of creation. Yet the created order is not static. God endowed
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it with the capacity to develop. Augustine uses the image of a dormant seed to help his readers grasp this point. God creates seeds that will grow and develop at the right time. Using more technical language, Augustine asks his readers to think of created order as containing divinely

embedded causalities which emerge or evolve at a later stage. Yet Augustine has no time for any notion of random or arbitrary changes within creation. The development of God’s creation is always subject to God’s sovereign providence. The God who planted the seeds at the moment of creation also governs and directs the time and place of their growth.

Let’s explore these points in more detail. Augustine’s basic exegetical principle is that the first Genesis creation account cannot be interpreted in isolation. It must be set alongside the second Genesis creation account, as well as every other statement about creation found within Scripture. Augustine, therefore, does not limit God’s creative action to the primordial act of origination. He argues that God’s work of creation includes both the initial origination of the world and its subsequent development. There are two “moments” in creation: a primary act of origination, and a continuing process of providential guidance. Creation is thus not a completed past event. God must be recognized to be working even now, in the present, sustaining and directing the unfolding of the “generations that he laid up in creation when it was first established.”

Augustine provides us with an understanding of creation which owes nothing to scientific advances since Darwin, but is grounded in an engagement with Scripture. Augustine also offers us a way of reading Genesis that affirms that God created everything from nothing, in an instant. However, the universe has been created with an inbuilt capacity to develop, under God’s sovereign guidance. The primordial state of creation does not correspond to what we presently observe. For Augustine, God created a universe that was deliberately designed to develop and evolve. The blueprint for that evolution is not arbitrary, but is programmed into the very fabric of creation. God’s providence superintends the continuing unfolding of the created order.

Earlier Christian writers had noted how the first Genesis creation narrative spoke of the earth and the waters “bringing forth” living creatures and had drawn the conclusion that this pointed to God endowing the natural order with a capacity to generate living things. Augustine took this idea further. God created the world complete with a series of dormant powers, which were actualized at appropriate moments through divine providence. Augustine argues that Genesis 1:12 implies that the earth has received the power or capacity to produce things by itself: “Scripture has stated that the earth brought forth the crops and the trees causally, in the sense that it received the power of bringing them forth.” Where some might think of creation in terms of God’s insertion of new kinds of plants and animals ready-made into an already existing world, Augustine rejects this as inconsistent with the overall witness of Scripture. Rather, God must be thought of as creating in that very first moment the potencies for all the kinds of living things that would come later, including humanity.

This means that the first Genesis creation account describes the instantaneous bringing into existence of primal matter, including causal resources for further development. The second Genesis account explores out how these causal possibilities emerged and developed from the earth. Taken together, the two Genesis creation accounts declare that God made all things simultaneously, while allowing for the various kinds of living things making their appearance gradually over time.

The image of the “seed” implies that the original creation contained within it the potentialities for all the living kinds that would subsequently emerge. This does not mean that God created the world incomplete or imperfect in that “what God originally established in causes, he subsequently fulfilled in effects.” This process of development, Augustine declares, is governed by fundamental laws that reflect the will of their creator. “God has established fixed laws governing the production of kinds and qualities of beings, and bringing them out of concealment into full view.”

Augustine would have rejected any idea of the development of the universe as a “random” or “lawless” process. For this reason, Augustine
would oppose the Darwinian notion of random variations, insisting that God’s providence is deeply involved throughout. While the process may be unpredictable, this does not mean that it is random.

We should not be surprised Augustine approached his text with the culturally prevalent presupposition of the fixity of species. No scientific authority of that age known to Augustine held any other view, and Augustine found nothing in the Genesis texts to challenge him on this point. Yet the ways in which he interacts with his scientific authorities suggests that he would regard his views as being open to correction in the light of changing scientific opinion. After all, he argued, there was a serious danger that Christian biblical exegesis could become locked into the scientific world of one specific generation—thus alienating it from later generations, who would have a different understanding of science.

CONCERNS ABOUT SCIENTIFIC REDUCTIONISM

A major theme in the 1980s revival of evangelical anti-Darwinism is the perceived reductionism of the sciences in general, and evolutionary theory in particular. This revival has mainly been led by influential evangelical pastors, parachurch organizations, and media activists, rather than theologians and scientists. The fear of reductionism is that evolutionary theory reduces “God” to a purely natural phenomenon and therefore discounts belief in God. Unfortunately, this fear has often led to issues of science being reduced to the question of whether they appear to offer a reductionist account of reality!

This concern had been expressed recently in the writings of Philip Johnson, an academic lawyer at the University of California. Johnson focuses his argument on “methodological naturalism”—in other words, a naturalistic philosophy that excludes from the outset any explanation of reality that makes reference to supernatural causes. Johnson argues that a “methodological naturalist” is someone who deliberately assumes there is no god when he or she does science. One of Johnson’s core arguments is that the application of this method leads to an atheist account of reality. Darwinism in particular, and the sciences in general, thus have an inherent tendency toward eliminating the divine from any account of reality. Johnson’s argument that Darwinism is inherently atheistic thus shifts the debate from “creationism versus evolution” to “Christianity versus atheism.” Other evangelicals, however, have challenged such a viewpoint. Fuller Seminary’s Nancey Murphy, for example, argues that non-reductive strategies could easily be developed, allowing evangelicals to affirm naturalist scientific explanations without in any way implying the non-existence or inactivity of God.

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understandable concerns, as there is no doubt that some aggressively atheistic writers are using science as a weapon in their wars against religion—Dawkins and Dennett are prime examples. Yet these are misrepresentations and exaggerations of the true nature of the scientific method and would be contested by most scientists. In this short article, I have suggested that the situation is much more complicated than the “new atheism” suggests. For example, the belief that the only legitimate Christian interpretation of Genesis 1 is to read it literally is quite recent. Older Christian views, developed 1500 years before Darwin’s Origin of Species was published, have real potential to help us as we seek to interpret the Bible faithfully and with integrity. They remind us of the existence and undoubted merits of other approaches to biblical interpretation at these points.

So what can Christian leaders do to engage these issues as they seek to engage a culture that often sees science and faith at odds? Let me make a few suggestions in closing.

1. Reassure people. Point out that the “new atheism” espouses a dogmatic anti-theistic approach to science, which is not typical of science as a whole. Point them to recent works by leading scientists who are people of faith—such as Owen Gingerich and Francis Collins. Perhaps even start...
a reading group to discuss one of these books.

2. Be proactive. Encourage members of your church community who are scientists to witness to their faith and to help other people to think through the relationship of science and faith.

3. Draw up a reading list of accessible works that will help people think through these issues. In addition to the recent books by Gingerich and Collins, consider these helpful writings:

You are also strongly recommended to visit the website of the Faraday Institute, Cambridge University.13 It provides a rich range of resources, including audio files of leading scientists speaking on the relationship of science and faith and “Faraday Papers” on related themes.

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END NOTES

8 Ibid., 5.
10 Owen Gingerich, God’s Universe (Cambridge, MA: Harvard University Press, 2006).
14 Ibid., 208-9.
15 Augustine, The Literal Meaning of Genesis, V.xx.41.
16 Ibid., VI.x.11.
17 Ibid., VI.xi.19.
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19 Http://www.st-edmunds.cam.ac.uk/faraday/