TRUE SCIENTISTS,
TRUE FAITH

TRUE SCIENTISTS, TRUE FAITH

Some of the world's leading scientists reveal the harmony between their science and their faith

Edited by

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This book is dedicated to the memory of

OLIVER BARCLAY (1919-2013)

Zoologist and Christian

Founder and Long-time Secretary of Christians in Science

Founding Editor of the Journal *Science & Christian Belief*

The life and contributions of Oliver Barclay are described in *Science & Christian Belief*, **26**: 83-88, 2014

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Foreword

There is a widespread assumption that science has somehow "disproved" the truth of religion; that belief in God is no more than an insurance policy for people wanting some sort of existence after their present life. A band of "new atheists" trumpets that there is no God and those who claim there is one are intellectually delusional. Darwin's friend, Thomas Huxley, proclaimed: "Extinguished theologians lie about the cradle of every science as the strangled snakes beside that of Hercules; and history records that whenever science and orthodoxy have been fairly opposed, the latter has been forced to retire from the lists, bleeding and crushed if not annihilated; scotched, if not slain."

Unhappily for those who propagate such ideas, the evidence is firmly against them. As Nobel Prize winner Peter Medawar (a non-believer) said, "there is no limit upon the power of science to answer questions of the kind that science *can* answer", *but* that science has "limits is shown by the existence of questions that science cannot answer and that no conceivable advances of science would empower it to answer… it is not possible to derive from the axioms and postulates of Euclid a theorem to do with how to cook an omelette or bake a cake." He concluded: "science should not be expected to provide solutions to problems such as the purpose of life or the existence of God" (*The Limits of Science*, Oxford University Press, 1984).

A compelling response to doubters about the compatibility of science and belief is the existence of many scientists who accept and witness to an orthodox religious faith. This book is direct evidence from such people. It contains the testimonies of twenty leading scientists, all of national and some of

international renown. Fifteen of them have been lightly revised from their previous publication in *Real Science, Real Faith* (1991) or *Real Scientists, Real Faith* (2009), but both books are out of print and feedback of their impact has suggested it is worth making them available again. Five chapters (by Chris Done, Rosalind Picard, Jennifer Wiseman, David Raffaelli and John Wood) are new in this volume.

In a Foreword to *Real Science, Real Faith*, Philip Hacking (then Chairman of the Keswick Convention) wrote: "This book will be a tremendous help and encouragement to scientists who may be going through a struggle in their pilgrimage. It will confirm faith in a totally honest way. It is equally prescribed reading for non-scientists who need to understand the tensions that can arise and the process through which faith is strengthened in the mind and life of Christians."

This commendation applies just as much to this enlarged edition. There is a tradition that God wrote a Book of Words (the Bible), but also a Book of Works (Creation); the Books have the same author, but are written in very different languages. Science is the study of creation; to understand God's purposes fully we need to read both his books.

The only essay in this collection which is not a personal story is the last, by Donald MacKay, engineer turned brain investigator. He was one of the most incisive science–faith thinkers of recent generations. He emphasized that scientific and divine (or metaphysical) accounts may be complementary: knowing the physical "cause" of any event does not mean that we know all there is to know about it. The "cause" of water boiling in a kettle is due to the motion of the water molecules, but another cause could well be my desire for a hot drink. There is no conflict between the two "causes". In the same way, a scientist studying creation – whether at the nano, the molecular, the organismal or the ecosystem level – can rejoice in that he or she may also be discovering something about God's work, or in Johannes

Kepler's well-known phrase, "thinking God's thoughts after him". It is "by faith we understand that the universe was formed at God's command" (Hebrews 11:3), but that does not mean we cannot discover something about the methods he used. It is the responsibility of scientists who are Christians to demonstrate the shallowness of those who ignore the multifaceted nature of causation. Properly understood, science is an encouragement to faith, not a barrier.

Chapter 1

Science, Faith, and Making Sense of Things

Alister McGrath was born in Belfast and was a convinced atheist until going to university. He read Chemistry at the University of Oxford and earned a DPhil in Biochemistry before switching to Theology and subsequently being awarded a Doctorate in Divinity and a Doctorate of Letters. He served as Oxford University's Professor of Historical Theology from 1999 to 2008, before moving to King's College London as Professor of Theology, Ministry, and Education until 2014. He is presently Andreas Idreos Professor of Science and Religion at Oxford. He has written widely on the relationship between science and the Christian faith, including two widely read critiques of the ideas of Richard Dawkins – *Dawkins' God* (2004) and *The Dawkins Delusion* (2007). His most recent book is *Emil Brunner: An Appraisal* (2014).

Real scientists do not believe in God! This sound bite will be depressingly familiar to those who have struggled through the endless digressions, exaggerations and misunderstandings found in Richard Dawkins' *God Delusion* (2006). It is a viewpoint that can only be sustained by the relentless use of selective attention and turbo-charged shock-and-awe rhetoric, rather than evidence-based argument. Yet it is a view that many in Western culture seem prepared to accept as the wisdom of our age. As Karl Marx once pointed out, the constant repetition of something that is fundamentally untrue creates the impression that it is trustworthy and reliable.

Dawkins seems to regard the intrinsic atheism of the natural sciences as self-evidently true to all except those who are congenital idiots, or whose minds have been warped and infested by the debilitating notion that there exists a God who might be interested in us and our wellbeing. Perhaps this may help us understand his anger, intolerance and arrogance at the persistence – some would say resurgence – of belief in God, when the secularizing prophets of the late 1960s and early 1970s foretold its inevitable death.

Dawkins is modest in the provision of autobiographical detail. However, if I have understood his account of his own conversion to atheism, the pivotal element of the process was a growing belief that Darwinism offered a far superior account of the nature of the world than anything based on an appeal to God. Dawkins' discovery of Darwinism began during his time as a student at Oundle School, and was consolidated during his study of zoology at Oxford University. The natural sciences thus acted as a catalyst for his deconversion from what appears to have been a somewhat anaemic form of nominal Anglicanism.

Now, all of us are prone to see our own personal histories as somehow disclosing a broader pattern of things, or the deep structure of reality. Beliefs that we personally find to be compelling must be so for all. Unsurprisingly, those who don't fit the pattern are seen as dangerous. They tend to get dismissed as oddballs, idiots, or psychotics. Why? Precisely because they are a threat to the credibility of the simplistic creed they refuse to accept. For what Dawkins regards as a universal, normative pattern is nothing more than one possible intellectual option among several, each of which have found their supporters over the years. In this essay, I shall tell my own story, and leave it for my readers to decide whether it has wider significance.

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 to enable me to observe the moons of Jupiter. Around the same time, a great-uncle who had headed up 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 enthral, 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 by-product 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 idea, 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.

Yet questions remained. As I continued to examine the night sky, I found its silence disturbing. I used to enjoy looking through my small telescope at M31, a famous nebula in the constellation of Andromeda which is bright enough to be seen by the naked eye. I knew that it was so distant that the light now

leaving the nebula would take 2 million years to reach earth. By that time, I would have died. The night sky thus became a sombre symbol of the troubling brevity of human life. What was the point of it? Tennyson's lines from "The Brook" seemed to sum up the human situation:

> *For men may come and men may go,*
> *But I go on for ever.*

However, I remained obstinately convinced that the severity and dreariness of this position were confirmations of its truth. It was axiomatic 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. At that stage, most people gained admission to Oxford in the seventh term of the sixth form. I learned that I had won a scholarship to Oxford in December 1970, but was not due to begin my studies until October 1971. What was I to do in between? Most of my friends left school in order to travel or earn some money. I decided to stay on, and use the time to learn German and Russian, both of which would be useful for my scientific studies. Having specialized in the physical sciences, I was also aware of the need to deepen my knowledge of biology. I therefore settled down to begin an extended period of reading and reflection.

After a month or so of intensive reading in the school science library, having exhausted the works on biology, I came across a section that I had never noticed before. It was labelled "The History and Philosophy of Science", and was heavy with dust. I had little time for this sort of stuff, tending to regard it as uninformed criticism of the certainties and simplicities of the natural sciences by those who felt threatened by them. Philosophy, like theology, was just pointless speculation about

issues that could be solved through a few decent experiments. What was the point? Yet by the time I had finished reading the somewhat meagre holdings of the school 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. Issues such as the under-determination of theory by data, radical theory change in the history of science, the difficulties in devising a "crucial experiment", and the enormously complex issues associated with devising what was the "best explanation" of a given set of observations crowded in on me, muddying what I had taken to be the clear, still, and above all *simple* waters of scientific truth.

Things turned out to be rather more complicated than I had realized. My eyes had been opened, and I knew there was no going back to the simplistic take on the sciences I had once known and enjoyed. I had enjoyed the beauty and innocence of a childlike attitude to the sciences, and secretly wished to remain in that secure place. Indeed, I think that part of me deeply wished that I had never picked up that book, never asked those awkward questions, and never questioned the simplicities of my scientific youth. But there was no going back. I had stepped through a door, and could not escape the new world I now inhabited.

By the time I arrived in Oxford in October 1971, 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. I would later find this idea expressed

by Peter Medawar, in his excellent *The Limits of Science* (1984). Emphasizing that "science is incomparably the most successful enterprise human beings have ever engaged upon", Medawar distinguished between what he termed "transcendent" questions, which are better left to religion and metaphysics, and scientific questions about the organization and structure of the material universe. With regard to these latter, he argued, there are no limits to the possibilities of scientific achievement. So what about the question of God? Or of whether there is purpose within the universe? Medwar was clear: science cannot answer such questions, even thought there may be answers to be found:

> *That there is indeed a limit upon science is made very likely by the existence of questions that science cannot answer, and that no conceivable advance of science would empower it to answer… I have in mind such questions as:*
>
> *How did everything begin?*
> *What are we all here for?*
> *What is the point of living?*

I could no longer hold on to what I now realize was a somewhat naïve scientific positivism; it became clear to me that a whole series of questions that I had dismissed as meaningless or pointless had to be examined again – including the God-question.

Having set to one side my rather dogmatic belief that science necessarily entailed atheism, I began to realize that the natural world is conceptually malleable. Nature can be interpreted, without any loss of intellectual integrity, in a number of different ways. Some "read" or "interpret" nature in an atheistic 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. 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 their more dogmatic atheist colleagues, 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.

Stephen Jay Gould, whose sad death from cancer in 2002 robbed Harvard University of one of its most stimulating teachers, and a popular scientific readership of one of its most accessible writers, was absolutely clear on this point.[1] The natural sciences – including evolutionary theory – were consistent with both atheism and conventional religious belief. Unless half his scientific colleagues were total fools – a presumption that Gould rightly dismissed as nonsense, whichever half it is applied to – there could be no other responsible way of making sense of the varied responses to reality on the part of the intelligent, informed, people that he knew.

The real problem is that, since the scientific method clearly does not entail atheism, those who wish to use science in defence of atheism are obliged to smuggle in a series of non-empirical metaphysical ideas to their accounts of science, and hope that nobody notices this intellectual sleight of hand. Dawkins is a master of this art. In his superb recent study *The Music of Life*,[2] the Oxford systems biologist Denis Noble took a passage from Dawkins's *The Selfish Gene*,[3] and rewrote it, retaining what was empirically verifiable, and inverting Dawkins' somewhat questionable metaphysical assumptions. The result dramatically illustrates the ease with which non-empirical assumptions can be imported into scientific thinking.

First, consider Dawkins' original passage, which sets out a gene-centred approach to evolutionary biology, which was then gaining the ascendancy. Note how agency is attributed to genes, which are portrayed as actively controlling their destiny. I have emphasized what is empirically verifiable:

> *[Genes] swarm in huge colonies, safe inside gigantic lumbering robots, sealed off from the outside world, communicating with it by tortuous indirect routes, manipulating it by remote control.* ***They are in you and me****; they created us, body and mind; and their preservation is the ultimate rationale for our existence.*

In rewriting this, Noble moves away from any idea that genes can be thought of as active agents. Once more, I have emphasized what is empirically verifiable:

> *[Genes] are trapped in huge colonies, locked inside highly intelligent beings, moulded by the outside world, communicating with it by complex processes, through which, blindly, as if by magic, function emerges.* ***They are in you and me****; we are the system that allows their code to be read; and their preservation is totally dependent on the joy that we experience in reproducing ourselves. We are the ultimate rationale for their existence.*

Dawkins and Noble see things in completely different ways. (I recommend reading both statements slowly and carefully to appreciate their differences.) They both cannot be right. Both smuggle in a series of quite different values and beliefs. Yet their statements are "empirically equivalent". In other words,

they both have equally good grounding in observation and experimental evidence. So which is right? Which is the more scientific? How could we decide which is to be preferred on scientific grounds? As Noble observes – and Dawkins concurs – "no-one seems to be able to think of an experiment that would detect an empirical difference between them."

Let me return to explaining my own change of mind on the relation of science and faith. Having realized that a love of science allowed much greater freedom of interpretation of reality than I had been led to believe, I began to explore alternative ways of looking at it. While I had been severely critical of Christianity as a young man, I had never extended that same critical evaluation to atheism, tending to assume that it was self-evidently correct, and was hence exempt from being assessed in this way. During October and November 1971, I began to discover that the intellectual case for atheism was rather less substantial than I had supposed. Far from being self-evidently true, it seemed to rest on rather shaky foundations. Christianity, on the other hand, turned out to be far more robust intellectually than I had supposed.

My doubts about the intellectual foundations of atheism began to coalesce into a realization that atheism was actually a belief system, where I had somewhat naïvely and uncritically assumed that it was a factual statement about reality. I also discovered that I knew far less about Christianity than I had assumed. It gradually became clear to me that I had rejected a religious stereotype. I had some major rethinking to do. By the end of November 1971, I had made my decision: I turned my back on one faith, and embraced another.

It did not take me long to begin to appreciate the intellectual capaciousness of the Christian faith. Not merely was it well grounded; it was also intellectually enabling and enriching. Here was a lens, which enabled reality to be brought into sharp focus. The Christian faith both made sense in itself,

and made sense of things as a whole. "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" (C. S. Lewis). I suddenly found that the entire scientific enterprise made a lot more sense than I had ever appreciated. It was as if an intellectual sun had risen and illuminated the scientific landscape, allowing me to see details and interconnections that I would otherwise have missed altogether.

In September 1974, I joined the research group of Professor Sir George Radda, based in Oxford University's Department of Biochemistry. Radda was then developing a series of physical methods for investigating complex biological systems, including magnetic resonance approaches. My particular interest was developing innovative physical methods for studying the behaviour of biological membranes, which eventually extended to include techniques as different as the use of fluorescent probes and antimatter decay to study temperature-dependent transitions in biological systems.

But my real interest was shifting elsewhere. I never lost my fascination with the natural world. I just found something else rising, initially to rival it, and then to complement it. What I had once assumed to be the open warfare of science and religion increasingly seemed to me to represent a critical yet constructive synergy, with immense potential for intellectual enrichment. How, I found myself wondering, might the working methods and assumptions of the natural sciences be used to develop an intellectually robust Christian theology? And what should I do to explore this possibility properly?

In the event, I decided that I could best achieve this goal by ceasing active scientific research, and becoming a theologian. I was, however, determined that I would be a theologian who was up to date in his reading of the scientific literature, especially in the field of evolutionary biology, and who actively sought to relate my science and my faith. I had

no time for the "God of the Gaps" approach, which sought to defend the existence of God by an appeal to gaps in scientific explanation. While an undergraduate at Wadham, I had come to know Charles Coulson (1910–74), Oxford University's first professor of theoretical chemistry, who was a vigorous critic of this approach. For Coulson, reality as a whole demanded explanation. "Either God is in the whole of Nature, with no gaps, or He's not there at all."

I increasingly came to the view that the explicability of nature was itself astonishing, and required explanation. As Albert Einstein pointed out in 1936, "the eternal mystery of the world is its comprehensibility." For Einstein, explicability itself clearly requires explanation. The most incomprehensible thing about the universe is that it is comprehensible. The intelligibility of the natural world, demonstrated by the natural sciences, raises the fundamental question as to why there is such a fundamental resonance between human minds and the structures of the universe.

As I reflected on the cognitive implications of the Christian faith, I came to see that it offered a "big picture" account of things, which allowed us to make sense of what we observed in everyday life, and especially in scientific explanation. "Religious faith", wrote William James (1842–1910) with his characteristic insight, is basically "faith in the existence of an unseen order of some kind in which the riddles of the natural order may be found and explained." Human beings long to make sense of things – to identify patterns in the rich fabric of nature, to offer explanations for what happens around them, and to reflect on the meaning of their lives. It is as if our intellectual antennae are tuned to discern clues to purpose and meaning around us, built into the structure of the world. "The pursuit of discovery," the chemist-turned-philosopher Michael Polanyi (1891–1976) noted, is "guided by sensing the presence of a hidden reality toward which our clues are pointing."

This led me to take a second step, moving away from the idea that one can "prove" the existence of God from the natural world. Rather, I came to see that the key point is that there is a high degree of intellectual resonance between the Christian vision of reality and what we actually observe. The Christian faith offers an "empirical fit" with the real world. This notion of "empirical fit" was explored theologically by the Oxford mathematician and philosopher of religion Ian T. Ramsey (1915–72), who stated it as follows:

> *The theological model works more like the fitting of a boot or a shoe than like the "yes" or "no" of a roll call. In other words, we have a particular doctrine which, like a preferred and selected shoe, starts by appearing to meet our empirical needs. But on closer fitting to the phenomena the shoe may pinch. When tested against future slush and rain it may be proven to be not altogether water-tight or it may be comfortable – yet it must not be too comfortable. In this way, the test of a shoe is measured by its ability to match a wide range of phenomena, by its overall success in meeting a variety of needs. Here is what I might call the method of empirical fit which is displayed by theological theorizing.*

This is a fundamentally empirical notion, originating within the natural sciences, which Ramsey believed – rightly, in my view – had considerable theological potential.

This led me to consider the apologetic possibilities of the natural sciences. I became interested in the field of natural theology, which I understood, not as an attempt to deduce the existence of God from a cold, detached observation of nature, but rather as the enterprise of seeing nature from the standpoint of faith, so that it is viewed, interpreted and appreciated with

Christian spectacles. Events and entities within nature are thus not held to "prove", but to be consonant with, the existence of God. What is observed within the natural order resonates with the core themes of the Christian vision of God.

An example is provided by the doctrine of creation set out in the writings of Augustine of Hippo (354–430), unquestionably the most respected and widely cited theologian in Western Christianity. Augustine does not translate his theological principles into explicit scientific statements, even though at times his statements reflect the prevailing consensus of his era. Rather, Augustine bequeathed to his successors a set of theological principles concerning the Christian doctrine of creation that are capable of provisional correlation with the scientific worldview of our own day.

Augustine interweaves biblical interpretation, an appeal to "right reason", and a knowledge of contemporary science in his theological reflections concerning creation, which can be summarized as follows:

1. God brought everything into being at a specific moment.
2. Part of that created order takes the form of embedded causalities which emerge or evolve at a later stage.
3. This process of development takes place within the context of God's providential direction, which is integrally connected to a right understanding of the concept of creation.
4. The image of a dormant seed is an appropriate, but not exact, analogy for these embedded causalities.
5. The process of generation of these dormant seeds results in the fixity of biological forms.

The first of these points is significant. God, Augustine insists, could not be considered to have brought the creation into being at a certain definite moment in time, as if "time" itself existed prior to creation, or as if creation took place at a definite moment in a chronological continuum. For Augustine, time itself must be seen as an aspect of the created order, to be contrasted with the timelessness which he held to be the essential feature of eternity. Augustine thus speaks of the creation of time (or "creation *with* time"), rather than envisaging the act of creation as taking place in time. Time is a constituent characteristic of the domain of the created, which remains dependent upon its creator. "We speak of 'before' and 'after' in the relationship of creatures, although everything in the creative act of God is simultaneous." There is no concept of a period intervening before creation, nor an infinitely extended period which corresponds to "eternity". Eternity is timeless; time is an aspect of the created order. This fits remarkably well with contemporary cosmological theory, which insists that time and space both came into being in the primordial cosmic event usually referred to as the "big bang".

The first four of these points are all derived from Augustine's reading of Scripture; the fifth is what seemed to be a self-evident truth to Augustine, in the light of his personal experience and the contemporary scientific consensus. Augustine's espousal of the fixity of species is best seen as a provisional judgment of experience, not a fixed statement of theological interpretation. As Augustine himself constantly and consistently emphasized, there is a danger of making biblical interpretation dependent on contemporary scientific opinion, leaving its outcome vulnerable when today's consensus is replaced with tomorrow's.

My point is that, rather than suggesting that God offers an explanation of what the natural sciences are currently unable to explain, we ought to emphasize the importance of belief in God in explaining the "big picture" – that is to say, the overall patterns of ordering which are discerned within the universe.

The British philosopher of religion Richard Swinburne insists that the explanatory aspects of theism are not limited to the fine details of reality, but extend far beyond these to embrace the great questions of life – those things that are either "too big" or "too odd" for science to explain. The reliability of such explanations is, of course, open to challenge; there is, however, no doubt that such explanations are being offered, and are seen as important.

An obvious example of "big" and "odd" things about the universe that seem to demand an explanation are what are now widely described as "phenomena". The language of "fine-tuning" has increasingly been found appropriate to express the idea that the universe appears to have possessed certain qualities from the moment of its inception for the production of intelligent life on Earth at this point in cosmic history, capable of reflecting on the implications of its existence. Nature's fundamental constants turn out to possess reassuringly life-friendly values. The existence of carbon-based life on Earth depends upon a delicate balance of physical and cosmological forces and parameters, which are such that were any one of these quantities to be slightly altered, the balance would be destroyed and life would not exist. While these phenomena do not represent a "proof" of the existence of a creator God, they are clearly consistent with the view of God encountered and practised within the Christian faith. The observation of anthropic phenomena thus resonates with the core themes of the Christian vision of reality.

Yet my deepest intuition about the relation of science and faith is that theology has much to learn from the working methods and assumptions of the natural sciences. In a major three-volumed work entitled *A Scientific Theology* (2001–3), I set out a vision of how Christian theology could benefit from the intellectual rigour of the sciences. Throughout the centuries, Christian theology has engaged with a series of conversation partners, ranging from Platonism to existentialism. The

slightly condescending phrase *ancilla theologiae* ("handmaid of theology") is sometimes used to refer to this process of intellectual engagement and enrichment. In my view, the natural sciences have a key role to play in catalysing the development of Christian theology, and I hope to be able to play a small part in encouraging this development.

I myself owe an enormous amount to scientists who, like Charles Coulson, set out to integrate their faith and work. There is huge potential for intellectual synergy. It is my hope that many active scientists will catch something of this vision, and come to appreciate the importance of their faith for informing and energizing their work – and passing on this vision to their students and colleagues.

Notes

1. Gould, S. J. (1999), *Rocks of Ages*, Ballantine.
2. Noble, D. (2006), *The Music of Life*, Oxford University Press.
3. Dawkins, R. (1976), *The Selfish Gene*, Oxford University Press.