

Science and faith

by Alison Morgan



Ever since the creation of the world, his eternal power and divine nature, invisible though they are, have been understood and seen through the things he has made. Romans 1.20

What is the difference between a cathedral and a physics lab? Are they not both saying: Hello? Annie Dillard

Our first winter in Somerset, and it snowed. I drove up into the Mendips to find a silent wonderland of soft drifts, blue and white landscapes and buried signposts. Far below, the Levels glittered green in the sunlight, and millions of starlings gathered for their pre-roost dance, ready to twist and turn above the reeds, black against an orange sky. Children laughed on new sledges, and I was filled with awe, and joy, and delight at being alive. It was hard, that afternoon, not to think of God.

It is my experience that life offers such moments regularly; moments which invite us to look beyond the demands of the everyday and connect with bigger questions, questions of how and why. How questions try to understand the teeming reality of the life which surrounds and includes us. Why questions try to understand what it means that this life exists at all. The attempt to answer how questions we call science. The attempt to answer why questions we call faith. Science and faith: the twin topics of this magazine.

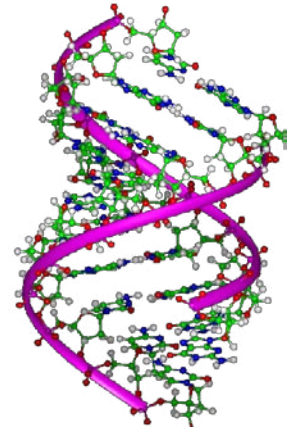
Science is 'an organised endeavour to explain the properties of the physical world by means of empirically testable theories constructed by a research community trained in specialised techniques'. Faith is 'a way of life that takes place in an intimate web of visible and invisible, silence and speech, light and darkness, chaos and cosmos, knowledge and mystery, God and us, (which) can only be realised by participation'.¹ They are quite distinct: science is a process, faith a framework. In classical terms, if science is about physics, faith is about metaphysics – that which goes beyond physics.



The contribution of science to our understanding of the world is immense. Gone are the days when geographers included giants and unicorns in their maps, or when biologists could assert confidently that barnacle geese hatch from barnacles on driftwood.² And yet the more our understanding advances, the more astonishing it all seems. From the beginning of the world in a Big Bang of explosive energy, down to the dancing strings of energy now thought to inhabit the inner particles of the atom, the answers of science

increasingly serve to highlight the questions of faith. We now know the infinitesimal extent to which the fine tuning of the universe permits life, and wonder at the mathematical intelligibility of it all – whilst being brought constantly face to face with the fact, as Stephen Hawking remarks, that ‘the usual approach of science of constructing a mathematical model cannot answer the questions of why there should be a universe for the model to describe’.³ Many scientists find that the more they discover about the ‘how’ questions, the more they are compelled to look at the ‘why’ questions; surveys consistently show that 40% of research scientists believe in the existence of a personal God with whom we may directly communicate.⁴ ‘Great are the works of the Lord’, the Cavendish physics laboratory in Cambridge proclaims above its doorway; ‘they are pondered by all who delight in them’.⁵ Science, as Johannes Kepler famously said, is ‘thinking God’s thoughts after him’. Science and faith go hand in hand.

There is, however, one area where the respectful reciprocity of science and faith seems to grind to a rude halt, and that is the peculiar case of evolutionary biology. In 1859 Charles Darwin proposed that all living species are descended from common ancestors, that variation within a species occurs randomly, and that their survival or extinction depends on their ability to adapt to the environment. We know this process as evolution. We now have supporting evidence from fossil discoveries and genetic research which is so strong that few biologists today doubt it. Francis Collins, director of the Human Genome Project and a committed Christian, writes that ‘evolution, as a mechanism, can and must be true’.⁶



And yet when it comes to evolutionary biology both Christians and scientists seem to lose their heads. Fundamentalist Christians cling to the belief that the Earth is 6000 years old and that the story of creation in Genesis is to be taken literally - although we know for certain that the Earth is 4.5 billion years old and the genetic evidence for common ancestry between living creatures is overwhelming.⁷ Materialist evolutionary biologists insist with equal tenacity that chance and necessity alone offer a complete explanation for all dimensions of life, and that science has all but disproved God.⁸ Both make what is usually termed a ‘category mistake’ – that is, they use the information at their disposal (scriptural, scientific) to answer the wrong question. Scripture does not tell us how, and science cannot tell us why.

Behind this seemingly irrational debate lurks the real conflict, which is not between faith and science but between theism and atheism. Scientists inevitably bring to their science a particular framework of belief. Some, like immunologist George Klein, are quite clear about this: ‘I am an atheist. My attitude is not based on science, but rather on faith’.⁹ Others are aware of the difficulties; Stephen Hawking has said ‘My work on the origin of the universe is on the borderline between science and religion, but I try to stay on the scientific side of the border’.¹⁰ Still others, including some evolutionary biologists of whom Richard Dawkins is the best known, have no such qualms, and bring to their work an atheistic ideology so aggressive that many Christians, unable to distinguish between the science and the ideology, feel they have no alternative but to reject both. The expert conclusion that ‘all the extraordinary, wonderful richness of the world can be expressed as growth from the dunghill of purposeless interconnected corruption’ seems, somehow, inadequate.¹¹

What then of faith? Faith is the framework within which we live and work; it’s a worldview, and can be theistic or atheistic. For Christians, faith is not so much about knowledge as about relationship - relationship with the God whom we believe made the universe. Faith helps us to think about the questions which science cannot answer. It’s not about how; it’s about why, and who. And yet there *is* a borderline between science and religion - how close to it is it appropriate for us as Christians to venture? Is there a point at which science and faith can meet - or are they destined to remain, in Stephen Jay Gould’s well known phrase, non-overlapping magisteria?

The more we push at the boundaries of science, the more questions there seem to be. Nothing new about that; it’s always been so. The difference seems to be that increasingly our questions arise not so much from gaps in our knowledge as from glaring inconsistencies in the evidence itself. Mathematicians point out that there hasn’t been time, during the 150 million years since the Earth became hospitable to life, for random processes to generate the complexity of life we now observe. Quantum physicists have uncovered fundamental puzzles to do with the nature of matter, puzzles which arise not from lack of evidence but because the empirical evidence we do have is self-contradictory. Biologists know that the building block of life, DNA, is not itself alive. Stephen Hawking has recently concluded that the latest advances in mathematics

prove that 'our search for understanding will never come to an end'; that reality is by its very nature not scientifically comprehensible.¹² If we are to make sense of it, we need a different kind of approach. Charles Townes, a Nobel prizewinning physicist, offers one: 'the question of origin seems to be left unanswered if we explore it from a scientific point of view.. I believe there is a need for some religious or metaphysical explanation'.¹³

By background I am a linguist. I like to think of science and faith as languages, different ways of exploring the nature of the same reality. Faith will never fill the gaps in our scientific understanding, but the reverse is also true; the 'we will explain it tomorrow' claims of promissory materialists are as dangerous as the 'God of the gaps' conclusions of anxious theologians. I think that a mutually beneficial dialogue is possible, and that the Christian faith offers two particularly helpful ways of thinking about reality.

In the beginning was the Word...

Richard Dawkins has pointed out, with reference to DNA, that 'what lies at the heart of every living thing is.. information, words, instructions' – to be precise, a single 64 word code which has spelt life in all living things for all time without change.¹⁴ Physicist Paul Davies has suggested that the application of information theory to science leads us to believe that 'perhaps the universe is really a frolic of primal information, and material objects a complex secondary manifestation'.¹⁵ John Lennox, an Oxford mathematician and philosopher of science, has remarked that the problem of the origin of life is the problem of the origin of that information.¹⁶ Francis Collins has coined the term 'BioLogos' to describe his conviction that God interacts with reality precisely *through* the process of evolution - logos, or 'word'; the word which classical philosophers had used to describe the mind of God.¹⁷

Reality, it seems, is spoken; and this, curiously, is how the people of God have always understood it. In the beginning God spoke, and the world was created. A word, the Hebrew writers knew, is *dabar*, which means both word and deed. God's words are not just soundbites; they are the active agents of life itself. Later that word was spoken to us directly by Jesus, its living manifestation; and his words too seemed to carry within them the seeds of life and death. Perhaps it is no coincidence that 'logos' was the word which John used to describe Jesus; language, we believe, lies at the heart of reality. Language, too, is at the heart of what it means to be human, people made in the image of God, with minds able to engage in profound and astonishing ways with the universe he spoke. It is language which makes possible the practice of our faith.



And the Spirit of God was hovering over the waters...

If information is a fundamental property of reality, so too is energy. Energy is fundamental to everything from the initial explosion into being of the universe to the continued existence of the atom. We know that energy can be neither created nor destroyed, but mathematics cannot tell us where it came from, and the laws of physics work perfectly from the first 10^{-43} seconds after the Big Bang onwards, but break down if we attempt to reach backwards beyond that point.¹⁸ As for life itself, it can be recognised but not defined, and certainly cannot be reduced to a property of an organism's constituent parts. It has been described as 'the most astonishing phenomenon in nature'.¹⁹

And yet here too we as Christians have inherited a way of thinking about these things. Energy and life are created and sustained by what we know as the Spirit of God. Paul describes the work of the Spirit as 'energising', and the word spirit itself means 'breath' - as good a definition as any of what it is to be alive.²⁰ Ambrose wrote in the 4th century: 'If it were possible to remove the Spirit from creation, all beings would become confused and the life in them would appear to have no law, no structure, no ordered purpose whatsoever. Without the Spirit, the entire creation would be unable to continue in being'.²¹ Sir Thomas Browne suggested in the 17th that 'ther may be (for ought I know) an universall and common Spirit to the whole world'.²² 20th century theologian Teilhard de Chardin saw the Spirit as the power directing the

evolutionary processes of life.²³ Physicist Stephen Hawking simply asks, ‘what *is* it that breathes fire into the equations and makes a universe for them to describe?’²⁴

For the Christian, however, there is more. The more consists in the fact that the ‘who’ behind the universe, the Word and Spirit who spoke and animated it, still speaks and animates today. Through the language of faith we find that it is possible to think not just about creation and evolution, but about purpose and eternity, about what it means not simply to be alive but to be a human being with all the joys and sorrows, memories and ambitions which materialists wish to limit to the pre-determined behaviour of an assembly of nerve cells and molecules.²⁵ We find it is possible to think about who we are and where we are going. We find that we can smile at what we know and do not know, and entrust ourselves to a God to whom we can actually speak, and to whom we may clearly listen. This is the living world of faith; this is the framework within which we do our science.

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¹ Definitions by Denis Alexander and Eugene Peterson.

² Both examples from the 12th century.

³ Quoted by John Lennox, *God’s Undertaker*, Lion 2007 p63.

⁴ See *Nature* 386, 435-436 (3 April 1997).

⁵ Psalm 111.2

⁶ Francis Collins, *The Language of God – a scientist presents evidence for belief*, Pocket Books 2007. He adds, ‘but that says nothing about the nature of its author’.

⁷ For evidence on the age of the solar system see O Gingerich, *God’s Universe*, Bellknap Press 2006; for the genetic evidence for evolution see Francis Collins, *The Language of God*.

⁸ See for example Richard Dawkins: *The God Delusion*, Bantam Press 2006

⁹ *The Atheist in the Holy City*, MIT Press 1990 p203.

¹⁰ In an interview with ABC Television in 1989

¹¹ Peter Atkins, Professor of Chemistry at Oxford University, *Creation Revisited*, Penguin 1994 p 127-28

¹² Lecture on ‘Godel and the end of Physics’, <http://www.hawking.org.uk>

¹³ *Making Waves*, American Physical Society, 1995

¹⁴ *The Blind Watchmaker*, Longmans 1986, p112

¹⁵ Paul Davies, *New Scientist*, 30.1.99

¹⁶ John Lennox, *God’s Undertaker*, p 139, quoting Stephen Meyer.

¹⁷ Francis Collins, *The Language of God*, ch 10.

¹⁸ Francis Collins, *The Language of God*, p65.

¹⁹ Paul Davies, *God and the New Physics*, Simon & Schuster 1984 p.58.

²⁰ 1 Corinthians 12.6 uses the word ‘energising’ for the work of the Spirit.

²¹ *On the Holy Spirit*, 2.5.33, quoted by Simon Ponsonby, *God inside Out*, Kingsway 2007 p94.

²² *Religio medici*, in his *Major Works*, Penguin Classics 2006 p99.

²³ For a full discussion of the role of the Spirit in creating and sustaining life see Walter Pannenberg, *Toward a Theology of Nature - Essays on Science and Faith*, Louisville 1993

²⁴ *A Brief History of Time*, Bantam Press, 10th edition 1998, p209.

²⁵ This is the position of Francis Crick, *Astonishing Hypothesis – the scientific search for the soul*, Simon & Schuster 1994 p3.