

Physicist and priest: An interview with John Polkinghorne

by [Michael Fitzgerald](#) in the [January 29, 2008](#) issue

*Ordained an Anglican priest after a career as one of the world's top quantum physicists (his work helped lead to the discovery of the quark, a basic element of matter), John Polkinghorne vigorously argues that science and religion are not at odds. He served as the first president of the International Society for Science and Religion and helped organize the Society of Ordained Scientists. He delivered the 1993-1994 Gifford Lectures (which became the book *The Faith of a Physicist*) and in 2002 received the Templeton Prize for Progress Toward Research or Discoveries About Spiritual Realities.*

*Polkinghorne has written more than 15 books, including *The Quantum World* (1985) and *Quantum Theory: A Very Short Introduction* (2002). His books on science and religion include *The Faith of a Physicist* (1996), *Belief in God in an Age of Science* (1999) and, most recently, *From Physicist to Priest: An Autobiography* (published in the United Kingdom in October).*

Do you ever have any regrets about having left the discipline of physics?

No, I think I left at the right time. One reason is that you don't get better at these things as you get older. You probably do your best work in physics before you are 45. The other reason is that the subject has changed. All the time I was in physics, the field was driven by experimentation. There were lots of very clever theorists around, but the experimentalists provided the motivation. Since then the subject has become very speculative, with little empirical input. That's actually not good for physics, and in that respect I'm not sorry to have left the game.

Do you think you would have a similar view if the field were biology?

Biology is different. Accumulated experience is important in biology in a way that isn't the case with mathematical physics. Also, biologists see a different slice of reality from the physicists. Physicists are deeply impressed with the wonderful order

of the world, so “mind of God” language comes quite naturally to them, whereas biologists see the much more ambiguous process of life—extinctions and parasites and that sort of thing.

Theologian Philip Hefner has observed that scientists tend to be very skeptical of the role of metaphor in theology. Could you talk about your own view of metaphor and its place in theology?

I prefer the word *symbol* to metaphor. Metaphor is essentially a literary device. A symbol is a way of representing reality that in some sense—a sense very hard to define—participates in the reality that it represents.

Symbolism is indispensable to theology, because the mysterious infinite reality of God cannot be caught within the finite nets of human thinking in the way that the physical world, or large aspects of it, can be caught. The precise language of mathematics, which is so natural to physics, has to be replaced in theology by a different form of discourse.

The secret weapon of science is experiment. If you don't believe what somebody says about something, you can in principle and sometimes in practice try to replicate the experiment. That's very persuasive. In the whole swale of human experience, we can't do that. You can't put God to the test. God is not a subject to be manipulated but a subject to be met and ultimately to meet in awe and worship.

That's why revelation is an important category for theology. By revelation I don't mean some ineffable propositional communication which you have to take or leave, but God's act of self-disclosure in individual lives to a small but real extent and, of course, in the history of Israel and the life, death and resurrection of Jesus Christ.

Despite these differences, both science and theology are trading in motivated beliefs, though the motivations have their own different characters.

What do you mean by motivated beliefs?

I mean that you don't just pluck ideas out of the air. You look for evidence to encourage the point of view you're going to take, either your own or the reports of others.

Science looks to empirical evidence and bases its theories on being able to explain that evidence. Religious belief, at least Christian belief, looks first of all to the

general evidence for the existence of God in the wonderful order and fruitfulness of the universe, and second to the way that Christians believe that God has made God's nature known in Jesus Christ.

The natural question for a scientist to ask either in relation to science itself or in relation to religion is, What makes you think that might be the case? The questioning is open to surprise and the unexpected. We've found that the world is very surprising (quantum theory makes the point), and it demands some motivating evidence before an unexpected view will be taken on board.

How would you approach these issues in a congregation?

A lot of scientific people envision faith as some sort of unquestioning submission to authority. So the first thing I would do if I had lots of scientifically literate people in the congregation is to show them that religious faith is not a question of shutting your eyes and gritting your teeth. It is a search for truth in a different domain.

There's quite a lot of good writing about popular science, about fundamental physics. I think if ministers are concerned about these things, they should try to read some of that stuff. But there's a sense in which if God is the ground of everything, then everything is grist for the theological mill—literature is a way into things, science is and so on. Nobody can know everything.

Darwinian theory gets a lot of press in the U.S. because natural selection remains controversial. You've written that a good deal of human achievements go beyond what natural selection would call for.

Just take our ability to do science, for example. We're able to understand the world in a deep way—not just the everyday world in which we have to survive but also the subatomic world of quantum theory, which is remote from our direct experience and requires ways of thinking which are totally different—counterintuitive, one might say—from our everyday ways of thinking. I can't believe that our ability to understand and probe and enjoy the structures of that quantum world is simply a spin-off of our ancestors' learning to dodge saber-toothed tigers. It's something more profound than that.

Or consider humans' ability to explore noncommutative algebra. That goes vastly beyond anything that's so central to evolutionary explanation, unless the context in which it was developed is a richer and deeper context than simply the physical,

biological context that conventional Darwinian theory would lead us to suppose.

In light of Darwinian science, theologian Philip Clayton has suggested that God should be thought of not as the cosmic lawgiver but perhaps as the one guiding the process of creativity.

I'm very sympathetic to the idea that though God is the one who holds the world in being, the creation of the world is not the performance of a fixed score, but more like an unfolding improvisation in which God, as the great conductor of the orchestra, and also the individual creature players each have their roles. I think that's what the world looks like. It is also very much what I think you might expect the God of love to be like—not to be a chap who pulls every string—and also very much like the God of the Bible. A sort of cosmic puppetmaster doesn't seem at all to be the God of the Bible.

You have written about God as a self-limiting God. Where do you see that in scripture?

I think you see it implicitly in a great deal of scripture, starting with "God is love." It seems to me that the nature of love is not to be tyrannical. You see it in God's patience with Israel, for example, and you see it in the prophet Hosea. In a different way you see it in the passion of Christ.

This topic is a good example of how scripture plays a role in giving basic accounts of divine disclosure without giving the full interpretive apparatus, which you have to discover for yourself.

Of course, there are also scripture passages about the power and authority of God. That must be part of our understanding of God. My criticism of process theology is that its God is too weak. God has to be both the God alongside us, the "fellow sufferer" in Whitehead's phrase, but also the one who is going to redeem suffering through some great fulfillment. To put it bluntly, the God of process theology isn't the God who raised our Lord Jesus Christ from the dead.

You've written that most of the scientific knowledge we have arose in the past century. Is that also true for theology?

The timescale and character of theology are quite different. Science is a synchronic subject—that is, what matters is what we know at the present. Scientific knowledge

is cumulative. I know much more about the universe than Newton did not because I'm cleverer than he but because I live 300 years later.

Theology is a much richer, more complicated subject. First of all, Christian theology has to look back to its foundational events recorded in the New Testament.

Moreover, different generations will see different things. The English mystics of the 14th century had some insights about our relationship to God that we need to learn from. Theology is a diachronic subject. Conversation in theology is always going to involve people like Augustine, Aquinas and Luther, who speak across the centuries. That's quite a difficult thing for some scientists to take on board. They tend to think that we're bound to know more now than we did before.

A persistent challenge for Christians who interact with modern science is the question of miracles. How have you grappled with that issue?

If there are such things as miracles, they are rare, one-off events, which is exactly the sort of thing that science isn't set up to talk about. So the problem of miracles is a theological problem. It's a question of divine consistency. God is not condemned never to do anything different, but when God does something different it must be in a consonant, fitting relationship to things God has done before.

Therefore I think that the easiest Christian miracle to believe in now is the resurrection of Jesus. If you believe that God was doing a new thing in Jesus, then it's appropriate that a new activity accompany that act. Some of the other miracles that you find in scripture—floating ax heads, for example—do sound pretty odd.

Skeptics would say: Where are these miracles today? Why can't God just pop up and do something so we'll all believe?

That would be to ask for trivial things—for God to write some message in the sky or make a statue made of chocolate materialize in Trafalgar Square. Those would be pointless things and would be theologically perplexing.

The question of why God doesn't do more in the way of healing miracles is a difficult question. And again there does seem to be a question of appropriateness. If you take the scriptural record of things seriously, miracles seem to be—C. S. Lewis made this point years ago—associated with what you might call nodal events. The dawning of prophecy in Israel was one such event, as was the life of Jesus Christ and the experience of the very early church. It seems to me a very respectable argument to

say that those were exceptional times, and they called for perhaps more exceptional forms of divine self-disclosure.

We still long for miracles of healing, or for God to change world events to ease suffering. Are those not the kinds of miracles we should expect from God?

To long for a miracle may be to long for something you don't want to happen. A miracle doesn't happen just to ease lives without any cost to real life.

I believe that God interacts with history. And I believe that God influences history and guides and strengthens human beings and their action in history. That's called God's providence. A miracle is something more exceptional than that.

You've stated before your belief that God is not irrational, that God does not step in and violate the laws of nature.

I think God acts within the open grain of nature. Just as we act within it in small ways, God acts in bigger ways, and that's sort of hidden—because the open grain of nature comes from these intrinsic unpredictabilities, so we can never quite figure out who's doing what in these things.

But then there is the question of whether God does something new, and that's the problem of miracle. Christianity can't escape the problem of miracle because it seems to me that the resurrection of Christ is so central to it. If life wasn't raised from the dead, Jesus' life ends in extreme failure.

What do you think about the notion, put forward by a number of scientists and theologian, that we live in a multiverse—that there are or could be any number of universes besides the one we are aware of?

The multiverse theory in its more extreme forms is the idea that there are these vast portfolios of different universes, disconnected from ours, unobservable by us. It's a metaphysical guess. It has mostly been popular and mostly been invented in order to explain away the fine tuning of our particular universe. If our universe is just one winning ticket in some vast multiverse collection, then somehow it seems less remarkable that it has all the properties it has.

It's possible that God has chosen to create a number of different universes for a number of different divine purposes. You couldn't rule it out. But neither can you

rule it in.

Switching gears entirely, what is your favorite hymn?

I have two favorite hymn writers. One of them is George Herbert, an Anglican divine. If I were to choose one of his hymns, it would be the one that begins “Teach me, my God and king, in all things thee to see.” The other one I very much like is Charles Wesley, who writes powerful, theologically rich hymns. “Love Divine All Loves Excelling” would probably be my choice.

Is there a scripture passage you would choose to preach on to help shed some light on the ideas that you try to address in your thinking as a scientist?

One of my favorite texts, which I believe was also a favorite text of St. Augustine, is 2 Corinthians 4:6 : “For God, who commanded the light to shine out of darkness, hath shone in our hearts, to give the light of the knowledge of the glory of God in the face of Jesus Christ.” That pulls together some scientific notion of the light of knowledge shining on us with the notion of the light of Christ shining on us. To truly understand the world in which we live in all its richness and variety and promise and suffering, you do need the Christian insight of God sharing in all that in the light of Jesus Christ.

When I sign books I sometimes write a text if I think it appropriate, and I usually write 1 Thessalonians 5:21: “Test everything; hold fast to what is good.”