Science and Religion – The State of the Art

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It is a great pleasure and privilege to be able to respond to my eight distinguished colleagues, who have written on various aspects of the expanding field of science and religion. Although they have kindly written in recognition of my own work in the field, it is clear that these articles are best seen as a celebration of the conceptual vitality of this "disciplinary imaginary" – to use a phrase introduced by Elizabeth Goodstein (Goodstein 2017). I envisage this as a way of imagining and enacting the interconnectedness of the worlds of science and religion which both highlights the intellectual virtues of conversations across sometimes arbitrary and unnatural disciplinary boundaries, and enables a richer discussion of some of life's deepest and most interesting cognitive, moral, and existential questions.

I am very grateful to Dr Bethany Sollereder for assembling such a significant group of contributors, and to the editor of *Zygon* for hosting this discussion. Sollereder is herself a prominent emerging voice in the science and religion field, and plays a

major role in the teaching and organization of science and religion at Oxford. The increasing vitality in this broad area of discourse has been catalysed in part by a growing number of younger scholars in the field, such as Sollereder, who see the need to open up new questions rather than endlessly revisit those identified by Ian Barbour in his landmark contributions to the field (Barbour 1966; cf. Russell 2017).

It has long been recognized that neither science nor religion has some intrinsic defining "essence" (e.g., see Golinski 2012; Harrison 2015; Jong 2015); both are social constructions with a contested history of definition, open to reconceptualization and redirection over time. To speak of "science and religion" is really a form of academic shorthand, designating a broad interdisciplinary field with multiple dimensions. An initial focus within the field on the natural sciences (seen primarily through the lens of physics) and religion (seen primarily through the lens of Christian theology) has given way to more complex and multi-layered discussions, catalysed in part by a new scholarly interest in the nature of religion (e.g., Shults, Wildman, Taves, & Paloutzian, 2020).

The early unity of the field was perhaps more due to the influence and prominence of what some would have seen as unifying – but others as *restricting* – voices, articulating certain specific (and hence both *limited* and *limiting*) visions of the field's focus and scope. Max Plank pointed out, in an often misquoted aphorism, that progress in a given field is often encouraged by the emergence of a new generation of thinkers who can move us beyond the limits of older paradigms (Azoulay, Fons-

Rosen, & Zivin 2019). Science may not advance “one funeral at a time”, but its trajectory develops because a new generation of thinkers emerge that see things in different ways, gradually transforming the field.

So can we speak of “progress” in the field of science and religion? There has certainly been diversification beyond what might be considered to be “traditional” topics of discussion, as new areas of research and engagement open up. While I personally consider many of these to represent a welcome and necessary widening of existing discussions, others might see them as representing fragmentation or overextension of an already loosely coordinated field of research, making it increasingly difficult to speak of science and religion as a coherent scholarly field. This is not to cast doubt on the quality of scholarship in this broad area; it is simply to make the point that both its focus and boundaries are imprecise, contested, and porous. The fluid field of “science and religion” thus has the potential to be intellectually hospitable to some important conversations and debates that might not be able to take place elsewhere. *Zygon* will play an important role in the future shaping of the field of science and religion, continuing its long history of discussion of classical issues, while opening up new themes and introducing new voices into the discussion.

There is certainly a need for new voices in the field, exploring new areas of this intellectual and cultural domain. Many have expressed a particular anxiety about the relative absence of women in the area of science and religion, a concern that was addressed through the Ian Ramsey Centre’s “Emerging Voices” project, which aimed

to showcase the important contributions of younger female voices to the development and expansion of the field (McGrath & Sollereder: 2022). Yet more needs to be done, both in terms of understanding how this imbalance has arisen, and what can be done to encourage the emergence of new talent.

In what follows, I shall reflect on each of the contributions to this collection of articles, beginning with Peter Harrison's significant reflections on the history and future prospects of natural theology.

Peter Harrison

Philosophers have long wrestled with the question of how their discipline might be said to "progress" (Chalmers 2015; Brake 2017). Significantly, one important answer to how philosophical progress might be made lies in the critical study of the history of philosophy itself. Maria Antognazza thus points out that "the study of the history of philosophy has an innovative and subversive potential," so that "philosophy has a great deal to gain from a long, broad, and deep conversation with its history" (Antognazza 2015: 161). One aspect of the field of science and religion in which progress has certainly been made is the understanding of the historical relationship between science and religion, and how this re-reading of history transforms present reflection within the field. Peter Harrison and John Hedley Brooke – both contributors to this special edition of *Zygon* – have made landmark contributions to progress in this field, carefully dismantling influential cultural stereotypes and deconstructing

what were too easily misunderstood as ahistorical definitional certainties (e.g., Brooke, 1991; Harrison 2015).

In his highly perceptive contribution to this collection, Peter Harrison – my predecessor as Idreos Professor of Science and Religion at Oxford – takes up the important and contested theme of natural theology. Harrison's landmark *Territories of Science and Religion* (2015) identifies a series of difficulties for those who propose a narrative of conflict between science and religion, while at the same time raising some concerns about some positive projects that aim to build bridges between them. One such project – or group of projects – takes the form of natural theology, which has a long history of entanglement with both science and religion, particularly in the early modern period (Blair & von Greyerz 2020).

Harrison himself has made highly significant contributions to the history of natural theology, especially in his exploration of the concept of "physico-theology," which played such an important role in early modern thinking about the rationality of religious belief, and the relation between a residual religious and an emerging scientific culture. As Harrison presents it, physico-theology offers a way of reading meaning into the natural world which diverges from a medieval allegorical reading of Scripture, but offers – at least, in my view – a more satisfying account of the empirical world. I have often considered that "natural theology" – in a broad sense of the term – has at least the potential to become a viable interface between science and religion, and it is good to have Harrison's expert reflections on these possibilities.

The history of natural theology suggests that this is an actor's category, so that the manner in which this definitionally pliable construct is understood reflects the historical and cultural location of the enterprise. Although I have constantly argued for the importance of natural theology, the absence of an agreed definition of what this term might mean, coupled with the strong theological prejudices of some who think they know what it *really* means, has led me to reluctantly conclude that there is little future for discussion of this category – at least, using this specific name (McGrath 2017). I have much sympathy for Wittgenstein's observation that sometimes terms or phrases become so tarnished that they need to be withdrawn from general circulation for a while, allowing time to clean them up and sort them out (Wittgenstein 1998: 44) – and "natural theology" seems to be one of these.

My attention has in recent years shifted to retrieving the intellectual vision of natural philosophy, which seems to me to have the potential to allow a creative interaction of the natural sciences, theology, and philosophy (McGrath 2022). Like the philosopher Nicholas Maxwell, I now feel that a reimagined natural philosophy might be a much more helpful framework for discussing such interdisciplinary issues. Yet where Maxwell sees such a reconceived natural philosophy as "a transformed science and transformed philosophy becoming a single domain of thought" (Maxwell 2017: xi), I prefer to reframe this as a disciplinary imaginary that is capable of enfolding Karl Popper's "Three Worlds" together as a coherent whole. I developed this approach while I was Gresham Professor of Divinity from 2015 to 2018. Gresham College,

based in the city of London, played a leading role in the emergence of a scientific culture in England during the seventeenth century. This professorship, established in 1597, allowed me to explore the relation between science, religion, philosophy and literature, and develop a way of formulating a way of holding these together.

Harrison's comments on what he terms "'established' natural theology" resonate with my own experience of frustration in trying to encourage discussion of natural theology in theological circles. It reminds me of what Gilbert Ryle styled an "Official Doctrine," which controlled and restrained discussion of promising (and perhaps overdue) alternatives to regnant ways of thinking (Ryle 1949). Harrison rightly suggests that I conceive natural theology primarily in terms of "a long-standing tradition of thinking from an explicitly Christian perspective about aspects of our natural and social worlds." There are certainly indications that others have realized the potential importance of such a natural theology (Pickering 2021), which I continue to think – and hope! – might act as a bridge or interface between science and religion. Harrison's approach in this article and elsewhere (Harrison, 2015), in my view, does not privilege some putative category of "natural theology", but rather demonstrates the continuing role of the humanities – including history, philosophy, and theology – both in understanding the relation of science and religion, and, perhaps more importantly, in trying to make sense of our strange world and our place within it.

John Hedley Brooke

John Hedley Brooke has been one of the most important voices in the historical remapping of the history and mutual interaction of science and religion. Brooke, who served as the first Idreos Professor of Science and Religion at Oxford, played an important role in consolidating and expanding the field of science and religion at Oxford, and did much to consolidate the teaching of the subject at graduate level. For Brooke, history discloses "so extraordinarily rich and complex a relationship between science and religion in the past that general theses are difficult to sustain. The real lesson turns out to be the complexity" (Brooke 1991: 6). I owe Brooke a considerable debt, partly on account of his encouragement to me and so many who have worked in the field of science and religion, and partly for doing so much to dismantle the "warfare" model of the relation of science and religion, which until recently had been the default position in wider cultural discussions of science and faith.

I am particularly grateful for Brooke's autobiographical account of how he became involved in the field of science and religion (Brooke 2014). In this article, entitled "Living with Theology and Science," Brooke describes his personal intellectual history, and a series of fortunate accidents that led him from the study of chemistry at Cambridge to the history and philosophy of science, and eventually to science and religion. As someone who initially studied chemistry myself (though at Oxford), I found myself connecting with Brooke's narrative at point after point. My own story is that of a chemist who became interested in theology, and wanted to make connections between these two areas of my mental life (McGrath, 2020b), which were too easily seen as disconnected spheres of discourse.

We need more people who are active in the field of science and religion to tell their stories. Despite the best efforts of sympathetic philanthropic organizations, such as the John Templeton Foundation, there are few degree-bearing courses in science and religion. This means that future scholars in this field will have found their way into it from other disciplines – such as the natural sciences (like Brooke and myself), or from philosophy or theology. Making such a significant (and potentially career-damaging) move is made easier if there are role models who can explain why they moved into this field, and how they did this. Brooke has told us his story, elegantly and engagingly. We need more stories like this to be told.

In his contribution to this collection of papers, Brooke revisits William Paley's *Natural Theology* (1802), one of the most interesting works of popular natural theology, which continues to attract scholarly interest and reflection. Though influential in his day, Paley is now often treated in rather dismissive ways, often reflecting a post-Darwinian perspective that was simply not accessible to Paley. Historically, we have to judge writers on the basis of what resources were available to them, rather than implicitly faulting them for failing to see developments that lay half a century later. Brooke wisely cautions against over-statement here, noting four aspects of Paley's approach which need nuancing and judicious reconsideration. He is surely right. For example, in reading Paley, I initially found myself puzzled by his failure to engage explicitly with some of the concerns about natural theology noted by David Hume. Yet on closer reading, I could see Paley did counter Humean objections, though not

explicitly identifying their source. Brooke's generous and informed reappraisal of Paley is a timely warning against the premature dismissal of the potential of past writers, such as Paley, who might prove to have a continued potential for discussion and reflection.

Helen De Cruz

Before taking up the Danforth Chair in the Humanities at Saint Louis University, Helen De Cruz was based at Oxford. She held a British Academy postdoctoral fellowship at Oxford University, and later served as senior lecturer at Oxford Brookes University. I greatly appreciated her collegiality, especially in offering some advice to some of my doctoral research students whose interests overlapped with hers. Her work *A Natural History of Natural Theology*, co-written with Johann De Smedt is of major importance to contemporary reflections on natural theology (De Cruz & De Smedt 2015), not least in relation to how it can be considered to be a "natural" form of human knowledge production.

In her contribution to this collection of essays, De Cruz revisits F. D. E. Schleiermacher's contribution to natural theology. Eighteenth-century German Protestant natural theology before Schleiermacher tended to be scholastic in tone, deploying rational arguments for the existence of God which became increasingly vulnerable as the Enlightenment began to gain influence (Gestrich 1971). As De Cruz rightly notes, Schleiermacher's experiential turn placed a new emphasis upon religious feeling (*Gefühl*), which served two important roles: first, reconnecting the

realities of faith with the inner personal world of the believer, and second, offering a basis for theological reflection which was not subverted by the Enlightenment's criteria of rationality – criteria which can now be seen to be social creations of that restless age.

While this is important in its own right, and has potential significance for how Schleiermacher can be engaged productively by those interested in the phenomenology of religion (Kirsberg 2019), De Cruz makes an important move which connects Schleiermacher's approach with recent discussions in the Cognitive Science of Religion. As she rightly notes, Schleiermacher appears to be familiar with some contemporary theories of biological evolution – witness, for example, his "hypothetical" statement of the process of biological evolution (Schleiermacher 1838: 413; for comment, see Boyd 1989). De Cruz's naturalist account of Schleiermacher's idea that religion is rooted in feeling lends added weight to her use of the evolutionary accounts of religion associated with the Cognitive Science of Religion. As she rightly suggests, this reading of Schleiermacher merits further discussion and exploration.

De Cruz's significance, in my view, lies primarily in the way in which she has transformed discussion of natural theology from a rather pedestrian debate about whether God's existence can be proved, which is too easily predetermined by theological pre-positioning and somewhat closed philosophical definitions, into a broad and generous discussion with the empirical sciences about the nature and

limits of human knowledge, and the grounds for believing in, or attempting to conceptualize, a transcendent realm. While both philosophers and theologians have tended to keep the empirical sciences at a safe distance, De Cruz complexifies and relocates the entire discussion of natural theology, recasting it as a valid and productive enterprise within the field of science and religion, with the capacity to make important connections with other intellectual domains, including philosophy and theology.

Michael Ruse

Michael Ruse's philosophical engagement with Richard Dawkins' *God Delusion* (Dawkins 2006) in this collection displays the wit and intellectual perceptiveness for which he has become so well known. I first debated Richard Dawkins at a private event arranged by some Oxford University students at Balliol College in (I think) 2000. Dawkins and the physical chemist Peter Atkins represented scientific atheism; I was the rather lonely third speaker, who was asked to defend a religious position on science. The event persuaded me of the inevitability of a major cultural debate about the rationality of religious belief in the light of scientific criteria of evidence. It was simply waiting for something to precipitate it.

I had no doubt that Dawkins would be a major voice in this debate, so researched him intensively in preparation for such a development on the one hand, and also out of intense intellectual curiosity on the other. In 2004, I published the first scholarly

study of Dawkins' views on science and religion, in preparation for a wider cultural debate that I now believed was unavoidable (McGrath 2004).

As things turned out, of course, the event that precipitated this debate and the rise of what was then called the "New Atheism" was 9/11. Dawkins tells us that he began to write his *God Delusion* the next day (Dawkins 2006). Daniel Dennett's *Breaking the Spell* (2006) appeared several months before Dawkins' work, offering a decidedly speculative and under-evidenced naturalist account of religion which he apparently believed represented the first occasion on which anyone had thought "scientifically" about religion. I debated the core ideas of this book with Dennett in London in March 2006, arguing that Dennett raised some interesting critical questions about human belief construction, but appeared to think that his own beliefs were exempt from the critical points he set out.

Following a debate between Dawkins and myself about the key ideas of *The God Delusion* on BBC television that summer, I realized that the situation demanded a *popular*, rather than an *academic*, answer to Dawkins. My wife and I jointly wrote a book which challenged Dawkins' views on science and religion, his puzzling appeal to psychology, and his obvious ignorance of theology (McGrath & Collicutt, 2007).

In his contribution to this collection, Ruse considers three books: my own two works engaging Dawkins, and Dawkin's *God Delusion.* His assessment of my two responses

to Dawkins is entirely fair. Both engage Dawkins, but with very different audiences in mind. *Dawkins' God* is academic in tone and approach, and there is no polemical agenda. My concern was to understand Dawkins, not to pass judgement on him. Dawkins was kind enough to let me know he thought it was a fair assessment of his position.

The Dawkins Delusion?, as the teasing title (note the question mark) suggests, was polemical. It was not a scholarly work, but was deliberately written to mimic Dawkins's rhetorical tropes and his argumentative style. It became an international bestseller. Ruse is right: it is far from being my best book, but is rather an occasional book written to meet a specific need which required me to use a certain style of writing and argument if I was to reach the same non-scholarly readership as Dawkins. It is risky to turn from academic discussions to public debates, governed by quite different rules of engagement and expectations of behavior. Yet it had to be done. The public arena simply could not be vacated due to academic hesitations about debating conventions.

So what of Ruse's assessment of Dawkins' *God Delusion*? I found this to be robust and fair, highlighting the intellectual short-cuts, the epistemic and evidential asymmetry of its core arguments, and the misunderstandings of religion that are the hallmark of that curious work. Yet Ruse makes a point that I had not appreciated, yet which I was able to confirm through a re-reading of *The God Delusion*: it is a very *dull* book in terms of its intellectual reach and coherence. I can recall reading *The Selfish Gene* in 1977, when I was a researcher in Oxford University's Department of Biochemistry. It

was clearly a work of brilliance, both in terms of the clarity of its writing and argumentation, but above all in terms of its controlling metaphor, which offered a heuristic window into important aspects of the biological domain. Dawkins' deployment and development of this metaphor was exciting and illuminating. But Ruse is quite right: there is no intellectual excitement about *The God Delusion*. It is a tedious aggregation of dubious factoids, a data-dump of misunderstandings and misreadings. Ruse also points out that the logical outcome of Dawkins' evidential analysis in *The God Delusion* is *agnosticism*, not atheism.

Finally, Ruse offers a very generous assessment of my theology textbooks. I very much appreciated his kind comments. The most important of these is *Christian Theology: An Introduction*, which is now in its sixth edition, and originally published 30 years ago. It emerged from the difficulties that I experienced in mastering theology when I was struggling to complete my doctoral research in molecular biophysics at Oxford in the 1970s, while at the same time studying for an undergraduate degree in theology. Oxford University had somewhat optimistically given me permission to do both simultaneously. I found it very difficult to understand what theology was all about, mainly because there was then no suitable textbook that could help me gain access to its mysteries. I resolved that I would one day write the textbook that I needed at that point. I'm so pleased that Ruse found it helpful.

In return, I must pay him a compliment. About twenty years ago, I discovered the philosophy of the Victorian academic William Whewell, who developed a strategy for

moving from an accumulation of observations to the derivation of a theory which could be laid over them, connecting what might otherwise be unclear. As I tried to make sense of this approach, I came across Ruse's early articles on Whewell's philosophy (Ruse 1975; Ruse 1977). Today, Whewell is one of my most important philosophical dialogue partners, and I owe Ruse a considerable debt in helping me to grasp his significance.

Donovan Schaefer

Donovan Schaefer was a valued colleague at Oxford from 2014 to 2017, who helped me develop the Oxford University Master of Studies course in science and religion. It was a great pleasure to work with him, and see him develop his confidence and skills as a scholar, teacher, and writer. I was privileged to be part of the nurturing process of this significant scholar, and I have watched his progression since his return to the United States with admiration and respect.

In his contribution, Schaefer offers a wide-ranging engagement with my writings, particularly my 2019 work *The Territories of Human Reason*, with its unsettling subtitle *Science and Theology in an Age of Multiple Rationalities* (McGrath 2019). The title and conceptual imagery of the book is partly due to Peter Harrison's excellent *Territories of Human Reason* (Harrison 2015), although I acknowledge a significant influence from the British public philosopher Mary Midgley, who developed the idea of "mapping" disciplines as a way of avoiding aggressively reductionist accounts of a complex reality (McGrath 2020a).

This book aimed to identify a problem, and offer, if not a solution to this problem, then at least some ways of working around it. It represents a call to "move away from the notion of a single universal rationality towards a plurality of cultural and domain-specific methodologies and rationalities" (McGrath 2019: 2). Schaeffer's cogent analysis of my position in *The Territories of Human Reason* highlights why essentialist definitions of science or religion are very difficult to sustain, and are usually simply asserted, rather than defined.

My motivation in writing this book was to try to lay a foundation for interdisciplinary conversations in general, and between science and religion in particular. In part, the motivation for this lies in my own restlessless and irritation arising from the constraints imposed by arbitrary disciplinary boundaries. But how can such conversations take place, when each discipline develops its own distinct methodologies or "toolbox" – a term I borrow from Midgley – and has its own distinct understandings of what is "rational"? Some time ago, I was challenged by reading a 1996 collection of essays on these themes (Apel & Kettner 1996), and could see that these raised unresolved concerns for the intellectual legitimacy of any interdisciplinary discussion. My concern was that the field of science and religion was often seen to be significant and worthwhile for purely personal reasons. Many scholars entered the field to resolve questions that were of personal importance to them – for example, concerning the relation of science and faith. But what is the ultimate *intellectual* basis of this discussion? Is there a theoretical framework within

which this can take place, motivating this dialogue and providing some forms of criteria by which its possible outcomes might be evaluated?

The Territories of Human Reason aimed to explore the legitimacy of interdisciplinarity, focussing on the dialogue between science and religion as a specific case study illustrating the wider general issues that had to be engaged. It was, both in effect and intention, a "mind-clearing" work, which helped me work through the problematics of interdisciplinarity, without entirely resolving them. It provided an essential stimulus to my later book on natural philosophy (McGrath 2022), in which I was able to offer a more reflective and persuasive account of how we can bring the natural sciences, theology, and philosophy together in an intellectually legitimate manner – rather than as something that is simply pragmatically useful. My progress here was due to a number of factors, including a closer reading of Karl Popper and Hans-Georg Gadamer, and my appropriation of the concept of a "disciplinary imaginary" (Goodstein 2017) to allow the reconceptualization of the relation of disciplines. We do not need to passively accept conventional disciplinary configurations or boundaries, but can actively construct and imagine a "discipline" enfolding those questions that matter to us.

Yet Schaefer's main point, if I have read him correctly, lies in highlighting my affirmation of the "overlap between thinking and feeling." Schaefer offers a good account of what I think on this matter, and more importantly, why this is so significant for the field of science and religion. I concede that this was a late

recognition on my part. In my earlier period as a scholar, I tended to adopt what my critics might reasonably describe as an excessively intellectual account of human knowledge, which marginalized the importance of feeling, emotion, and imagination. I've often looked back at this development, and tried to work out when and why it happened.

In a journal entry of 1843, Kierkegaard argued that "life must be understood backwards" (Kierkegaard 2015: 179). I have often tried to reinhabit my past, understanding why I was so drawn to rather neutral and aesthetically desiccated forms of reflection in my late teens and into my early thirties. I was, for example, initially drawn to Christianity because of its rational appeal, gradually discovering its imaginative and affective appeal over a period of decades. However extended the process by which I discovered this may have been, I have no doubts about the reliability of its outcome. Schaefer's analysis makes clear that there is a parallel between myself as a younger man, and Dawkins today – namely, that we both embrace(d) an emotionally detached and imaginatively disconnected rationalism.

Schaefer's rich exploration of the complexities of both religion and its alternatives is in itself a cogent argument for the importance of the field of science and religion, in that it opens up the multiple aspects of the human encounter with the natural world, which goes far beyond achieving a neutral scientific "understanding." What about the positive virtues of beauty, delight, wonder, and amazement? Or the more negative "unexamined sexist, racist, and colonialist attitudes" that are, as Schaefer so rightly

observed, often presented as if they were simply “rational”? An older generation of writers in the field of science and religion – such as Charles A. Coulson, from whom I learned much – focussed on the question of the compatibility of science and religion. Perhaps that question arose primarily from a modernist context, with its highly constricted understanding of rationality. Yet the field has moved on. I hope that we will not lose sight of such important questions, which remain significant for many, especially in wider cultural discussions. But as Schaefer makes clear, there are many other questions that now demand our attention. I am delighted that there are others – such as Schaefer himself – who are rising to this challenge. This can only be good for the vitality of the field.

Andrew Pinsent

Andrew Pinsent, research director of the Ian Ramsey Centre at Oxford University, has been my mainstay during my final period at Oxford. Under his direction, and with the enthusiastic support of the John Templeton Foundation, the Ian Ramsey Centre has made a massive contribution to stimulating the growth of the field of science and religion in Latin America, and more recently in Eastern Europe. Like myself, Pinsent’s background is that of a research scientist. After gaining an Oxford undergraduate degree in physics, he went on to be awarded his Oxford doctorate for work on particle physics at CERN. He followed this up with a second doctorate under the supervision of Eleanor Stump in the field of philosophical theology.

In his contribution to this collection, Pinsent focusses on my *persona* as an educator. This is perhaps the aspect of my career that has had the greatest impact, and which also gives me the most satisfaction. As someone who struggled to master theology at Oxford back in the 1970s, I was redeemed by Oxford University's tutorial system, which allowed me to be taught personally by leading Oxford academics who were able to answer my questions and point me in helpful directions (McGrath 2020b: 89–101). I learned from their pedagogical skills – such as their anticipation of my difficulties, their choice of case studies to illuminate important points, and their patient and winsome pedagogy which encouraged me to keep going, even though I was not completely sure I had grasped everything of importance. Happily, when I returned to Oxford to teach theology myself in 1983, I was able to use their wisdom to shape and refine my own teaching methods.

Pinsent identifies a number of reasons for my apparent success as a teacher, and it was helpful to me to have this external evaluation of my approach. He is right to identify "clarity of explanation" as being of critical importance to my pedagogy. This virtue was embedded in my scholarly *persona* through studying the natural sciences. I learned this from my scientific mentors back in the 1970s – such as Jeremy Knowles, my Oxford tutor in organic chemistry, who went on to become Dean of the Faculty of Arts and Science at Harvard. For Knowles, clarity of presentation and argument was an essential element of a natural scientist's toolkit. It was essential to present evidence and analysis clearly and unambiguously. I adapted my writing style accordingly, particularly when working in the Oxford laboratories of Professor Sir

George Radda, who supervised my doctorate in molecular biophysics. By the time I began to study theology, this emphasis on clarity of writing had become second nature to me. I resist the view of many theological colleagues that such clarity is a mark of intellectual superficiality, or inconsistent with the profundities of faith.

Yet theological education demands more than clarity of thought and presentation. I spent three years working as curate at an Anglican parish in Nottingham, when I preached weekly to a relatively large congregation between 1980 and 1983. Happily, I received ample feedback from my congregation about those sermons, and was able to develop my speaking style so that it became more accessible and engaging. Although it was sometimes a little demoralizing to receive negative criticism, I took the view that I had to take the needs, concerns and abilities of my audience into account if I was going to be an effective speaker. I had to step inside their mental worlds, aiming to talk about things that mattered to them in terms they could understand. And the only way to enter those mental worlds was to listen to people talk about their difficulties and concerns, noting the vocabulary they used. By the time I returned to Oxford to teach theology in 1983, I felt I had gained some valuable pedagogical skills.

One of these skills was learning to see (and then helping others to see) the difference that theology makes to the way we imagine and inhabit our world, and cope with its challenges and concerns. Initially, I developed some homespun analogies to explore these issues. However, over the years, I have moved towards using a distinction that I

found in the early modern poet George Herbert (1593 – 1633) between "looking at" and "looking through". You can look *at* an idea, understanding its intellectual history and its evidential foundations; or you can look *through* it, allowing it to become a window or lens through which you see yourself and the world in a different way. As I show in a recent study of Herbert's relation to Renaissance alchemy, this way of thinking has its roots in the New Testament, but is framed in Herbert's poetry using images of transmutation (McGrath 2018).

The importance of being willing to receive critical feedback is essential to being a theological educationalist. My textbook *Christian Theology: An Introduction*, now in its sixth edition, is used globally and trans-denominationally. Its pedagogical principle is simple: I do not tell my readers what to think, but explain to them what has been thought, so that they can work things out for themselves. Academics using the textbook regularly write to me to tell me how much they appreciate this approach, as it allows them, as course leaders, to engage critically and constructively with the text. Happily, many have written to suggest improvements over the volume's 30-year history – for example, by correcting possible misinterpretations, or suggesting additional topics. All of these were taken seriously (and acknowledged), and the work has been constantly improved over time as a result.

While Pinsent's perceptive analysis of my own approach as an educationalist is interesting, the point that stands out for me from his analysis is the importance of the transference of wisdom from one generation to another. It is not easy to master a

complex field such as science and religion; those who want to explore and inhabit its rich intellectual pasturelands need help from those who have done this before them. How did they do it? Who helped them? Who should they read? Who should they talk to? This, of course, raises the question of how we might *intentionally* create the educationalists of the future. I became one by accident; so can this process be facilitated, or perhaps even planned? This question is touched on in the next contribution to this collection.

Andrew Davison

Andrew Davison is Starbridge Associate Professor in Theology and Natural Sciences at Cambridge University, who draws on his impressive academic experience in both the natural sciences and theology to offer a perceptive and rich exploration of the possibilities for interdisciplinary interaction between science, religion and theology. His own recent work on the participatory aspects of religious belief, and its possible correlation with the natural sciences, offers a helpful conceptual and existential bridge between theology and science (Davison 2019: 217–38).

As Davison rightly observes, theology itself is an interdisciplinary subject in which overlap between different disciplines has become routine. While some worry that this represents the fragmentation of theology, a more obvious explanation lies in the inevitable proliferation of disciplinary specializations over time (Lloyd, 2009; McDonell 2000; Becher & Trowler 2001; Graff 2016), which can be traced back to the late eighteenth century. The importance of this process of dispersal and

fragmentation is particularly evident in the case of early modern "natural philosophy", which would now be seen as an interdisciplinary enterprise linking the natural sciences, philosophy, theology and mathematics – but which was in its own time seen as a coherent discipline in its own right (McGrath, 2022). In the late seventeenth century, Johann Kepler was able develop a remarkable personal synthesis or "harmony" of Lutheran theology, mathematics, philosophy and music which informed his reflections on explaining patterns of planetary motion (Methuen 1998; Stephenson 2014; Rothman 2018).

So how we might encourage such reconnections? As Davidson notes, one important possibility is "science-engaged theology," which he helpfully reframes as seeking to help theologians "think with science." This allows a welcome refocussing on particularities, rather than being trapped in often superficial explorations of the generalities of definitionally-contested notions of science and religion. Davison is right: it is excellent (and productive!) to be able to focus on specific questions – such as how psychology can illuminate the reading or the study of the Bible (Collicutt 2012). While this does not invalidate the exploration of the more general questions of the relation of science and religion, it does help us to move on from the irritating and sometimes somewhat contrived generalities of such broader discussions.

There are, of course, challenges to be faced, such as the methodological and conceptual diversities within the field of theology, and the misreadings and misunderstandings that inevitably arise in such exercises of crossing disciplinary

boundaries. There are, for example, clear divergences between those theologians who adopt an historicized approach to theological rationality, and those who hold that there is some transhistorical rationality which can be deployed in contemporary discussions. Davison recognizes this point, and rightly suggests that it is more helpful to explore "how some particular science bears upon *some particular topic* in theology." This more modest approach is much more focussed and realistic. A good example, in my view, lies in considering how evolutionary biology can be brought into a critical and constructive dialogue with theology in achieving a deeper understanding of the notion of sin (Nielsen 2010).

My own experience in recent years suggests that it is pedagogically helpful to explore how one single competent author achieved a personal synthesis or correlation of science and religion (often in the form of their own specific scientific discipline and their personal theological commitments), noting particularly *how* they derived this, and *what* they achieved through it. In two recent articles, I explore the foundations and outcomes of two significant approaches – that of the former Archbishop of York and public intellectual John Habgood (McGrath 2021a), and the mature position of the palaeontologist Stephen Jay Gould, which goes far beyond his unsatisfactory earlier notion of "non-overlapping magisteria" (McGrath 2021b). The pedagogical advantages of such an approach are that it allows an individual's approach to be mastered and assessed, thus helping others to develop their own syntheses which are informed by both the strengths and weaknesses of some influential paradigms within the field. Other examples could easily be added.

Yet whether we are dealing with scientists who want to engage theology, or theologians who would like to explore how to "think with science," there is a substantial learning curve that they will have to confront. Like Davison, I am a scientist who became a theologian, and eventually mastered that second art. I felt that before I could write with integrity and competence about science and religion, I needed to climb two mountains: science and theology. I needed to credentialize myself, through securing undergraduate degrees and doctorates in both a specific natural science (in my case, molecular biophysics), as well as in theology. It was really only in 1999, when Oxford University awarded me the *ad hominem* title of "Professor of Historical Theology," that I felt I had secured the necessary personal experience and public credibility to publish in the interdisciplinary field of science and religion, despite my long-standing interests in this area.

I am completely in agreement with Davison in recognizing the importance of finding an appropriate pedagogy to enable more scholars to feel at home in this field, and make significant contributions to its development. This pedagogy will have to be realistic both about *how* this might be done, and the *extent* to which this can be done. It is in my view very difficult for a humanities scholar to enter into a scientific frame of mind. The whole point of science is to do with the *empirical methods* used to acquire knowledge, however, fragile and provisional, of the natural world. Too often, however, science is taught in high schools as if it were a fixed body of knowledge to

be absorbed, rather than as a method that is to be mastered and applied (Osborne 2014).

Science, as is increasingly being emphasized, is about a *practice* – an embedded and embodied method of acquiring and testing knowledge (Rouse 2002; Epple & Zittel 2010). Although I had a firm grasp of much scientific theory after my undergraduate studies as a scientist at Oxford, it was subsequently through being an active researcher in one of Oxford's leading scientific research groups that I came to understand the role of scientific *practice*, including the intellectual and social dynamics of large research groups. Science is a skill, a habit or practice, that has to be acquired by *doing* science – by designing experiments, implementing them, and then interpreting their results.

I don't have any easy answers to this problem. Like any interdisciplinary scholar, I am all too aware of the flaws in C. P. Snow's facile demarcation of "Two Cultures" (Snow 1959). Yet when all is said and done, an important point remains obstinately unresolved. How can scientists and scholars in the humanities be said to *understand* each other, when their respective disciplines use such different methodologies, criteria of assessment, and means of representation? That was the question I was wrestling with when researching and writing *The Territories of Human Reason* (2019). The best answer, in my view, lies in recognizing the need for epistemological pluralism to engage our complex world, and then having to confront the somewhat troubling challenge of weaving the multiple outcomes of such methods together in a

coherent whole. Happily, there are many – including Davison himself – who are willing to rise to this challenge.

Davison's reflections are an encouragement to us as we keep exploring how best to help theologians learn from the sciences, and scientists learn from theology. Such a respectful and informed dialogue across disciplinary boundaries can be uncomfortable and challenging at times, but it is an important way of maintaining openness to alternative – and potentially *enriching* – ways of thinking.

Victoria Lorrimar

Finally, I turn to the contribution of Victoria Lorrimar, an Australian academic whose undergraduate studies were in genetics and biochemistry, before she turned to the study of theology. I had the privilege of supervising her doctoral research at Oxford, which focussed on the role of the imagination in engaging some significant issues in the field of science and religion. Lorrimar is clearly a significant emerging voice in the field of science and religion, not least because of her recognition of the need to expand the boundaries of discussion within the field beyond its traditional preoccupations with essentially rationalist questions. Might an Inkling find a place, or even feel at home, in the field of science and religion?

Lorrimar answers her own question well, drawing on the works of Owen Barfield. It is clear that none of the original Inklings can be said to have been scientifically

proficient; this does not, however, mean that they are scientifically irrelevant. Lorrimar's deft analysis and application of some of the core ideas of Barfield represent a timely and highly creative contribution to the field of science and religion, as it slowly leaves behind the various implementations of rationalism that dominated the period when it emerged and coalesced. I share her puzzlement that Iain McGilchrist does not reference Barfield in *The Master and His Emissary*, but Lorrimar's own analysis – which could easily be extended through further dialogue with C. S. Lewis and J. R. R. Tolkien – has some significant insights to offer to the field of science and religion as it moves decisively in a post-rationalist direction. For me, the critically important task is to respect and safeguard the multiple insights that our different research methods provide about the natural world, while trying to find the best way of coordinating these in a larger vision of that world.

Conclusion

In conclusion, let me thank my colleagues for their contributions to this collection, which surely augur well for the future of this generous and inclusive field, which offers such a rich pastureland for scholarly endeavor and serious reflection about some of life's great issues. It offers a way of bringing theology, philosophy and the natural sciences into serious conversation. We cannot, and do not need to, abolish the distinction between disciplines; what we need to be able to do is ensure informed conversations take place across those boundaries, perhaps by a disciplinary re-imagining of the relation of science and religion, or through a willingness to work with shifting boundaries and changing concerns.

Perhaps the field of science and religion needs a new foundational – or at least *informing* –narrative, which gives it a more secure identity and more obvious intellectual and imaginative utility. As I noted earlier, my own hunch is that one potentially important way of doing this might lie in retrieving the disciplinary imaginary of early modern "natural philosophy," allowing us to correlate Karl Popper's "three worlds" – objective, subjective, and theoretical – coherently and persuasively (McGrath 2022). Early modern natural philosophy was not "interdisciplinary"; the disciplinary divides of today were simply not present at that time. It was seen as a coherent field in its own right. There are, of course, other possibilities that might also be explored.

Yet what surely needs to be done is to find a way of valuing and respecting individual disciplines and their perspectives, while searching to find a larger story or theory which is able to hold these together, and allow them to be seen in a new way. In his *Master and His Emissary* (2009), Iain McGilchrist points out that there is a complex yet productive interaction between our inclination to dissect and divide our complex world into manageable units, and our desire to see that world *as a whole*. "Our talent for division, for seeing the parts, is of staggering importance – second only to our capacity to transcend it, in order to see the whole" (McGilchrist 2009: 93). That's why potentially integrative fields of discussion – such as science and religion – will become even more important in the future as the seemingly irreversible process of disciplinary fragmentation continues within the academy.

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