Religion and science:
The search for a likely story[1]

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Introduction

The interaction between the study of religion and the natural sciences has intensified over the last thirty years. The reasons for this are both positive and negative. The work of several scientist-theologians, who have pioneered the modern debate, has been highly influential. These include Ian Barbour (1923–2013), Arthur Peacocke (1924–2006) and John Polkinghorne (1930–). Their work has reflected at some length on the different interfaces with the natural sciences. Each has delivered the Gifford Lectures and their books have been widely used and cited. Their work has been continued by a later generation of scholars including John Hedley Brooke, Keith Ward, Alister McGrath, Peter Harrison, Philip Clayton, Nancey Murphy and Celia Deane-Drummond.

Institutional factors have also contributed to the burgeoning of activity in science and religion. With its extensive funding of courses, prizes and programmes of research, the John Templeton Foundation has had a global effect, stimulating intense activity in different parts of the world. Much of this is in the field of science and religion. Allied to this development has been the appearance of research centres (e.g. The Center for Theology and the Natural Sciences in Berkeley), the creation of dedicated academic posts in science and religion (e.g. in Oxford, Cambridge, Princeton and Edinburgh) and the establishment of several journals in the field (e.g. *Zygon*, *Theology and Science* and *Philosophy, Theology and the Sciences*).

Many leading scientists now publish popular books which not only communicate their subject to a wider public but engage with broader intellectual and cultural issues, some of which touch upon religion. We

might mention Stephen Hawking, Steve Jones, Martin Rees, Susan Blackmore, Paul Davies, Richard Dawkins and Lawrence Krauss. With the decline in mainstream religious institutions, many people now look for wisdom and illumination to our leading scientists, not only on matters relating to their particular disciplinary expertise. Whether this is a misplaced confidence is not the point – the utterances of leading scientists on ethical and political matters now receive more attention than those of bishops and moderators. We might also acknowledge that many of our scientists are better at writing accessible prose for a wider public than their colleagues in the humanities.

A more negative reason is the attack on religion in the name of science. Several leading scholars have sought to employ the methods and findings of the natural sciences against religious faith. It is argued, for example, that science can displace religion as a more reliable and less provincial source of knowledge. It is based on reason and evidence, rather than blind faith in sacred texts or authority. Moreover, the history of conflict between science and religion, it is claimed, has always resulted in the victory of science and the discrediting of faith. The best-known scientific critic of religion is Richard Dawkins, but there are others, including Steven Weinberg in Texas, Peter Atkins in Oxford, and Lawrence Krauss in Arizona. This body of critical work has had more public traction than in previous generations.

Barbour's fourfold typology

The most widely-cited typology is the fourfold distinction employed by Ian Barbour which classifies different models in terms of conflict, complementarity, dialogue and integration (Barbour, 1990: 3–30). These are familiar and somewhat clichéd in textbook discussions. In what follows, I shall deconstruct the first two types in ways that impinge upon the latter two, but without denying that these models provide some partial characterisation of approaches in different historical contexts.

Conflict: The conflict model is advanced by scientific critics of religion and also different conservative groups within Christianity (and Islam) which remain distrustful of the ideological tendency of

much modern science. Scientific materialists argue that all explanation can be reduced to the laws of nature operating on the fundamental constituents of matter. This results in a downward movement by which phenomena in ethics, art and religion are to be explained in terms of material forces. Other forms of explanation – personal, spiritual, moral and aesthetic – are finally redundant besides the scientific. We might describe this as scientism – the extension of material forms of explanation to all reality, so as to exclude other explanatory principles. On the side of religion, there are several movements that seek to trump modern science by appeal to the authority of Scripture. Creation science denies both Big Bang cosmology and Darwinian evolution, appealing instead to biblical claims for a young earth and separate acts of creation which differentiate species. A more sophisticated approach is found in intelligent design theory which identifies instances of irreducible or improbable complexity in the biological world. Since these cannot be explained by material causes, appeal is made to the influence of an intelligent mind (i.e. God).

Several comments may be registered about these assumptions of conflict. First, its reading of the history of science and religion greatly exaggerates the frequency of such conflictual episodes. To a significant extent throughout modernity, the natural sciences have been pursued by people of different faith perspectives. Many indeed were motivated by their faith to investigate the world through the methods of the natural sciences and often the churches lent institutional support to their activities. Look at the names that populate the buildings and streets around King's Buildings in Edinburgh. Presbyterian Scotland in the nineteenth century produced leading figures whose religious faith informed their commitment to natural science and medicine – David Brewster, James Young Simpson, Lord Kelvin and James Clerk Maxwell to name but four. Historical investigation reveals a complex, varied and often symbiotic relationship between science and religion. The contribution of historians of science (such as John Hedley Brooke, Geoffrey Cantor and Peter Harrison) to understanding this complex interaction has been important. Their findings tend to resist any simple characterisation of a single dominant relationship of science and religion and to undermine narratives of conflict.

Episodes of conflict are relatively rare. Even the Galileo case

is more complex than it first appears since it seems clear that the ecclesiastical authorities were persuaded on *scientific* grounds that his hypothesis must be wrong. Their rejection of his findings was based (erroneously) not only on considerations about how to interpret the Bible but also on the received scientific wisdom of the day. In the case of Darwin, much of the anxiety generated by evolutionary theory did not appear until the twentieth century as cultural conflicts emerged under particular conditions, particularly in the USA at the time of the Scopes trial. In the latter part of the nineteenth century, theologians in Europe and North America were able to harmonise Darwinian accounts of evolution with a theological understanding of creation. This yielded different theories of 'theistic evolution' which were widely held throughout the mainline churches. Hence the early history of theological engagement with evolutionary science was largely one of accommodation rather than resistance.

In any case, we should remember that conflict is always between someone's science and another person's religion. These are not organised in monolithic blocks. We need to ask whose religion and which science, rather than generalise about a clash of methodologies or worldviews.

Complementarity or independence: This view, which may be held by a majority of people within our churches, claims that science and religion each has its own subject matter. In some respects, it's a position that has been easier to maintain since the time of Darwin. As professional scientific guilds emerged so their practice became increasingly specialised and detached from ecclesiastical authorities, and theologians who dabbled in scientific pursuits. Religion, it was said, is concerned with the spiritual, personal and moral life of individuals and communities, whereas the domain of science is restricted to understanding how the physical world operates. In fact, this distinction is already embedded in Kant's philosophy in the late eighteenth century and explains in part why many German theologians long before Barth were pretty dismissive of natural theology, turning instead to history as the locus for revelation.

For most of us, including of course scientists, the practices of science and religion can be compartmentalized and separated. There

will be many people who teach, apply or undertake research in science Monday–Friday but who worship in church on a Sunday, a synagogue on a Saturday, or a mosque on a Friday. They do not find any real conflict or interaction between these different parts of their lives, except perhaps in bringing some strongly-held moral principles into the laboratory or seeing their science as respectful of the divine creation.

There are more methodological ways of illustrating this complementarity thesis. We might characterise the different domains of science and religion in terms of their respective responses to different types of question. Science is preoccupied with 'how' questions in relation to how the physical world behaves at the quantum level, how galaxies emerged from the Big Bang, how animals have evolved from earlier species which are now extinct, how our bodies function and how disease occurs. These are all scientific questions and the progress that scientists have made in addressing these over several centuries deserves our admiration and respect. Religion on the other hand attempts to address 'why' questions. Why is there a universe at all? Why does it behave in such regular and intelligible ways? Why are we here? Why should I love my neighbour as myself? Why is this action wrong? These appear to be questions of a different order from those facing the natural sciences. Typically, they belong to the fields of philosophy and theology. This is not to say that these questions can be readily answered, but it does indicate that there are some pressing existential topics that lie beyond the domain of the natural sciences. When Peter Atkins says that there are no why questions and that science will answer all the others, he's simply whistling in the dark.

Some philosophers of religion have adopted strategies of independence through the use of Wittgenstein's later philosophy. He speaks about our participating in different language games which are embedded in our familiar forms of life. These have their own rules and meaning according to the practice in question, and only by participating and learning do we acquire a knowledge of how language is to be used appropriately. He describes the beliefs and rituals of a religion as like a box of tools (Wittgenstein, 1966). These enable us to view the world in a particular way and to orient ourselves practically. Religion might then be seen as one set of language games which

include trust, commitment and ritual actions, whereas science is a very different type of language game that involves hypothesis, experiment and explanation of the material world. We should not think of religion as a primitive form of science.

The best-known model of complementarity to emerge in the science-religion field is Stephen Jay Gould's 'non-overlapping magisteria' (NOMA). This is advanced as a non-competitive account of the relationship between science and religion (Gould, 2001). It is intended to defuse conflict scenarios. With their different conceptualities and types of description, these deal with distinct questions that cannot be satisfactorily addressed by one single institution or approach. Recognition of multiple conceptualities will enable us to avoid any sense of a necessary conflict between these types of practice or institutional authorities. In a TV discussion, Steve Jones once used the image of a battle between a shark and a tiger to illustrate this point. On its home ground each is victorious, but place one within the domain of the other and it will be hopelessly defeated. Gould claims that the business of life is so complex and multi-faceted that we need the assistance of different magisteria in science, the arts, ethics and religion. Some of his secular critics regards this as a cop-out. Gould preferred the quiet life, they said, rather than taking on the discredited magisterium of religion. But what is sometimes overlooked is how Gould recognised that science and religion will bump into each other from time to time and will require to negotiate their particular provinces. For the most part, their questions, proposals and activities are non-overlapping but this does not exclude conversation, disagreement or areas of fruitful dialogue. In recognising this, Alister McGrath has spoken of 'partially overlapping magisterial (POMA)' (McGrath, 2007: 17). This seems about right to me.

One of the best recent examples of this strategy is the advocacy of a more holistic balancing of approaches by Jonathan Sacks, a former Chief Rabbi in the UK. He points to the importance of a partnership between science and religion, where each attends to its distinctive and complementary functions. 'Science takes things apart to see how they work. Religion puts things together to see what they mean.' (Sacks, 2011: 55). This is not dissimilar to McGilchrist's ambitious project on showing how the activities of science and religion correspond to the

different hemispheres of the brain. Our civilisation needs both sides if it is to survive and flourish, according to this approach (McGilchrist, 2009) – hence these approaches move quite quickly towards something like integration. Indeed, there may be a gesturing towards integration in many of the leading arguments for complementarity and partnership.

This partnership motif is consistent with the view that science and religion have different subject matters which have occasional points of contact. Several of these have been prominent as the focus of discussion in books, conferences and journals. One reason why the Barbour typology is problematic is that the four models can all be accommodated in a single worldview. There may be areas of study in which conflict emerges occasionally, others that display a large measure of independence, a regular dialogue that should not be shunned, and sporadic attempts at integration that can be fruitful. If we were to take T. F. Torrance as a local example of someone who worked assiduously on the interface between science and theology, then we could detect evidence for all four models at work in different areas of his thought: he challenges non-realist views of quantum mechanics as well as many of the methodological assumptions in the social sciences; he seeks a dialogue on epistemology with the natural sciences, especially physics (with which he was much more comfortable than biology); he insists as a Barthian that Christian theology had its own distinctive subject matter which could only be apprehended through faith and the action of the Holy Spirit; and he moves towards a measure of integration by relocating natural theology within the framework of a positive theology of revelation. So all four models can work within a single theological project.

Cosmological issues

Cosmology has dominated much of the science-religion debate since the mid-twentieth century. Though other areas of enquiry are now burgeoning – especially those generated by neuroscience, artificial intelligence and astrobiology – we should expect the debates around cosmology to continue. There is nothing new here. In most ancient cultures, God or the gods were represented as all-powerful creators only

partly accessible to human understanding but deserving of worship for creating and continually sustaining the world. The approach that dominated the Hebrew Bible, classical Greek philosophy, and early Christian theology adopted a model of spiritual or intellectual agency to explain the world, as opposed to some type of first physical cause which was like other physical causes (only more powerful). These accounts exhibited several unifying features.

The cosmologies of well-known Greek philosophers such as Plato (c. 424–348 BCE), Aristotle (384–322 BCE) and Plotinus (c. 204–270 CE), as well as the early Christian theologians whom these Greek thinkers influenced, did not restrict themselves to explaining how the world physically started. Although this was one feature of their work, various moral and spiritual considerations were also evident. The appeal to God as the explanation for the world was in large part intended to teach human beings about the nature of the soul, the proper aspiration of the spiritual self, the ground of value, and humankind's final destiny.

Much of this repays study, not least for the recognition of our human limitations. In Section 29 of his well-known cosmological work *Timaeus*, a work which was to influence later Christian theological writers, Plato concedes that we should not look for more than a *likely* story in such difficult matters. He seemed to recognize the limits of speculation and the possibility of improving upon earlier accounts. The *Timaeus* is a relatively late dialogue. And like many philosophers and theologians, Plato may have become increasingly conscious of what he did not know and was unlikely ever to know this side of the grave. Nicholas of Cusa would later speak of the importance of reaching a stage of learned ignorance.

Following the emergence of the Christian religion in the Graeco-Roman world, theologians reflected on the ways in which the arguments of the classical philosophers could be integrated with what the Bible said about God. The pagan arguments were adapted in several ways and reconciled with claims contained in Genesis 1 about the creation of the world. Overall, the early Christian doctrine of creation continued to form one element within an integrated worldview representing a unified body of knowledge, interweaving what we would today call scientific, philosophical, and religious approaches to questions of the

origin of the universe. This type of presentation continued throughout much of the Middle Ages in the work of Islamic and Christian writers such as Al-Ghazali (1058–1111) and Thomas Aquinas (1225–74). Appeals to religious convictions to address issues of first principles and ultimate causes were understood as the only way to achieve a complete explanation of the causal processes observable all around us, or to reach any account of the origin of the world itself. These thinkers thus continued the tradition of fusing religious and scientific concerns into a single account.

Discussions amongst scientists about cosmic origins lie close to philosophical and theological arguments for a transcendent first cause. Stephen Hawking writes about this point of contact in his popular work, *A Brief History of Time*. Does the Big Bang require the postulation of God as its originator, or do more recent proposals in relation to inflation and quantum fluctuations suggest a scientific cause for the Big Bang which obviates any need for an appeal to God? This issue has been extensively debated. Some writers, such as Paul Copan and William Lane Craig in the USA, have attempted to use Big Bang cosmology to rehearse the ancient *kalam* cosmological argument which was employed by Islamic thinkers in the Middle Ages to contest Aristotle's idea of the eternity of matter (Copan and Craig, 2004). An infinite stretch of causes being impossible, our universe, it is argued, needs a first cause which itself requires no further causal explanation. The only candidate that can successfully fulfil this role is God, a necessary and self-sufficient being. The Big Bang, therefore, is insufficient and must be reckoned to have been caused by God. On this strong reading, Big Bang cosmology is seen as decisively confirming the theological case for creation out of nothing. Physics and theology lend mutual support to each other, an alliance being formed to drive rival interpretations from the field.

Recent attention has switched to the concept of a multiverse, which has attracted the attention of physicists such as Martin Rees (2001). Is this an extravagant metaphysical hypothesis beyond the realm of scientific testing or can it play a serious role in future cosmology? Rees pleads for a relaxing of the principle of Ockham's razor. Earlier generations have had to revise their understanding of the size and age of the cosmos. Perhaps this is now to continue with the assumption

of a multiverse. If a generative process that yields multiple sheets of space-time from quantum fluctuations can best explain the laws, composition and history of our own universe, then we should work with this hypothesis, test and assess its fruitfulness. Not everyone may be comfortable with this, but there seems something Canute-like about a strategy that resists any such speculation simply because it appears religiously unattractive. The theologian had better resort here to other considerations. A multiverse still raises the question of ultimate dependence. Where did it all come from? Is there an explanation for there being anything at all? Can a contingent multiverse be explained by a necessary Creator? These questions are still in play and remind us that theological explanation is not about what happened before or at some initial spatio-temporal point or event. The theologian or metaphysician is still entitled to ask the question 'Why is there something rather than nothing?' This is a question of a different order. Whether or not we can offer any conclusive answer rather than one of Plato's likely stories, this remains an intelligible and important question.

The subject of order is also one that continues to command philosophical and theological attention. Why does our universe appear everywhere regular, intelligible and ordered according to the laws of physics? Why are we able to make observations and frame hypotheses about what is happening in remote galaxies millions of light years away? This phenomenon of temporal order is again a longstanding subject of philosophical and theological reflection. Might the universe not equally well have been chaotic and unlawlike in its movements or simply reposed as a single inert lump? The ancient philosophers reflected on these questions which have a habit of appearing in new guises. Much of the science-religion dialogue is focussed on the anthropic principle and so-called cosmic coincidences. Is there an inherent bias in the system that suggests that in some way the eventual emergence of conscious life forms was intended? In its stronger form, the anthropic principle claims that the delicate fine-tuning of the universe provides evidence of some cosmic purpose. A universe such as ours with its speed of expansion, balance of chemical elements, and fundamental laws is peculiarly fitted to bring about stars, planets and conscious life forms. These 'cosmic coincidences' require explanation,

perhaps in terms of design. Freeman Dyson famously said that 'the more I examine the universe and study the details of its architecture, the more evidence I find that the universe in some sense must have known that we were coming' (Dyson, 1999: 250).

Here of course the term 'suggests' is a slippery one. Is this merely how it looks to us from our limited perspective or does its intrinsic unlikelihood significantly raise the probability of an intentional creative process? Here again the concept of the multiverse has complicated the debate. If there are multiple universes with different sets of laws and histories, then it may be less surprising that at least one of them has the appearance of design to terrestrial inhabitants. Martin Rees gives the example of an off-the-peg tailor's warehouse. You go shopping at Ralph Slater and lo and behold one of the suits is a perfect fit for you. But this is not because it has been designed with you in mind. No, it's simply that there are so many suits on the peg that there is an inevitability about one of them offering the right fit to every shopper. This has a degree of plausibility, and it appears to weaken the anthropic argument. If there are many, many universes then it's maybe less surprising that at least one has generated life forms. Critics, however, can respond that this merely resituates the argument. A multiverse that can generate one orderly, anthropic-friendly universe must itself have a particular structure or set of constraints that enable this possibility to be realised. There is a generating mechanism at work somewhere in the physical parameters of the multiverse that enables us to continue asking the question.

These two broad issues – Why something? and Why order? – correspond of course to traditional cosmological and design arguments for the existence of God. They have never really gone away and remain a perennial source of metaphysical enquiry, even though the terms in which they are now raised are set by developments in recent cosmology. Let me offer some further lateral remarks on what is happening here.

The perennial fascination with these questions persists despite the widespread assumption that there is a multiverse. But the prospect of this yielding any one theistic hypothesis that can be decisively confirmed seems remote. We find scientists adopting a range of religious positions that vary from a revived deism, to forms

of pantheism and Gaia theory, to more recognisable assumptions belonging to the Abrahamic faiths. The work of the physicist Paul Davies provides an interesting example (2007). He is doubtful about a multiverse and sceptical of claims that the universe is simply an unexplained brute fact. The whole presents as the work of Mind and is governed by some form of intentionality. But the vastness of the cosmos, the manifest problems of suffering, and the lack of any divine revelation all point towards Mind as having little interest or concern with *homo sapiens* on planet Earth. His theism is remarkably like the attenuated deism that is the resting place of David Hume's *Dialogues Concerning Natural Religion*. There is a God at the far end of the universe but of little relevance to the immediate practical concerns of human existence. So an argument for divine existence will not always yield support for the providential God of the Bible. Indeed, the example of Aristotle pointed in this direction a long time ago.

The temptation to use the best contemporary science to prove too much has often beset theologians. This can generate conflict when the science moves forward in another direction, and it leads to too tight a fit between different discourses and forms of understanding. The multiplicity of theisms makes it unlikely that any single version can draw upon exclusive scientific support. I suspect that Lane Craig's argument from the Big Bang to creation out of nothing runs this risk of over-determination, and certainly intelligent design theory seems to give too many hostages to fortune at precisely this point. The lack of physical explanation for the bacterial flagellum provided early putative support for Michael Behe's intelligent design hypothesis, but this now appears to have been overtaken by subsequent developments in the field. The poster child of ID theory is now obsolete (Fergusson, 2009: 65–67).

The turn from anthropocentrism

The direction of travel in this and other debates has led to questions being raised about the problem of anthropocentrism in our theological traditions. To put it crudely, we have assumed for too long that the world was made for us. As human beings, we are the focal point of divine creativity, our story providing the dominant narrative. The

pattern of the creeds and liturgy suggests this, as it moves from creation to fall, to redemption and then eschatological consummation. The human story is the key to creation with the incarnation of the *Logos* as a human being at its centre. Is this sustainable? The size and structure of the cosmos now raise the question of whether there are myriad life forms in other galaxies. Rees considers this the most fascinating question of our age, though the jury is still out on the probability. A scientist in Princeton recently told me that he conducted a straw poll amongst his colleagues to ascertain whether they believed in extra-terrestrial life. He reported that the answers were 'all over the place', ranging from pretty much zero to one on the probability scale. But the discovery of extra-terrestrial life would certainly require the revision of some earlier assumptions about human exclusivity in the sight of God, and a deflating of some forms of anthropocentrism. Presumably, the multiverse also leads in the same direction. A multiplication of universes must raise the possibility that there are life forms not just elsewhere in our own cosmos but in other universes that have come and gone without entering into possible contact with our own. In any case, anthropocentrism has come under criticism from other areas of study – biblical scholarship, ethics and fresh readings of the history of theology.

With its doctrine of the *imago Dei*, Christian theology has invested in accounts of human uniqueness, which specify the distinctiveness of our condition and our particular location in the drama of creation and redemption. The making of human beings according to the divine image in Genesis 1:26–27 appears to assign to our species particular powers and functions which set us apart from other animals. In the history of the Christian tradition, theologians including Augustine, Aquinas and Calvin tended to identify the *imago Dei* with our spiritual and intellectual powers which reside in the immaterial soul. It was the soul or mind, above all else, that set human beings apart from other species. The story of evolution has problematized this in various ways. First, it seems clear that we have evolved from other hominid species over about two million years and that our cognitive capacities belong on a continuum with those of earlier species. Human beings have of course evolved in quite particular ways with respect to our linguistic and symbolic powers but these have emerged in recent evolutionary

history and are embedded in our animal existence which is shared with other species. Tool-making, social cooperation, patterns of mating, and rituals have all evolved along with changes to the human body, especially the brain. These processes need to be understood in relation to the physical environment shared with other species.

Work in this field has resulted in at least two theological shifts; these provide a good example of the mobility of theology in relation to the insights of other disciplines. First, the earlier tendency to identify the image of God with a particular spiritual or cognitive component needs to be abandoned or at least modified. More functional and relational accounts of the image of God tend to be preferred, which do not over-specify a single attribute or ontological element of being human. The image of God is more about a set of responsibilities and tasks exercised before God and other creatures than it is about the possession of an immortal soul. This makes better sense not only of what modern science suggests, but it is also more attuned to the exegetical insights into Genesis 1:26–27.

More holistic accounts of creation are advanced. These stress the companionship of other species, their place in God's providential order, and the inclusiveness of Christ's redemption – its scope is creaturely and not merely human. A good example of this shift is in David Clough's recent attempt to produce a systematic theology of animals (2012). Work on the interface with social anthropology also reveals the extent to which humans have evolved in ecological niches shared and determined by other species. These have contributed significantly to the ways in which we have developed as a species, while also pointing to our shaping of the environment, not always in beneficial ways. This aspect of the science-religion dialogue promises to be a fruitful one in the years ahead through the work of scholars such as Agustin Fuentes at Notre Dame in the USA, the 2018 Gifford Lecturer in Edinburgh.

Is this a conversation worth having?

Finally, let me offer some comment on those who regard these conversations with science to be theologically misplaced, a speculative distraction at best and a temptation to idolatry at worst. Here we are in

the neighbourhood of Karl Barth's objection to natural theology as the antichrist. Several features of this line of criticism can be discerned. Debates in science and religion, it might be claimed, are remote from the existential and ethical concerns of human beings. What difference does it make to me in my struggle to love God and my neighbour whether there is a multiverse or whether the design argument has any validity? Are these questions for the speculatively-minded only, rather than religiously vital issues that confront faith communities today? It is also said that engagement in the dialogue frequently results in a theological reductionism. Typically, this is a liberal Protestant exercise which attempts to gain some intellectual respectability for theology by reducing it to the minimum that is readily consistent with the latest scientific research. By contrast, a strong theology will take its bearings from Scripture and tradition, it is argued. Its object of concern is the crucified Christ not the latest cosmological theory. The multiplicity of theologies and religious theories that populate conversations with science lead us into a swamp of unhelpful conjecture and intellectual uncertainty. Dialogue with science will become at best only an occasional exercise and of little import to the central tasks of theology, preaching and Christian mission. (Given the inaccessible prose and convoluted nature of so much academic theology these days, there is a rich irony in this criticism.) To all this, I respond with the following concluding considerations.

Many of the debates in science and religion are actually much closer to home as far as the vital interests of faith communities are concerned. These include important discussions about the nature of the person, the function of artificial technology, the ethics of genetic modification, and climate change. Much of the discussion is already ethically situated in ways that require theological attention and rigorous engagement. If we don't commit to these debates, theology will become increasingly isolated from mainstream cultural activity.

The more speculative questions are part and parcel of any worldview that seeks to be comprehensive in its outlook. Without a likely story to support our deepest existential and moral commitments these are in constant danger of drifting or losing their motivational force. Some sense of our wider metaphysical and cosmological context will be required for a religious orientation, even if this is often

tentative, imprecise and unexpressed. William James once wrote: 'It makes a tremendous emotional and practical difference to one whether one accepts the universe in the drab discoloured way of stoic resignation to necessity, or with the passionate happiness of Christian saints.' (James, 1960: 59).

This points to the pastoral significance of many of the questions that arise in science and religion discussions. These are intriguing not simply because they are the stock-in-trade of theologians, philosophers and metaphysicians. Similar questions beset people in our congregations, more of whom are trained in the sciences than ever before. And it behoves us to offer them some resources and ways of thinking that respond constructively to their intellectual anxieties and concerns.

Note

1. This essay was originally delivered as a lecture at the Scottish Church Theology Society, Peebles, 17 January 2018.

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