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Conflict or mutual enrichment? Why science and theology need to talk to each other

An Inaugural Lecture delivered on taking up the Andreas Idreos Professorship of Science and Religion at Oxford University at the Examination Schools, Oxford, on 20 October 2014.

Most of us know that heart-stopping feeling of awed wonder at the beauty and majesty of nature. I remember well a journey I made across Iran in 1975. I was travelling on an ancient bus in the middle of the night across the desert from Shiraz to Kermān, when its ailing engine finally failed. The passengers left the coach, and wandered around, waiting hopefully for the driver to fix it. I saw the stars that night as I had never seen them before – brilliant, solemn and still, in the midst of a totally dark and silent land. I simply cannot express in words the overwhelming feeling of awe I experienced that night – a sense of exaltation, amazement and wonder. I still feel a tingle, a shiver of pleasure, running down my spine when I recall that desert experience, all those years ago.

For some, that sense of wonder – even astonishment – is an end in itself. Many of the Romantic poets took this view. Towards the end of his life, Goethe told his friend J. P. Eckermann that he believed that a sense of astonishment or wonder (*das Erstaunen*) was an end in itself. We should not seek anything beyond it or behind it, but simply enjoy the experience.¹ But for many, it is not a dead end, however pleasurable, but is rather a starting point for exploration and discovery. The great Greek philosopher Aristotle also knew that experience – and he also knew what to do about it. That sense of wonder (*thaumazein*), he declared, was an invitation to explore, to set out on a journey of discovery, in which our horizons are expanded, our understanding deepened and our eyes opened.²

There are two main outcomes of this journey of exploration, which leads, not to a place, but rather – as Henry Miller nicely puts it – ‘a new way of looking at things’.³ One outcome is science; the other is religion. Let us be clear: these are not both necessary outcomes, in that some are led to one,

1 Eckermann, J.P. *Gespräche mit Goethe in den letzten Jahren seines Lebens*, 3 vols., Leipzig: F.A. Brockhaus (1836), vol. 2, p. 50.

2 Aristotle *Metaphysics*, 982b; see also Plato *Theaetetus*, 154b-155c; for useful reflections on this theme, see Miller, J. *In the Throe of Wonder*, Albany: State University of New York Press (1992), pp. 11-52.

3 Miller, H. *Big Sur and the Oranges of Hieronymus Bosch*, New York: New Directions (1957), p. 25.

some to both, and some to neither. They both offer new ways of seeing things – and more.

Science is one of humanity's most significant and most deeply satisfying achievements. When I was young, I wanted to study medicine. Knowing my career plans, my great-uncle – who was head of pathology at one of Ireland's leading teaching hospitals – gave me an old microscope. It proved to be the gateway to a new world. As I happily explored the small plants and cells I found in pond water through its lens, I developed a love of nature which remains with me to this day. It also convinced me that I wanted to know more about and understand the natural world.

I never regretted that decision. At high school, I focused on physics, chemistry and mathematics. I gained a scholarship to Oxford University to study chemistry, and went on to do doctoral research at Oxford in the laboratories of Professor Sir George Radda, working on physical means of studying complex biological systems. I still have that old brass microscope on my office desk, a reminder of its pivotal role in directing the future course of my life.

Yet though I loved science as a young man, I had a sense that it wasn't complete. Science helps us to understand how things worked. But what did they *mean*? Science gave me a neat answer to the question of how I came to be in this world. Yet it seemed unable to answer a deeper question. *Why* was I here? What was the point of life?

José Ortega y Gasset (1883-1955), one of Spain's greatest philosophers, seemed to me to put his finger on the real point at issue.⁴ *Scientists are human beings*. If we are to lead fulfilled lives, Ortega argues, we need more than the partial account of reality that science offers.⁵

Scientific truth is characterised by its precision and the certainty of its predictions. But science achieves these admirable qualities at the cost of remaining on the level of secondary concerns, leaving ultimate and decisive questions untouched.

Ortega is surely right. We need a 'big picture', an 'integral idea of the universe' which possesses existential depth, and not merely cognitive functionality. Science has a wonderful capacity to explain, while nevertheless failing to satisfy the deeper longings and questions of humanity.

For Ortega, the great intellectual virtue of science is that it knows its limits, which are determined by its methods. It only answers questions that it knows it can answer on the basis of the evidence. But human curiosity wants to go further. We need answers to the deeper questions that

4 For what follows, see Ortega y Gasset, J. 'El origen deportivo del estado', *Citius, Altius, Fortius* 9, no. 1-4 (1967): pp. 259-276.

5 *ibid.* p. 259.

we cannot avoid asking. Human beings want to press beyond the point at which science declares that it must stop. As Ortega rightly observed, human beings – whether scientists or not – cannot live without answering them, even in a provisional way. ‘We are given no escape from ultimate questions. In one way or another they are in us, whether we like it or not. Scientific truth is exact, but it is incomplete.’⁶

So we come back to that haunting and electrifying sense of wonder at the world. As we’ve seen, one of its outcomes is science – the attempt to understand the world around us. But there’s another outcome. It is one that I initially resisted, believing that it was utterly opposed to science. The shallow and rather dogmatic materialism of my youth had no space for it. Yet I gradually came to realise that we need a richer and deeper vision of reality if we are to do justice to the complexity of the world, and live out meaningful and fulfilling lives. And that is where God comes into things.

My own rediscovery of the enriched understanding and appreciation of the world made possible through belief in God took place at Oxford University. It was a somewhat cerebral and intellectual conversion, focusing on my growing realisation that belief in God made a lot more sense of things than my atheism. Having already discovered the beauty and wonder of nature, I realised that I had – as T. S. Eliot put it – ‘had the experience but missed the meaning’. I gradually came to the view famously and winsomely expressed by C. S. Lewis: ‘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.’⁷ It was as if an intellectual sun had risen and illuminated the scientific landscape before my eyes, allowing me to see details and interconnections that I would otherwise have missed altogether.

Why does this matter? As I reflected on these issues, I began to grasp that religious faith met at least two decisive needs, grounded in our identity as human beings. First, it provides us with a reassurance of the coherence of reality – that however fragmented our world of experience may seem, there is a half-glimpsed ‘bigger picture’ which holds things together, its threads connecting in a web of meaning what might otherwise seem incoherent and pointless. Ever since the dawn of the Scientific Revolution, thinking people have worried about this. Do new scientific ideas destroy any idea of a meaningful reality?

The English poet John Donne spoke movingly of this concern in the early seventeenth century, as scientific discoveries seemed to some to erode any sense of connectedness and continuity within the world. ‘Tis all

6 *ibid.* p. 260.

7 Lewis, C.S. *Essay Collection*, London: HarperCollins (2002), p. 21; for further reflection, see McGrath, A.E. ‘The privileging of vision: Lewis’s metaphors of light, sun, and sight’, in *The Intellectual World of C. S. Lewis*, Oxford: Wiley- Blackwell (2013), pp. 83-104.

in pieces, all coherence gone', he wrote of this unsettling new world.⁸ How could it be held together?

So have we lost sight of some deeper unity of reality?⁹ Where once there was a sense of intellectual and moral coherence to reality, there now seems to be what the great German poet and novelist Hermann Hesse (1877-1962) once described as a mere aggregation of intellectual fashions and the 'transitory values of the day (*vergängliche Tageswerte*)'.¹⁰

Yet Christianity provides a web of meaning, a deep belief in the fundamental interconnectedness of things, which holds Donne's 'pieces' together. We find this theme in the New Testament, which speaks of all things 'holding together' in Christ (Colossians 1: 17).¹¹ There is a hidden web of meaning and connectedness behind the ephemeral and incoherent world that we experience.

Secondly, religion provides answers to the scientifically unanswerable – to what Karl Popper termed 'ultimate questions', such as the meaning of life, and our place in a greater scheme of things. They are to be seen as supplementations of proper scientific inquiry, protecting us against the existential vacuum that results from seeing science alone as the foundation of meaning and value. Religious faith provides a framework of meaning which not merely helps us grasp the contours of reality more firmly, but inspires us to want to pursue the good and the beautiful.

I gradually came to see that I did not need to see my faith as conflicting with science, but as filling in the detail of a 'big picture' of which science was a major part – but only a part. If there was a conflict, it was with the view sometimes called 'scientific imperialism' (and now usually abbreviated as 'scientism'), which holds that science, *and science alone*, is able to answer all of life's deepest questions.¹²

My own thinking on this matter was helped enormously by a conversation with Professor Charles A. Coulson, sometime around 1973. I was an undergraduate at Wadham College. Coulson was then a fellow of Wadham, having initially been Rouse Ball Professor of Mathematics, preceding Roger Penrose in this role, before becoming Oxford's first Professor of Theoretical Chemistry. As a prominent Methodist lay preacher, it was

8 Donne, J. *Anatomy of the World*; see further Rangel, C.E. *Cities in Ruins: The Politics of Modern Poetics*, West Lafayette, IN: Purdue University Press (2010), pp. 109-112.

9 See e.g. the reflections in Lewis, C.S. *The Discarded Image: An Introduction to Medieval and Renaissance Literature*, Cambridge: Cambridge University Press (1964).

10 Hesse, H. 'Die Sehnsucht unser Zeit nach einer Weltanschauung.' *Uhu* (1926) 2, 3-14.

11 For an exploration of this theme, see Tanzella-Nitti, G. 'La dimensione cristologica dell'intelligibilità del reale', in Rondinara, S. (ed.) *L'intelligibilità del reale: Natura, uomo, macchina*, Rome: Città Nuova (1999), pp. 213-225.

12 See especially Aeschliman, M.D. *The Restitution of Man: C. S. Lewis and the Case against Scientism*, Grand Rapids, MI: Eerdmans (1998).

natural that he should from time to time preach in Wadham Chapel. I heard him preach on the fundamental coherence of nature and faith, and the resulting indefensibility of the idea of the ‘god of the gaps’ – a theme that he had explored in his book *Science and Christian Belief*.¹³ As a recently converted atheist who was still feeling my way in the mysterious realm of the Christian faith, I talked to him afterwards about some of my questions. He was both gracious and sagacious, and within ten minutes had helped me grasp the idea of the ultimate coherence of science and faith, which remains with me to this day.¹⁴

Now perhaps some may still be surprised at any suggestion that science and religious belief can be held together like this. The dominant narrative of the western media still asserts that science and religion are in conflict, and that a choice must be made. As you know, the so-called ‘New Atheism’ embodies the core assumption that science makes belief in God impossible. So how did we get there, when the historical evidence makes such a narrative so problematic?

In his important work *A Secular Age*, the philosopher and cultural theorist Charles Taylor notes how certain metanarratives – that is, grand stories of explanation and meaning – come to assume social dominance, often for reasons that rest on somewhat flimsy evidential foundations.¹⁵ To challenge or reject these dominant narratives is seen as a sign of irrationality. Yet to those in the know, this ‘science versus religion’ narrative is stale, outdated and largely discredited. It is sustained not by the weight of evidence, but by endless uncritical repetition, which studiously avoids the new scholarship which has undermined its credibility.

It is surely time to move on from the lengthening shadows of Enlightenment rationalism, and its self-justifying narratives about science and religion. We need to frame the whole discussion in a new way – or even re-appropriate older ways of seeing their relationship, which fell out of favour for reasons that might now be seen as less than persuasive. I have not time in this lecture to defend the view that the so-called ‘warfare’ model of the relation of science and religion is a social construction of late nineteenth century western culture, reflecting both the professional aspirations and lack of proper historical insight of that age.¹⁶ Others have already done

13 On Coulson, see Hough, A. ‘Not a Gap in Sight: Fifty Years of Charles Coulson’s *Science and Christian Belief*, *Theology* (2006) 109, 21-27; Simões, A. ‘Textbooks, Popular Lectures and Sermons: The Quantum Chemist Charles Alfred Coulson and the Crafting of Science.’ *British Journal for the History of Science* (2004) 37, 299-342.

14 Coulson, C.A. *Science and Christian Belief*, London: Oxford University Press (1955), pp. 97-102.

15 Taylor, C. *A Secular Age*, Cambridge, MA: Belknap Press (2007); for an excellent series of essays exploring these themes, see Warner, M., Van Antwerpen, J. & Calhoun, C.J (eds.) *Varieties of Secularism in a Secular Age*, Cambridge, MA: Harvard University Press (2010).

16 See the collection of essays in Numbers, R.L. (ed.) *Galileo Goes to Jail and Other Myths About Science and Religion*, Cambridge, MA: Harvard University Press (2009).

this more thoroughly and eloquently that I could ever manage – including, I may add, my two distinguished predecessors in this role as Idreos Professor, John Hedley Brooke and Peter Harrison.

One of the less welcome outcomes of this ‘conflict’ narrative is the late Stephen Jay Gould’s idea of ‘non-overlapping magisteria’, which treats science and religion as hermetically sealed compartments, which never interact with each other.¹⁷ This approach is little more than a retrospective validation of the political realities of modern American academic life which encourages intellectual isolation and conceptual complacency. It is an intellectual dead end, incapable of encouraging or sustaining interdisciplinary dialogue and debate.

My concern is not so much to demolish this tired and inadequate stereotype of perennial and essential hostility, which is in any case falling to pieces of its own accord, even though news of this seems to be taking more time than might be anticipated to percolate downwards. Rather, I want to explore how we might construct an alternative way of seeing things, and try to persuade you that it might be both intellectually coherent and imaginatively engaging. The French poet Paul Claudel (1868-1955) is noted for a fine essay on Dante’s quest for a coherent vision of reality, which he contrasted rather unfavourably with what he termed the ‘starved imagination’ of rationalism.¹⁸ So let me emphasise the importance of that word *seeing*. Both scientific theories and theological doctrines can be seen as invitations to see things in a certain way, to imagine the world in a certain manner – a manner that is believed to be both warranted and truthful, and whose truthfulness is to be measured in part by the degree of intelligibility and coherence it allows us to perceive.

Coherence is something that is best captured by a visual imagination, rather than dissected by a cold logic. That quest for breadth and depth; for answers, however tentative and provisional, to the deepest questions of life, remains important, even essential, to many of us. It is nourished by interdisciplinarity, recognising that no one discipline can adequately cope with the complexity and rich textures of reality. It is probably true that the Renaissance ideal of a universal knowledge has now collapsed. Yet perhaps this is more due to the professionalisation of academic disciplines, and the virtually impossible demands of mastering the rapidly inflating literature of even one of them, rather than any failing in the original vision itself.

I want to suggest that the field of science and religion can be seen as em-

17 Gould, S.J. ‘Nonoverlapping magisteria’, *Natural History* (March 1997) 106, 16-22.

18 Claudel, P. ‘Introduction à un poème sur Dante’, in *Positions et propositions*, Paris: Gallimard (1928), 161-186; for Sir Peter Medawar’s important emphasis on the role of the imagination in science, see Calver, N. ‘Sir Peter Medawar: science, creativity and the popularization of Karl Popper’, *Notes and Records of the Royal Society* (2013) 67, 301-314.

blematic of a need for the integration of insight and meaning; for restoring cohesion to our way of thinking; for achieving an integrated and enriched vision of life which is integral to human flourishing and well-being. The Idreos Professorship is one of Oxford's very few endowed chairs specifically charged with the practice and advocacy of interdisciplinarity. Yet while I believe that any kind of interdisciplinarity can be enriching, I must point out that this chair is dedicated to exploring the intersection of perhaps the two greatest human cultural and intellectual enterprises – science and religion. If Ortega is right, these two words – science and religion – name, however inadequately and controversially, the two great domains of reflection that lie at the heart of human culture and civilisation.

I have been speaking in hopelessly general terms, and it is time to become more specific. The Idreos Professorship is embedded within Oxford's Faculty of Theology and Religion. So what benefits might an interaction with the natural sciences bring to the study of theology and religion? And let me make it clear that I regard challenges as benefits, in that these force engagement and reflection, generally leading to refinement and renewal. If theology runs away from these challenges, it has lost its way.

As I noted earlier, I began my academic trajectory here at Oxford as a scientist, studying chemistry at Oxford University under the mentorship of Jeremy R. Knowles (1935-2008), and then researching in the biological sciences at Oxford under Professor Sir George Radda. This immersion in Oxford's scientific research culture shaped my thinking decisively at a number of points. I will mention only three, which I believe to be of theological relevance.

The first point to make is the centrality of evidence-based approaches to investigation and argument. What are the reasons for thinking that this might be true? Why should someone think this? How might they be shown to be wrong? What evidence underlies this position? The capacity to assemble a well-ordered evidential argument seems to me to be one of the most important skills that any scientist can develop. This does not sit easily with the tendency I see in some theologians to assert, rather than to argue; or to appeal to an authority rather than to evidence, without providing reasons for these assertions; or to formulate a position without anticipating objections and alternatives. We cannot, and should not, evade the question of why we believe something to be warranted.

Christian theology has always held that faith makes sense in itself, and makes sense of the enigmas and riddles of our experience. There is a legitimate debate about how important this aspect of faith might be, with some theologians arguing that the aesthetic or symbolic aspects of faith are rather more important than their rational counterparts.

So how might we calibrate the rationality of faith? One option is to judge a theory by its capacity to explain – that is, to group observations and expe-

riences within a colligative framework.¹⁹ The Christian faith is compared to a good scientific theory: it gathers together or ‘colligates’ observations and experiences in manner that is plausible, expansive and productive. In theology, as in science, the ability to illuminate reality is judged to be an important measure of the reliability of a theory, and an indicator of its truth. The best theory is the one that is able to fit in observations and experiences most elegantly, most simply, most comprehensively and most fruitfully.²⁰ Those who adopt this approach – such as the French philosopher Simone Weil (1909-43) – hold that the Christian faith is like an illuminating radiance that lights up the landscape of reality, allowing us to see things as they really are. It is to be appreciated and evaluated by ‘by the amount of illumination thrown upon the things of this world’.²¹

This approach naturally leads us to reflect on a statement that one of my scientific heroes, the Nobel Laureate Sir Peter Medawar (1915-87), made towards the end of his life: ‘Only humans find their way by a light that illuminates more than the patch of ground they stand on.’²² It is a striking assertion, which invites us to ask: what is the best light to illuminate our patch of ground? My narrative of enrichment suggests that both science and faith, when at their best, help us to make sense of who we are, why we are here, and what we ought to do. We need that rich vision to enable us, not merely to *exist*, but to *live*.

Let me move on to a second habit of thought that I developed during my time as a research-active scientist. The core question that many of my more philosophical colleagues want to ask about an idea is whether it is *reasonable*. Yet this approach, often encountered within the ‘New Atheism’, merely locks us into some form of rationalism, which imprisons the scientific enterprise within a rationalist straitjacket. The fundamental question a scientist is going to ask is not ‘Is this reasonable?’ but ‘What are the reasons for thinking this is true?’ We cannot lay down in advance what ‘rationality’ is characteristic of the universe; we have to find out either by letting the universe itself tell us, or figuring out ways of uncovering it. Scientific rationality is thus best thought of as something that is to be discovered, rather than predetermined or predicted.

19 This approach is to be traced back to the great empirical philosopher William Whewell (1794-1866); see e.g. Whewell, W. *The Philosophy of the Inductive Sciences*, 2 vols., 2nd edn., London: John W. Parker (1847), vol. 2, pp. 46-48.

20 For some of the issues, see Kleiner, S.A. ‘Explanatory coherence and empirical adequacy: the problem of abduction, and the justification of evolutionary models’, *Biology and Philosophy* (2003) 18, 513-527; Glass, D.H. ‘Coherence measures and inference to the best explanation’, *Synthese* (2007) 157, 275-296; Psillos, S. ‘The fine structure of inference to the best explanation’, *Philosophy and Phenomenological Research* (2007) 74, 441-448.

21 Weil, S. *First and Last Notebooks*, London: Oxford University Press (1970), p. 147.

22 Medawar, P.B. & Medawar, J. *The Life Science: Current Ideas of Biology*, London: Wildwood House (1977), p. 171.

This line of thought is theologically productive and responsible. To give one obvious example: the key question to ask about the doctrine of the Trinity is not ‘is this reasonable?’ Common sense, after all, is a socially constructed notion, and there is little point in constraining God within culturally conditioned modes of reasoning. The task of a responsible Christian theology is to discover the internal logic of the Christian faith, not to lay down in advance what form this should take. As Augustine of Hippo pointed out in the fifth century, the task of theology is not to reduce God to the intellectually manageable (and then label this ‘reasonable’).²³ It is to expand the vision of the human intellect so that it can grasp as much about God as it can, while firmly acknowledging that there are limits placed upon our capacity to do so – something that we might express in terms of ‘mystery’, meaning ‘something that we cannot grasp in its totality’.²⁴

Yet there is a third scientific habit of mind and practice that I want to emphasise – the importance of the scientific method. When a matter requires to be settled, the scientific community will seek to devise experiments that can resolve the question. I concede immediately that the scientific method is more complex than this, and that we need to discuss the problems associated with the idea of a ‘critical experiment’, and the difficulties of the under-determination of theory by evidence. But when all is said and done, there exists a robust method of resolving disputes and advancing understanding within a scientific culture.

I might go further, and suggest that what is to be trusted in science is its method, rather than the contemporary outcomes of the application of that method. Anyone who has studied the history of science will be aware of the provisionality of scientific theories, and the likelihood that today’s consensus will be eroded by future experiment. Yet we trust that whatever is good in today’s theories will be incorporated into the theories of the future.

I began to study theology seriously in 1976, and since then have often reflected on my own sense of unease, sometimes approaching bafflement, about the vexed question of ‘method in theology’. I know that individual theologians have written about their own methods; the discipline as a whole, however, seems unclear about how it develops, refines and confirms its ideas. Perhaps I could give an example of this concern, which I first encountered on reading Karl Barth in the late 1970s, and which remains with me to this day.

I read the opening volume of Barth’s *Church Dogmatics* with interest,

23 For some important reflections, see Williams, R. ‘Sapientia and Trinity: reflections on the *De Trinitate*’, in Bruning, B. & Lamberigts, M. (eds.) *Mélanges T. J. van Bavel*, Leuven: Uitgeverij Peeters (1990), pp. 317-332.

24 See the fine exposition in Louth, A. *Discerning the Mystery: An Essay on the Nature of Theology*, Oxford: Clarendon Press (1983).

enjoying his rigorous conceptual analysis of the nature of revelation. But, as a scientist, I could not help but be alarmed by Barth's discussion of the relation between revelation and the Trinity,²⁵ which seemed to me to amount to an intrinsic argumentative circularity which was disturbingly impervious to evidence. The Trinity seemed to be proposed as both the foundation of theology, and as one of its outcomes. I was relieved to find other theologians had also noticed this,²⁶ although rather more troubled to note that those sympathetic to Barth glossed it as a 'virtuous circularity', which was somehow built into the nature of the theological enterprise, perhaps even constituting a kind of intellectual virtue.

Now there is much more that might be said in terms of how science might offer a stimulus and challenge to theology. But what of the other side of that relationship? Has theology anything to say that might inform science? My answer is an unqualified 'yes'. Let me explain why. To begin with, I want to insist, against the 'New Atheism', that theology has nothing to fear from the empirical study of *anything*; the problem comes when this is freighted with stipulative naturalist metaphysical assumptions or controlled by secularising metanarratives, neither of which have any rightful place in the natural sciences.²⁷ If the core theme of Freeman Dyson's brilliant essay 'The Scientist as Rebel' is correct,²⁸ science ought to be contesting such metanarratives, rather than acquiescing in them, still less allowing itself to be controlled by them.

But now I come to my main point. We saw earlier how José Ortega y Gasset emphasised that, precisely because we are human beings, we need more than science to satisfy our deep yearnings and intuitions. I therefore propose that we should challenge the dominant narrative of our time – the outdated 'conflict narrative', sustained more by uncritical repetition than by historical evidence – and replace it with a narrative of enrichment. This narrative recognises that, as human beings, we can be studied and understood at multiple levels – physical, biochemical, psychological and sociological. Yet none of these is adequate in itself, to give us a full understanding of who we are, and what we must do if we are to achieve fulfilment.

25 A point emphasised in Hunsinger, G. 'Karl Barth's doctrine of the Trinity, and some Protestant doctrines after Barth', In Emery, G. & Levering, M. (eds.) *The Oxford Handbook of the Trinity*, Oxford: Oxford University Press (2011), pp. 294- 313.

26 See Torrance, A.J. *Persons in Communion: An Essay on Trinitarian Description and Human Participation, with Special Reference to Volume One of Karl Barth's Church Dogmatics*, Edinburgh: T. & T. Clark (1996), pp. 91-95; as I point out elsewhere, Emil Brunner noticed this problem in the 1930s: McGrath, A.E. *Emil Brunner: A Reappraisal*, Oxford: Wiley-Blackwell (2014), pp. 51-52.

27 For some examples of the ideological freighting of biology (which seems unusually vulnerable to this form of abuse), see Numbers, R. & Alexander, D. (eds.), *Ideology and Biology: From Descartes to Dawkins*, Chicago: University of Chicago Press (2010).

28 Dyson, F. 'The scientist as rebel', in Cornwell, J. (ed.) *Nature's Imagination: The Frontiers of Scientific Vision*, Oxford: Oxford University Press (1995), pp. 1-11.

Christian theology offers an enrichment of a scientific account of the world. It is able to engage the four critical issues identified by the social psychologist Roy Baumeister as central to the human quest for meaning:²⁹ identity, value, purpose and agency. As Baumeister points out, these are non-empirical matters, which cannot themselves be resolved by scientific inquiry. Yet they matter to us. If our goal is to achieve a rich and integrated understanding of ourselves, we cannot help but ask what Karl Popper termed ‘ultimate questions’.

So how might this proposed narrative of integration and enrichment be understood? How might it be enacted? I believe there are two models that may be helpful to us here.

The first is the ‘multiple maps’ approach, advocated in her recent writings by the philosopher Mary Midgley.³⁰ Midgley has rich Oxford connections, being part of that remarkable group of women philosophers who studied at Somerville College during the 1940s that included Philippa Foot and Iris Murdoch.³¹ Midgley argues that we need ‘many maps, many windows’ if we are to represent the complexity of reality, reflecting the fact that ‘there are many independent forms and sources of knowledge’. She suggests that it is helpful to think of the world as a ‘huge aquarium’.

We cannot see it as a whole from above, so we peer in at it through a number of small windows ... We can eventually make quite a lot of sense of this habitat if we patiently put together the data from different angles. But if we insist that our own window is the only one worth looking through, we shall not get very far.

Midgley’s basic principle of using multiple maps to represent a complex reality raises some challenges and some significant questions – such as the need to develop and deploy an appropriate interpretative framework to settle boundary disputes. Yet it also opens up some important possibilities for integration and enrichment of our vision. We need a rich palette of colours to represent the complexities of our observations of the world around us, and our experience within us.

Yet this is perhaps a somewhat flat model, which clearly needs supplementation. My second model is a stratified account of both reality itself and our representations of that reality, which we find in certain forms of ‘critical realism’. Although this term designates a number of philosophical schools, I am using the term in the sense developed by Roy Bhaskar and

29 Baumeister, R. *Meanings of Life*, New York: Guilford Press (1991), pp. 29-57.

30 Midgley, M. *The Myths We Live By*, London: Routledge (2004), pp. 26-28.

31 For this period, see Midgley, M. *The Owl of Minerva: A Memoir*, London: Routledge (2005), pp. 76-139; Somerville at the time had no philosophy tutor, so Foot, Midgley and Murdoch were all taught by Donald MacKinnon (1913-94), then fellow at Keble College.

others,³² which argues that a stratified reality demands different modes of investigation and representation for each level – methods which are to be developed *a posteriori*, in the light of the evidence, rather than imposed *a priori*. This represents a healthy and warranted rejection of the ambitious and ultimately inadequate quest for a single universal methodology so characteristic of the Enlightenment, and so severely criticised from a theological perspective by Karl Barth,³³ among many others.

If critical realism is right, it means that we need to speak of levels of reality, and we can speak of science and religion offering answers at differing levels. The best picture of reality is that which weaves together coherently the greatest number of explanatory threads. The distinguished geologist Frank H. T. Rhodes, who served as President of Cornell University from 1977 to 1995, made this point back in 1965, using the analogy of a boiling kettle.³⁴ Why is this kettle boiling? Rhodes notes that two types of explanation might be given. At the scientific level, energy is being supplied, which raises the temperature of the water to its boiling point. Yet another answer can be given – an answer which is teleological in nature: ‘The kettle is boiling because I put it on to make a cup of tea.’ Rhodes makes a point which some of you may find predictable, but is none the less important:

Now these are different answers . . . But both are true, both are complementary and not competitive. One answer is appropriate within a particular frame of reference, the other within another frame of reference. There is a sense in which each is incomplete without the other.

That is why I propose a narrative of enrichment. It denies nothing about the empirical sciences, save their finality. That is in conflict with the *scientism* that has become so characteristic of the ‘New Atheism’, but it is not in conflict with *science*, which has always been willing to recognise its limits. Science is wonderful at raising questions that lie beyond its capacity to answer – what Sir Peter Medawar referred to as ‘questions that science cannot answer and that no conceivable advance of science would empower it to answer’.³⁵

So does engaging such questions mean abandoning science? No. It sim-

32 Bhaskar, R. *A Realist Theory of Science*, 2nd edn., London: Verso (1997); more generally, see Emmeche, C., Køppe, S. & Stjernfelt, F. ‘Explaining emergence: towards an ontology of levels’, *Journal for General Philosophy of Science*, (1997) 28 no. 1, 83-119; for its theological application, see McGrath, A.E. *A Scientific Theology: 2 – Reality*, London: Continuum (2002).

33 On which see McGrath, A.E. ‘Theologie als Mathesis Universalis? Heinrich Scholz, Karl Barth, und der wissenschaftliche Status der christlichen Theologie.’ *Theologische Zeitschrift* (2007) 62, 44-57.

34 Rhodes, F.H.T. ‘Christianity in a mechanistic universe’, in MacKay, D.M. (ed.) *Christianity in a Mechanistic Universe and Other Essays*, London: InterVarsity Fellowship (1965), pp.11-48, quote at p. 42.

35 Medawar, P. *The Limits of Science*, Oxford: Oxford University Press (1987), p. 66.

ply means acknowledging and respecting its limits, and not forcing it to become something other than science. Theology is able to enrich this vision of science – not by proposing itself as a competing science, but by being what it is, and doing what it does best, which is raising and answering ultimate questions. Of course, it does much more than this – but it does this *distinctively*, and it does it well.

The natural sciences may help us understand something about religion, or at least about human nature which leads us to ask religious questions. We would do well to note contemporary trends in both the psychology of religion and the relatively new discipline of the cognitive science of religion, which have suggested that religion is natural to humanity.³⁶ It is not something imposed upon us, but something that seems to come naturally to us. Some kind of religiosity is part of being human. That would come as no surprise to the great humanists of the Renaissance, such as Erasmus of Rotterdam, who saw religion as one of humanity's great achievements. Needless to say, the word 'humanism' in the Renaissance meant something richer and bolder than the dull dogmatic secularism that is now associated with the term.

The important point here is that science and faith can thus provide us with different, yet ultimately complementary, maps of human identity. As Mary Midgley suggests, Christian theology offers us a mental map, which helps us to make sense of at least some aspects of the worlds within us and around us – and, I think I must emphasise, to make sense of the scientific enterprise in particular. Earlier, I mentioned the importance of Charles Coulson to my early thinking. It was through him that I discovered this little aphorism of William Inge – once Lady Margaret Professor of Divinity at Cambridge University – which I continue to find helpful.³⁷

Rationalism tries to find a place for God in its picture of the world. But God . . . cannot be fitted into a diagram. He is rather the canvas on which the picture is painted, or the frame in which it is set.

And that thought has remained with me ever since I first encountered it: that Christian theology offers a conceptual framework, a mental map, which both accommodates and encourages the scientific enterprise.

Now of course there are boundary issues, some of which I have hinted at in this lecture. But I have painted this picture with broad strokes, hoping to appeal to the imagination as well as to reason, leaving the finer brushwork to heavily annotated and hopelessly dull monographs. And in one sense, I have said nothing new, in that such a narrative of enrichment was

³⁶ I have in mind works such as Barrett, J.L. 'Exploring the natural foundations of religion', *Trends in Cognitive Sciences* (2000) 4, 29-34; McCauley, R.N. *Why Religion Is Natural and Science Is Not*, New York: Oxford University Press (2012).

³⁷ Inge, W.R. *Faith and Its Psychology*, New York: Charles Scribner's Sons (1910), p. 197.

the common currency of earlier ages.³⁸ Yet this older narrative has been displaced by a narrative of conflict, which assumed cultural dominance for reasons of historical contingency, and has sustained that cultural dominance largely by ignoring the work of historians. It is time to move on – or perhaps to look back, and reappropriate and expand what can now be seen to be a wiser and more reflective approach.

I end by picking up on a passage from a work which I greatly admire, even though I disagree with its author at one or two points. Richard Dawkins ends his *Unweaving the Rainbow*, in which he reflects on the relation of science and poetry, with a rich and evocative sentence. ‘A Keats and a Newton, listening to each other, might hear the galaxies sing.’³⁹ I like that thought. And my narrative of enrichment allows us to extend it still further. Perhaps we might all – whether scientists or theologians – come to hear the heavens declaring the glory of the Lord (Psalm 19:1)!

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38 A good example is the Renaissance metaphor of the ‘Two Books’ of science and religion: see Tanzella-Nitti, G. ‘The two books prior to the scientific revolution’, *Annales Theologici* (2004) 18, 51-83.

39 Dawkins, R. *Unweaving the Rainbow: Science, Delusion and the Appetite for Wonder*, London: Penguin Books (1998), p. 313.



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