

Can
science
explain
every
thing?

“Professor Lennox brings the logic of the mathematician to show that science and religion do not belong to a war zone, as some would have us believe. His highly accessible account is interlaced with colourful humour and personal experiences that relate to the excitement of rational, sensible and wholesome insights from the best-attested manuscripts of the ancient world. Myths are dispatched; miracles, evil and suffering are confronted; the Standard Model of physics, the Big Bang and the Open Universe are richly explored. But beware, particularly if you are coming from some sceptical distance: this is a book that could make a difference in worldviews and even lives.”

Sir Brian Heap CBE, FRS
Distinguished Fellow, Centre of Development Studies;
Former Master, St Edmund’s College, Cambridge, UK

“John Lennox gives a thought-provoking, engaging, and wide-ranging discussion of the relationship between science and Christianity. He looks at writings and sayings of prominent scientists, from Newton to Hawking, about religion, the universe, God and creation; and discusses the role of faith and rational argument in both religion and science. I highly recommend the book as an engaging and challenging read.”

Dr Cheryl Praeger
Professor of Mathematics, University of Western Australia

“Clear, fresh and brilliantly simple, John Lennox answers questions, dispels myths, and clarifies controversies like the seasoned master of the subject that he is—and all in an admirably irenic style. I highly recommend *Can Science Explain Everything?*”

Dr Os Guinness, Author and Social Commentator

“With the delightfulness and wit of an Irishman, and the airtight logic of his mathematical mind, Lennox graciously whittles away at long-held controversies between science and God. Using his remarkably rational thought process, Lennox gently dissects materialism and the arguments of its proponents in this delightful, easy-to-read treatise.”

Dr James M. Tour, Professor of Materials Science
and NanoEngineering, Rice University, USA

“I am delighted that my colleague and friend John Lennox has invested time to offer a wonderfully readable summary of his work in science. I have learned so much from Professor Lennox over the years as I’ve watched him interact with critics and skeptics with grace and boldness. I believe you will find this book immensely helpful and enjoyable.”

Ravi Zacharias, Author and Speaker

“Many people today think that science has disproved the existence of God and made the claims of the Bible irrelevant. However they may have never seriously considered the evidence for either of these beliefs. This excellent book starts by explaining why these are important questions, and then goes on to demonstrate how science and Christianity are fully compatible. It will be particularly helpful for Christian believers who have never thought about the relationship between science and their faith, and for those seriously considering the claims of Christianity. I found it very helpful and strongly recommend it.”

Dr John V. Priestley, Emeritus Professor of Neuroscience,
Queen Mary University of London, UK

“An easy read about a difficult issue. Simple without being simplistic, Lennox’s book is a clear, understandable entry point for anyone interested in a controversial field that is often filled with technical phrasing and obscurantism. In this highly accessible volume, Lennox skillfully expounds the rationality of Christian belief given the evidence from science.”

Dr Ransom H. Poythress,
Assistant Professor of Biology, Houghton College, NY

“This book provides a fascinating glimpse into Lennox’s thinking and crystal-clear logic. I highly recommend this text to all readers who, just as myself, struggle with reconciling aspects of science with Christianity. It is a thought-provoking, excellent read.”

Dr Peter Török, Professor of Optical Physics,
Nanyang Technological University, Singapore

“Humane, honest and immensely readable.”

Dr Alec Ryrie, Professor of the History of Christianity,
Durham University, UK; and Gresham Professor of Divinity

Introduction: Cosmic chemistry

Make a search on the subject of science and religion, and it will take only a few clicks to convince you that you have stepped into a war zone.

In comment threads on almost every conceivable subject in science—from bioethics and psychology to geology and cosmology—you will find hostile exchanges and name calling from two sides which you are convinced would never meet across a negotiating table—even if the United Nations called a ceasefire.

There is what we might call, for convenience, the “science side”. They view themselves as the voice of reason. They believe they are working to roll back the tide of ignorance and superstition that has enslaved mankind since we crawled out of the primeval slime. If I can summarise their position, it is this:

Science is an unstoppable force for human development that will deliver answers to our many questions about

the universe, and solve many, if not all, of our human problems: disease, energy, pollution, poverty. At some stage in the future, science will be able to explain everything, and answer all our needs.

They may also be assuming that, at some stage in the future, science will provide the answers to at least some of our big questions in life: Where do we come from? What are we here for? What is the meaning of our existence?

At the other extreme, there is what we might for convenience call the “God side”. They hold that a divine intelligence is behind everything there is and everything we are. They are looking for, and even claim to have found, the answers to the same big questions that scientists ask, but in a very different place. They look to the complexity and wonder of the universe and our astonishingly rich and diverse blue planet, and find it to be self-evident that there is a wonderful mind behind our beautiful and amazing world. They seem surprised that there could be people who do not see things this way.

Sometimes the result is fighting and name-calling in in-temperate encounters that generate more heat than light.

It is therefore not surprising that many people conclude that *God and science do not mix*; like when you drop metallic sodium or potassium onto water, there is a lot of fizzing and fire and heat ending with a loud bang.

But what if there were another way of looking at this whole business? What if we have been fooled into a pointless war based on misinformation and wrong thinking? It would not be the first time. What if there were a different kind of cosmic chemistry to the one that ends with an explosion?

WHERE I AM COMING FROM

Geographically, I come from Northern Ireland, which is a place that sadly has a dubious reputation when it comes to “the God question”. I grew up in a country that was riven by a deep sectarian and cultural divide, popularly represented as a battle between “Protestants” and “Catholics” (although, of course, it was much more complicated than that). It led to three decades of brutal murder, bombings and terrorism collectively known as “the Troubles”.

In the middle of all this my parents were remarkable people. They were Christians, yes, but they were not sectarian—a difficult stance for anyone in those days. My father showed that lack of sectarianism by employing people in his store from across the religious divide. It was bombed for that, and my brother was seriously injured in the blast. Terrorism hit our home in a very real way.

I owe my parents a lot, but perhaps the biggest thing was that they loved me enough to give me space to think for myself; not a common thing in my country, I regret to admit, as there was much bigotry and entrenched opinion. I was also grateful that when I arrived at Cambridge University in the autumn of 1962, I had already been encouraged by my parents to read widely and to think deeply about worldviews other than Christianity.

Subsequently, I have been privileged to talk about these issues and debate the relevant arguments in public for the last 20 years with leading atheists, of whom the world leader is probably still Richard Dawkins, who, like myself, is a professor at Oxford University. I have always tried to treat people with different worldviews from my own with respect, and to find out how they arrived at their position, and why they feel so passionately about it.

It may be that you are reading this, and you feel strongly that science is sufficient to explain everything, and that there is no place for God in the world any more. Or it may be that you are just curious and want to get some perspective on this question. Whoever you are, I hope you enjoy reading this introduction to the question, and that it stimulates you to approach this question in a scientific way: that is, open to what the outcome may be, and prepared to follow the evidence where it leads, even if that may turn out to be uncomfortable for you in some way.

I want to suggest that the popular idea that science and God do not mix is simply not true, and that it is relatively easy to establish that. In this short book, I want to examine many of the misconceptions people have, not just about faith and belief in God but about science itself. In doing so, I want to show that there is a different way of looking at things that is more rational, more sensible, *and* more wholesome than the all too familiar alleged conflict between science and religion.

I want to suggest that a different kind of cosmic chemistry is possible: that there is a different kind of reaction between science and religion that is truer to the spirit and essence of both, and more fruitful than the tired and entrenched debate that we see played out all around us.

Hydrogen and oxygen, like potassium and water, also form an explosive mixture, but the end result could not be more different—refreshing, life-giving water.

1 Can you be a scientist and believe in God?

“**S**urely you can’t be a scientist and believe in God these days?”

It’s a viewpoint I have heard expressed by many people over the years. But I suspect that it is often the unspoken doubt that stops many from engaging seriously with serious thinkers about both science and God.

In reply, I like to ask a very scientific question: “Why not?”

“Well,” the answer comes back, “science has given us such marvelous explanations of the universe and demonstrates that God is just not necessary. Belief in God is old fashioned. It belongs to the days when people didn’t really understand the universe, and just took the lazy way out and said that ‘God did it’. That sort of ‘God of the gaps thinking’ simply won’t do any more. Indeed, the sooner we get rid of God and religion, the better.”

I sigh inwardly, and prepare myself for a long conversation

in which I try to untangle the many assumptions, misunderstandings and half-truths that have been absorbed uncritically from the cultural soup we swim in.

A COMMON VIEWPOINT

It's not surprising that this viewpoint is so common that it has become the default position for many, if not most; it's a viewpoint supported by some powerful voices. Stephen Weinberg, for example, a Physics Nobel Prize winner said,

*The world needs to wake up from the long nightmare of religion. Anything we scientists can do to weaken the hold of religion should be done and may in fact be our greatest contribution to civilisation.*¹

I hope you didn't miss the rather sinister-sounding totalitarian element in this statement: “*anything* we scientists can do...”

This attitude is not new. I first met it fifty years ago while studying at Cambridge University. I found myself at a formal college dinner sitting beside another Nobel Prize winner. I had never met a scientist of such distinction before and, in order to gain the most from the conversation, I tried to ask him some questions. For instance, how did his science shape his worldview—his big picture of the status and meaning of the universe? In particular, I was interested in whether his wide-ranging studies had led him to reflect on the existence of God.

It was clear that he was not comfortable with that question, and I immediately backed off. However, at the end of the meal, he invited me to come to his study. He had also invited two or three other senior academics but no other students. I was invited to sit, and, so far as I recall, they remained standing.

1 Closing statements of presentation at the symposium *Beyond Belief: Science, Religion, Reason and Survival* (5th November 2006).

He said, “Lennox, do you want a career in science?”

“Yes, sir,” I replied.

“Then,” he said, “in front of witnesses, tonight, you must give up this childish faith in God. If you do not, then it will cripple you intellectually and you will suffer by comparison with your peers. You simply will not make it.”

Talk about pressure! I had never experienced anything like it before.

I sat in the chair paralysed and shocked by the effrontery and unexpectedness of the onslaught. I didn’t really know what to say, but eventually I managed to blurt out, “Sir, what have you got to offer me that is better than what I have got?” In response, he offered me the concept of “Creative Evolution” put forward in 1907 by French philosopher Henri Bergson.

In fact, thanks to C.S. Lewis, I knew a little about Bergson and replied that I could not see how Bergson’s philosophy was enough to base an entire worldview upon and provide a foundation for meaning, morality and life. With a shaking voice, and as respectfully as I could, I told the group standing around me that I found the biblical worldview vastly more enriching and the evidence for its truth compelling, and so, with all due respect, I would take the risk and stick with it.²

It was a remarkable situation. Here was a brilliant scientist trying to bully me into giving up Christianity. I have thought many times since that, if it had been the other way around, and I had been an atheist in the chair surrounded

2 I did not know it at the time but, oddly enough, Bergson, who was Jewish, in later years moved towards orthodox views of God, and, in his will of 1937, he confessed that he would have converted to Christianity had it not been for the increasing wave of antisemitism in Europe.

by Christian academics pressuring me to give up my atheism, it would have caused reverberations around the university, and probably have ended with disciplinary proceedings against the professors involved.

But that rather scary incident put steel into my heart and mind. I resolved to do my best to be as good a scientist as I could and, if ever I had the opportunity, to encourage people to think about the big questions of God and science and make up their own minds without being bullied or pressured. It has been my privilege in the years that have followed to engage thoughtfully with many people, both young and old, in a spirit of friendship and open enquiry on these questions. What follows in this book are some of the thoughts and ideas that I have found most helpful to share with people, and some of the most interesting and unusual conversations I have had.

THE DARK SIDE OF ACADEMIA

I learned another valuable lesson that day: about the existence of a dark side to academia. There are some scientists who set out with preconceived ideas, do not really wish to discuss evidence, and appear to be fixated not on the pursuit of truth but on propagating the notions that science and God do not mix and that those who believe in God are simply ignorant.

This is simply not true.

What's more, you don't need to have a great deal of insight to see that it is false. Think of the Nobel Prize in Physics, for example. It was won in 2013 by Peter Higgs, a Scotsman who is an atheist, for his ground-breaking work on subatomic particles, and his prediction, later proved, of the existence of the Higgs boson. Some years before that, it was won by William Phillips, an American who is a Christian.

If science and God do not mix, there would be no Christian Nobel Prize winners. In fact, between 1900 and 2000 over 60% of Nobel Laureates were self-confessed believers in God.³ I want to suggest that what divides Professors Higgs and Phillips is not their physics or their standing as scientists—they've both won the Nobel Prize. What divides them is their *worldview*. Higgs is an atheist and Phillips is a Christian. It follows that the claim of those academics who tried to intimidate me in Cambridge so many years ago—that if you wish to be scientifically respectable you have to be an atheist—is obviously false. There cannot be an essential conflict between being a scientist and having faith in God.

However, there is a very real conflict between the worldviews held by these two brilliant men: atheism and theism.

WHAT EXACTLY IS ATHEISM?

Strictly speaking, atheism simply means lack of belief in God. However, that does not mean that atheists do not have a worldview. You cannot deny the existence of God without asserting a whole raft of beliefs about the nature of the world. That is why Richard Dawkins' book *The God Delusion* is not just a one-page tract stating that he doesn't believe in God. It is a lengthy volume dedicated to his atheistic worldview, naturalism, which holds that this universe/multiverse is all that exists, that what scientists call "mass-energy" is the fundamental stuff of the universe, and that there is nothing else.

³ According to *100 Years of Nobel Prizes* (2005) by Baruch Aba Shalev, a review of Nobel prizes awarded between 1901 and 2000, 65.4% of Nobel Prize Laureates, have identified Christianity in its various forms as their religious preference (423 prizes). Overall, Christians have won a total of 78.3% of all the Nobel Prizes in Peace, 72.5% in Chemistry, 65.3% in Physics, 62% in Medicine, 54% in Economics and 49.5% of all Literature awards.

Physicist Sean Carroll, in his best-selling book *The Big Picture*, explains how naturalism views humans:

*We humans are blobs of organized mud, which through the impersonal workings of nature's patterns have developed the capacity to contemplate and cherish and engage with the intimidating complexity of the world around us ... The meaning we find in life is not transcendent...*⁴

This is the worldview in which many atheists put their faith.

My worldview is Christian theism. I believe that there is an intelligent God who created, ordered and upholds the universe. He made human beings in his image, meaning that they have been endowed with the capacity not only to understand the universe around them but also to get to know and to enjoy fellowship with God himself. For Christians, life has a gloriously transcendent meaning. I would like to show you that science, far from undermining this view, strongly supports it. We shall see later, however, that it is *atheism* to which science gives little support. But before that, I'd like to prepare the ground by giving some historical context for how we arrived at this strange position of thinking that science and God do not mix.

LESSONS FROM HISTORY

I have always had a facility with languages—mathematics and languages often go together. Indeed, when I was a poor, struggling junior academic in Cardiff, I took the opportunity to earn a little extra money for my growing family by translating research papers in mathematics from Russian to English.

By a curious train of events, I found myself a few years

⁴ Sean Carroll, *The Big Picture* (Penguin Random House, 2016), p 3-5.

later on a rickety Russian plane landing at the city of Novosibirsk in Siberia to spend a month lecturing and researching at the university there.

However backward the technological infrastructure was in those days of communist rule, some of Russia's mathematicians were world leaders, and it was a privilege to meet with them and spend time with the faculty and students. But they were utterly perplexed by one thing: that I believed in God!

I was eventually invited by the rector of the university to explain in a lecture why I, as a mathematician, believed in God. Apparently, it was the first lecture on this kind of issue to be held there in 75 years. The auditorium was full to capacity with many professors as well as students. In my presentation, among other things, I spoke about the history of modern science and related how its great pioneers—Galileo, Kepler, Pascal, Boyle, Newton, Faraday and Clerk-Maxwell—were all firm and convinced believers in God.

When I said this, I detected anger in the audience and, not liking people being angry in my lectures, I paused to ask them why they were so annoyed. A professor in the front row said, "We are angry because this is the first time we have heard that these famous scientists on whose shoulders we stand were believers in God. Why were we not told this?" "Is it not obvious," I replied, "that this historical fact did not fit with the 'scientific atheism' that you were taught?"

I went on to point out that the connection between the biblical worldview and the rise of modern science was well recognised. Eminent Australian ancient historian Edwin Judge writes:

Christianity or, above all, the biblical doctrine of creation, is itself the creator ... of the methodology of

*modern science. We don't hold the Greeks' perspective anymore; in spite of the fact that people keep looking back to it as the origin of science. It is not the origin of science. The book of creation is the origin of modern science: the book of Genesis.*⁵

C.S. Lewis sums it up well when he says, “Men became scientific because they expected law in nature, and they expected law in nature because they believed in a Legislator.”⁶

Recent historians of science, like Peter Harrison, are more nuanced in their formulation of the way in which Christian thought influenced the intellectual landscape in which modern science arose, but they reach the same basic conclusion: far from hindering the rise of modern science, *faith in God was one of the motors that drove it*. I therefore regard it as a privilege and an honour, not an embarrassment, to be both a scientist and a Christian.

Here are some examples of the convictions of the greatest scientists. Johannes Kepler (1571-1630), who discovered the laws of planetary motion, wrote:

The chief aim of all investigations of the external world should be to discover the rational order which has been imposed on it by God and which he revealed to us in the language of mathematics.

This was no expression of mere deism since Kepler elsewhere revealed the depth of his Christian convictions: “I believe only and alone in the service of Jesus Christ. In him is all refuge and solace”.

Michael Faraday (1791-1867), arguably the greatest ever

⁵ Quoted at goo.gl/uPDpNC (accessed 1 August 2018)

⁶ C.S. Lewis *Miracles* (Simon and Schuster, 1996) p 140.

experimental scientist, was a man of profound Christian conviction. As he lay on his deathbed, he was asked by a visiting friend, “Sir Michael, what speculations have you now?” For a man who had spent his life making speculations about a vast array of scientific subjects, discarding some and establishing others, his response was robust: “Speculations, man, I have none! I have certainties. I thank God that I do not rest my dying head upon speculations for I know whom I have believed and am persuaded that he is able to keep that which I have committed to him against that day.”

As he faced eternity, Faraday had the certainty that upheld the apostle Paul centuries before him.

GALILEO

“But wasn’t Galileo persecuted by the church?” asked another member of my Siberian audience. “Surely that shows there is no concord between science and faith in God.”

In my reply, I pointed out that Galileo was actually a firm believer in God and the Bible and remained so all of his life. He once said that “the laws of nature are written by the hand of God in the language of mathematics” and that the “human mind is a work of God and one of the most excellent”.

Furthermore, the popular, simplistic version of this story has been massaged to support an atheist worldview. In reality, Galileo initially enjoyed a great deal of support from religious people. The astronomers of the powerful Jesuit educational institution, the Collegio Romano, initially endorsed his astronomical work and fêted him for it. However, he was vigorously opposed by secular philosophers who were enraged at his criticism of Aristotle.

This was bound to cause trouble; however, let me emphasize, not at first with the church. In his famous “Letter to

the Grand Duchess Christina” (1615), Galileo claimed that it was the academic professors who were so opposed to him that were trying to influence the church authorities to speak out against him. The issue at stake for the academics was clear: Galileo’s scientific arguments were threatening the all-pervading Aristotelianism of the academy.

In the spirit of developing modern science, Galileo wanted to decide theories of the universe on the basis of *evidence*, not on arguments based on an appeal to *the current ruling theories* in general and the authority of Aristotle in particular. Galileo looked at the universe through his telescope, and what he saw left some of Aristotle’s major astronomical speculations in tatters. Galileo observed sunspots, which blemished the face of what Aristotle taught was a “perfect sun”. In 1604 Galileo saw a supernova, which called into question Aristotle’s view that the heavens were unchanging—“immutable”.

Aristotelianism was the reigning worldview at the time and formed the paradigm in which science was done, but it was a worldview in which cracks were already beginning to appear. Furthermore, the Protestant Reformation was challenging the authority of Rome and so, from Rome’s perspective, religious security was under increasing threat. The embattled Roman Catholic Church, which had, in common with almost everyone else at the time, embraced the Aristotelian view of the world, felt itself unable to allow any serious challenge to Aristotle, although there were rumblings (particularly among the Jesuits) that the Bible itself did not always support Aristotle’s view of things.

But those rumblings were not yet strong enough to prevent the powerful opposition to Galileo that would arise from both the academy and the Roman Catholic Church.

But, even then, the reasons for that opposition were not merely intellectual and political. Jealousy and also, it must be said, Galileo's own lack of diplomatic skill, were contributing factors. For instance, he irritated the elite of his day by publishing in Italian and not in Latin, in order to give some intellectual empowerment to ordinary people. He was commendably committed to what is now called the public understanding of science.

Galileo also developed an unhelpfully short-sighted habit of denouncing in vitriolic terms those who disagreed with him. Neither did he promote his cause by the way in which he handled an official directive to include in his *Dialogue Concerning the Two Principal Systems of the World* the argument of his erstwhile friend and supporter Pope Urban VIII—Maffeo Barberini. The Pope argued that since God was omnipotent, he could produce any given natural phenomenon in many different ways, and so it would be presumption on the part of the natural philosophers to claim that they had found the unique solution. Galileo dutifully included this argument in his book, but he did so by putting it into the mouth of a dull-witted character he called Simplicio ("buffoon"). We might see this as a classic case of shooting oneself in the foot.

There is, of course, no excuse whatsoever for the Roman Catholic Church's use of the power of the Inquisition to muzzle Galileo, nor for subsequently taking several centuries to rehabilitate him. It should also be noted that, again contrary to popular belief, Galileo was *never* tortured; and his subsequent house arrest was spent, for the most part, enjoying the hospitality of luxurious private residences belonging to friends.

CHALLENGING THE WORLDVIEW

The main lesson to be drawn is that it was Galileo, a believer in the biblical worldview, who was advancing a better *scientific* understanding of the universe, not only, as we have seen, in opposition to some churchmen but against the resistance and obscurantism of the secular philosophers of his time who, like the churchmen, were also convinced disciples of Aristotle.

Philosophers and scientists today also have need of humility in light of the facts, even if those facts are being pointed out to them by a believer in God. Lack of belief in God is no more a guarantee of scientific orthodoxy than is belief in God. What is clear, both in Galileo's time and ours, is that criticism of a reigning scientific paradigm is fraught with risk, no matter who is engaged in it—a point that was not lost on my audience of Russian academics living under a totalitarian regime.

Commenting on the Galileo affair (and that other much misrepresented iconic event, the debate between Samuel Wilberforce and T. H. Huxley in Oxford in 1860), historian of science Colin Russell concludes:

*The common belief that ... the actual relations between religion and science over the last few centuries have been marked by deep and enduring hostility ... is not only historically inaccurate but actually a caricature so grotesque that what needs to be explained is how it could possibly have achieved any degree of respectability.*⁷

⁷ C.A. Russell, "The Conflict Metaphor and Its Social Origins", *Science and Christian Belief*, 1 (1989), p 3-26.