

The Order of Things

Explorations in Scientific Theology

Alister E. McGrath



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Preface

This book takes the form of a collection of essays which sets out to continue an exploratory conversation which I began with the three volumes of *A Scientific Theology*, published during the years 2001–3. It assumes that its readers will already be familiar with the basic arguments of *A Scientific Theology*, in that they will not be repeated in this work. The present work aims to develop, explore, and extend – but not to repeat – the themes of those earlier volumes.

The three volumes of the “scientific theology project” – subtitled *Nature*, *Reality*, and *Theory*, respectively – set out an approach to Christian theology which tried to uphold the unique nature of that discipline, while at the same time drawing on the insights of the natural sciences in a process of respectful and principled dialogue.¹ The approach represents a sustained and extended attempt to explore the interface between Christian theology and the natural sciences, on the assumption that this engagement is necessary, proper, legitimate, and productive, offering a lifeline to a philosophically and culturally embattled theology. It allows theology to break free from the intellectual ghettos of foundationalism and antifoundationalism, and to reclaim and recover its authentic voice.

As that bold statement suggests, a scientific theology is predicated on the assumption that the Enlightenment project has foundered, necessitating the development of new approaches to rationality, or the critical reappropriation or conceptual refurbishment of older ones. It is therefore appropriate to explore the fate of the Enlightenment approach to rationality in a little more detail, before moving on.

¹ Alister E. McGrath, *A Scientific Theology* Vol. 1: *Nature*; Vol. 2: *Reality*; Vol. 3: *Theory*. London: Continuum, and Grand Rapids, MI: Eerdmans, 2001–3.

Taking the Enlightenment Seriously

Classic Christian theology was nourished and sustained by a passionate conviction that its vision of reality offered a compelling imaginative resource, fully capable of confronting the spectrum of complexities of human existence and experience without intellectual evasion or misrepresentation. On this view, Christianity offers a rich and viable account of the whole of reality, which theology can articulate and conceptualize. The order of things could be grasped and represented, not totally but adequately, to an extent that is accommodated both to the human capacity to discern and the divine willingness to reveal – neither of which may be determined in advance by human reason, but which are to be determined empirically *a posteriori*. Much contemporary theology, however, seems to find itself tossed about on a restless, raging sea, at one moment thrown up by the swells of foundationalism, and at the next finding itself plummeting into the troughs of relativism. How, we wonder, can reliable knowledge about anything be had, let alone the mystery of God? Must we conclude that, because we can know nothing significant for certain, we are therefore justified in believing what we please?

Rightly, leading representatives of the Enlightenment set out to explore a possible way of securing reliable, universal knowledge, by which the human race could understand its situation and its possibilities. While the Enlightenment can be interpreted in a number of generally critical ways – such as the theologically subversive elevation of human reason over divine revelation, or the philosophically utopian quest for universal truths of reason, liberated from the happenstance and particularity of one's historical situation – there are good reasons for suggesting that it can be understood in much more benign terms, as the quest for reliable knowledge.² The abiding and compelling power of this vision is perhaps nowhere set out with as great passion and commitment as in John Locke's celebrated letter to his close friend William Molyneux, dated January 10, 1697. This letter sets out a devastating critique of those who compare ideas and opinions to "cates" – a sixteenth-century term for "choice pieces of meat," "dainties," or "delicacies" – so that what one believes is merely a matter of personal taste.³

² This view is defended with reference to the scientific enterprise by John M. Ziman, *Reliable Knowledge: An Exploration of the Grounds for Belief in Science*. Cambridge: Cambridge University Press, 1978.

³ *The Works of John Locke*. 10 vols. London: Thomas Tegg, 1823, Vol. 8, p. 447.

If I could think that discourses and arguments to the understanding were like the several sorts of cates to different palates and stomachs, some nauseous and destructive to one, which are pleasant and restorative to another; I should no more think of books and study, and should think my time better employed at push-pin than in reading or writing. But I am convinced to the contrary: I know there is truth opposite to falsehood, that it may be found if people will, and is worth the seeking, and is not only the most valuable, but the pleasantest thing in the world.

If truth is simply a matter of taste, Locke argues, philosophers might as well retire to the nearest tavern and play push-pin – the popular equivalent of skittles.⁴

The Enlightenment agenda is to be honored and respected. Yet there was found to be a fatal problem, which lay not in the question being put, nor in the honorable intentions that lay behind it. The Enlightenment quest for a universal foundation and criterion of knowledge faltered, stumbled, and finally collapsed under the weight of a massive accumulation of counter-evidence. It simply could not be done; the vision simply could not be achieved. The legacy of the Enlightenment was thus an ideal of rational justification which it has proved impossible to attain in practice.⁵ Yet the goal it set out to pursue was fundamentally right, even if its adopted methods could not ultimately sustain that quest. The pursuit of truth can hardly be abandoned because one particular strategy is now recognized to have failed; the point is to find new strategies, or modify existing ones.

Some have sought to evade this rationalist cul-de-sac in alluring, even though ultimately unsuccessful ways. The brave and bold agenda set out by Enlightenment rationalism held that human reason was capable of eliminating and overcoming the limitations of culture, history, and language;⁶ in the end, the attempt

⁴ Jeremy Bentham's comments on push-pin – a simple game in which players push their pins with the object of crossing the pins of their opponents – in his *Rationale of Reward* (1825) are well known: "Prejudice apart, the game of push-pin is of equal value with the arts and sciences of music and poetry. If the game of push-pin furnish more pleasure, it is more valuable than either. Everybody can play at push-pin: poetry and music are relished only by a few." For comment, see Lionel Stevenson, "The Key Poem of the Victorian Age." In *Essays in American and English Literature Presented to Bruce Robert Mcelderry Jr.*, edited by Max F. Schulz, 260–89. Athens: Ohio University Press, 1967, especially p. 261.

⁵ This is the thesis of Alasdair MacIntyre, *Whose Justice? Which Rationality?* London: Duckworth, 1988, 6. See further Jennifer A. Herdt, "Alasdair MacIntyre's 'Rationality of Traditions' and Tradition-Transcendental Standards of Justification." *Journal of Religion* 78 (1998): 524–46.

⁶ See, for example, Frederick C. Beiser, *The Sovereignty of Reason: The Defense of Rationality in the Early English Enlightenment*. Princeton, NJ: Princeton University Press, 1996.

petered out (although, to the historian, in a very *interesting* way), when confronted with the cold, brutal realization that human reason was not the historical and cultural universality that many believed.⁷ The idea of a neutral, detached, objective, transcendent observer of reality has been widely criticized as the “view from nowhere” (Thomas Nagel) or the “God’s eye view” (Hilary Putnam).⁸ It demands a privileged perspective on reality which ignores both the historical location of the observer and the significance of the contingencies of history.⁹

The pursuit of the “necessary truths of reason” as a foundation on which secure knowledge could be erected proved culturally illuminating, and remains fascinating to intellectual historians, such as myself. But in the end, it failed, straggling home from the intellectual battlefield bruised and wounded, no longer a force to be reckoned with. While some still cling to the wreckage of the Enlightenment project, most have recognized that this intellectual flotsam is little more than a memorial to the past, and have sought to move on.

For a while, it seemed to some that intellectual certainty might be found in the abstract world of mathematics. Gottlob Frege’s brilliant attempt to model human knowledge on the certainties of mathematical logic ultimately foundered on the immensely awkward, irritating realization that reality just wasn’t like that. Mathematical truth turned out to be just as corrigible and fallible as anything else.¹⁰ In his famous “Incompleteness Theorem,” Kurt Gödel showed that within a rigidly logical system – such as that developed by Bertrand Russell and A. N. Whitehead in the case of arithmetic – propositions can be formulated that cannot strictly be demonstrated on the basis of its core axioms. Perhaps more significantly, Gödel demonstrated that any such system is *essentially incomplete*. In other words, given *any* consistent set of arithmetical axioms, there are true mathematical statements that cannot themselves be

⁷ For some reflections, see Gary Sauer-Thompson and Joseph Wayne Smith, *The Unreasonable Silence of the World: Universal Reason and the Wreck of the Enlightenment Project*. Aldershot: Ashgate, 1997.

⁸ Thomas Nagel, *The View from Nowhere*. New York: Oxford University Press, 1986; Hilary Putnam, *Mind, Language, and Reality*. Cambridge: Cambridge University Press, 1975.

⁹ Note especially Iris Murdoch’s late critique of Sartre on this point: Iris Murdoch, *Metaphysics as a Guide to Morals*. London: Penguin, 1992, 377, 463.

¹⁰ Reuben Hersh, “Some Proposals for Reviving the Philosophy of Mathematics.” *Advances in Mathematics* 31 (1979): 31–50. For a more sympathetic approach to both Russell and Frege at this point, see Gideon Makin, *The Metaphysics of Meaning: Russell and Frege on Sense and Denotation*. London: Routledge, 2000.

derived from the set.¹¹ In other words, there may be statements within that system that *are* true, but cannot be *shown* to be true. Gödel's famous theorem actually consists of two parts: the demonstration of incompleteness of a formal axiomatized system, and the argument that there is no ultimate proof of the consistency of arithmetic. The formalist hope of identifying *truth* with *provability* is thus severely weakened, since in any consistent theory there will always be true but unprovable sentences.¹²

Renewing the Quest for Reliable Knowledge

Recognizing this, many theologians have sought to avoid these epistemological traps by a radical review of existing approaches. The widespread recognition of the failure of foundationalism, in the strict sense of the word, has led to an explosion of interest in retrieving older ways of doing theology, developing new approaches, and occasionally redirecting existing ways of thinking. One of the most intriguing of these is to offer non-foundationalist readings of theologians who might otherwise have been regarded as firmly embedded in a modernist worldview. F. LeRon Shults' fascinating theological repositioning of Wolfhart Pannenberg¹³ and Karen Kilby's nuanced rereading of Karl Rahner¹⁴ should both be noted in this respect, not least because they point to the virtue of approaching familiar writers in innovative ways. Kilby's approach has the merit of allowing those who are not persuaded by Rahner's philosophy – especially his problematic notion of *Vorgriff auf esse* – to appropriate at least something of his theology. In a similar vein, Dirk-Martin Grube has argued that Pannenberg and Wilfried Härle are mistaken in their assertion that Karl Barth is a foundationalist.¹⁵ Barth may legitimately be used by those wishing to develop a theological coherentist holism,

¹¹ James Robert Brown, *Philosophy of Mathematics: An Introduction to the World of Proofs and Pictures*. London: Routledge, 1999, 71–8. Theologians might particularly appreciate George Boolos' superb account of the background to Gödel's theorem: George Boolos, "Gödel's Second Incompleteness Theorem Explained in Words of one Syllable." *Mind* 103 (1994), 1–3.

¹² Brown, *Philosophy of Mathematics*, 77.

¹³ F. LeRon Shults, *The Postfoundationalist Task of Theology: Wolfhart Pannenberg and the New Theological Rationality*. Grand Rapids, MI: Eerdmans, 1999.

¹⁴ Karen Kilby, *Karl Rahner: Theology and Philosophy*. London: Routledge, 2004.

¹⁵ Dirk-Martin Grube, *Unbegründbarkeit Gottes? Tillichs und Barths Erkenntnistheorien im Horizont der gegenwärtigen Philosophie*. Marburg: Elwert Verlag, 1998, 152–61. For my own views on Barth's relationship to modernity, see Alister E. McGrath, "Karl Barth als Aufklärer? Der Zusammenhang seiner Lehre vom Werke Christi mit der Erwählungslehre." *Kerygma und Dogma* 81 (1984): 383–94.

which eschews any foundationalist assumptions.¹⁶ These creative postmodern rereadings of such theologians have real potential in our current situation.

Others have suggested that the failure of foundationalism and the severe limitations of non-foundationalism point to the need to explore mediating strategies. A wide spectrum of possibilities has been explored as a middle way, avoiding the extremities of the epistemological spectrum. Postliberalism emphasized the importance of linguistic communities and their distinctive languages.¹⁷ Although superficially evading the problems of foundationalism, postliberalism ultimately finds itself justifying its approach through a prior, seemingly somewhat arbitrary, commitment to the language, norms, and beliefs of a specific confessional community. A similar difficulty emerges within the Radical Orthodoxy school, especially John Milbank, whose erudite eschewal of dialogue with the secular world entails an intellectual isolationism which does little to encourage the church's engagement with the world – traditionally held to be an integral part of the church's intellectual, cultural, pastoral, evangelistic, and apologetic agenda.¹⁸ As a result, both these schools risk finding themselves trapped in something of an intellectual ghetto of their own making. This is a protective strategy which sets out to encourage intellectual insulation, yet ends up achieving cultural isolation.

More promisingly, J. Wentzel van Huyssteen has argued for a “postfoundationalist” conception of rationality which avoids the pitfalls of its alternatives.¹⁹ His concept of “postfoundational rationality” is explicitly “traversal” rather than “universal.” This useful distinction allows him to insist that the theologian must not be completely determined by a particular tradition, or a specific isolated community. Traversality, as van Huyssteen defines it, has to do with extending beyond cultural or disciplinary boundaries. On this understanding of the concept, postfoundationalism:²⁰

¹⁶ Grube, *Unbegründbarkeit Gottes?*, 210–20. I should add here that Grube's assertion that it is both possible and necessary to develop a theory of truth without ontology seems highly implausible.

¹⁷ For its classic statement, see George Lindbeck, *The Nature of Doctrine*. Philadelphia: Westminster, 1984. I have criticized this position extensively, and do not propose to repeat these concerns here: see McGrath, *A Scientific Theology 2: Reality*, 39–54.

¹⁸ For my concerns about the approach of John Milbank, see McGrath, *A Scientific Theology 2: Reality*, 102–18.

¹⁹ See especially J. Wentzel van Huyssteen, *The Shaping of Rationality: Toward Interdisciplinarity in Theology and Science*. Grand Rapids, MI: Eerdmans, 1999. His earlier collection of essays also repays study: *Essays in Postfoundationalist Theology*. Grand Rapids, MI: Eerdmans, 1997.

²⁰ Van Huyssteen, *Essays in Postfoundationalist Theology*, 4.

fully acknowledges contextuality, the epistemically crucial role of interpreted experience, and the way that tradition shapes the epistemic and non-epistemic values that inform our reflection about God . . . At the same time, however, a postfoundationalist notion of rationality in theological reflection claims to point creatively beyond the confines of the local community, group, or culture towards a plausible form of interdisciplinary conversation.

A postfoundationalist rationality is thus local and embedded, without entailing its isolation from other attempts to make sense of the world.²¹

On Developing a Scientific Theology

The approach I set out in the scientific theology project, while respecting this discussion and appreciating its importance, suggests that it is ultimately predetermined by philosophical and cultural agendas which may actually have quite little to do with the question of how we encounter and represent the real world. In themselves and of themselves, the natural sciences are neither modern nor postmodern, even though they are patient of both modern and postmodern interpretations. A scientific theology affirms that a realist understanding of the world is possible – *and always has been possible* – without recourse to foundationalism. It offers an approach to engaging with reality which is both internally coherent and firmly grounded in the external world.

The natural sciences do not presuppose or in any sense depend upon foundational beliefs; rather, they propose a method which builds up a body of knowledge through a relentless, cumulative process of interrogation of the natural world, gradually establishing by empirical inquiry a sense of what is secure knowledge and what is not, and of what methods of investigation and representation are most appropriate to any given engagement with the external world. No *a priori* assumptions are made; whatever assumptions seem necessary are initially suggested by our experience of the world, and subsequently validated by the more refined and focused procedures that are devised with a view to verifying or falsifying those hypotheses.²²

²¹ There are also important discussions of the concept of postfoundationalism in Kevin J. Vanhoozer, *The Drama of Doctrine: A Canonical-Linguistic Approach to Christian Theology*. Louisville, KY: Westminster John Knox Press, 2005, 265–305; and Nancey C. Murphy, *Beyond Liberalism and Fundamentalism: How Modern and Postmodern Philosophy set the Theological Agenda*. Valley Forge, PA: Trinity Press International, 1996.

²² For some basic accounts, see Barry Gower, *Scientific Method: An Historical and Philosophical Inquiry*. London: Routledge, 1997.

It does not require a vastly extensive immersion in scientific culture to appreciate the *naïveté* of any suggestion that the natural sciences must be anti-realist or non-realist because they are not foundationalist (whether this is understood to mean a total indifference or a more informed hostility towards the Cartesian notion of foundational beliefs). It may seem self-evidently true to some writers that there is a necessary connection between realism and foundationalism; I have to say, however, that my three years' experience as an active research worker in one of Oxford University's leading scientific laboratories disabused me of any such notion. The working methods and assumptions of the natural sciences are fundamentally independent of such philosophical debates, and proceed without feeling the need to engage with them. This is doubtless an example of the intellectual isolationism that many of us find deplorable, but it has to be said that it does not seem to have adversely affected the explanatory and predictive successes of the natural sciences.

A central theme of a scientific theology is its realism – not simply in terms of its offering a “critical realist” account of reality without recourse to foundational beliefs, but in terms of being totally realistic about the extent to which reality can be known by a human observer. If we are to give a responsible account of reality, we must accept the conditions under which we can investigate it – including the limitations placed upon humanity as observers of reality, the specific nature of the reality under study, and the limitations that this specificity imposes on the manner in which it is to be observed and represented. The manner in which we can interrogate the world is not of our own choosing, but is determined by the object of our investigations. We cannot lay down in advance how the world is to be investigated; rather, we must determine how its various aspects and levels are best to be explored and represented by a sustained engagement with the world. Whatever aspect of reality we are investigating – whether it is the movement of the planets, the social behavior of chimpanzees, the process of human cognition, or the nature of the Christian God – we must acknowledge the epistemological finality of reality itself, and operate under the limiting conditions that this imposes.

This is one of the leading features of a scientific theology – a principled refusal to lay down in advance what knowledge is possible, the conditions under which it may be acquired, the extent of that knowledge, and the criteria by which its adequacy may be determined. *The order of things determines how things are known*. As Thomas F. Torrance (widely regarded as possibly the greatest British systematic theologian of the twentieth century) put it:²³

²³ Thomas F. Torrance, *Preaching Christ Today: The Gospel and Scientific Thinking*. Grand Rapids, MI: Eerdmans, 1994, 45. Torrance refers to this as a “kataphysical” approach to theology.

In any rigorous scientific inquiry you pursue your research in any field in such a way that you seek to let the nature of the field or the nature of the object, as it progressively becomes disclosed through interrogation, control how you know it, how you think about it, how you formulate your knowledge of it, and how you verify that knowledge.

The Enlightenment incorrectly held, in the first place, that a single methodology existed, which could be applied to all disciplines and aspects of reality; and in the second, that this could be uncovered *a priori*, by the activity of the enlightened human reason. The philosophical agenda thus shifted subtly from the Renaissance longing to understand to the Enlightenment longing to control, by a Procrustean imposition of predetermined intellectual categories on reality.

This demand for methodological uniformitarianism, determined in advance by the unfettered exercise of an allegedly universal human reason, was fiercely resisted by three groups of thinkers in the late eighteenth and early nineteenth centuries: those aware of the limits of reason; those demanding the emancipation of individual disciplines from an inappropriately restrictive methodological straitjacket; and those, chiefly in the natural sciences, who held that true knowledge was determined empirically, and thus arose *a posteriori*. The opponents of rationalist hegemony differed among themselves concerning both their motivations for opposing it, and their proposed alternatives.²⁴ Nevertheless, a common theme can be discerned: the demand to let things be themselves, rather than what the Enlightenment wished to make them. Instead of shoehorning the real world into a preconceived, predetermined mold, that world itself was to be allowed to determine the manner in which it was to be investigated and represented. Or, to put it more succinctly and formally: *ontology is to be allowed to determine epistemology*.²⁵

Only when reality is respected for what it is can we hope to understand and represent it; otherwise, we merely reduce it to what is already known, treating

²⁴ See the highly significant differences between three leading critics of the Enlightenment, noted by Isaiah Berlin, *Three Critics of the Enlightenment: Vico, Hamann, Herder*. Princeton, NJ: Princeton University Press, 2000.

²⁵ Many examples illustrating the importance of this point within the natural sciences could be noted. Perhaps the most obvious is the need for classification of diseases, species, and so forth, in which the need for conceptualities to correspond to the ordering of reality is regarded as fundamental; see, for example, Eleanor Rosch and Barbara B. Lloyd, *Cognition and Categorization*. New York: Laurence Erlbaum, 1978, 27–48. For its importance in recent discussion of biomedical ontology, see Alexa T. McCray, “An Upper-Level Ontology for the Biomedical Domain.” *Comparative and Functional Genomics* 4 (2003): 80–4.

the “other” as the “same” – a tendency that has seriously impeded advance in many areas of the natural sciences, including medicine.²⁶ The critics of the Enlightenment argued that the advance of knowledge was impeded by precisely this failure to respect the integrity of the real world. Instead of approaching it on its own terms, respectful of its distinctive nature and characteristics, modernism preferred to conduct that encounter on terms dictated in advance by the human reason that the Enlightenment believed to be universal across history and culture – but which was in fact subject to social conditioning and construction.²⁷ The natural sciences, along with others, insisted on the epistemological finality of an encounter with *reality* itself – not derivative, provisional, and often speculative *theories about reality*.

Considerations such as those outlined above led me to develop the distinctive approach to theological method which I have termed “the scientific theology project,” distinguished by its use of the working methods and assumptions of the natural sciences as a comparator and helpmate for theology, and especially the insistence that theological reflection is an *a posteriori* discipline, determined by the distinctive nature of the object of its investigation.²⁸ While claims to universality are to be viewed with caution, there are excellent reasons for suggesting that the natural sciences offer an approach which is most capable of operating across gender, cultural, and historical borders. For this reason alone, it cries out to be considered as a dialogue partner for constructive and critical theological reflection.

Throughout its long history, Christian theology has availed itself of many helpmates and dialogue partners, fully aware of the dangers and opportunities that this entails, but always convinced that the latter outweigh the former. Yes, dialogue partners can easily be allowed to dominate a conversation, diverting it from its chosen topic and preventing the rich, multifaceted engagement with

²⁶ As Rudi Schmidt has pointed out, ontological shortcomings have been of considerable importance in hindering understanding of viral hepatitis: Rudi Schmidt, “History of Viral Hepatitis: A Tale of Dogmas and Misinterpretations.” *Journal of Gastroenterology and Hepatology* 16 (2001): 718–22.

²⁷ This is the point made by Hamann against Kant. For Hamann, Kant appeared to believe that he has constructed a universal philosophical language, whereas in reality his language was shaped by history and culture. See further Gwen G. Dickson, *Johann Georg Hamann’s Relational Metacriticism*. New York: De Gruyter, 1995.

²⁸ For three important landmarks along the road, see Alister E. McGrath, *The Genesis of Doctrine: A Study in the Foundations of Doctrinal Criticism*. Oxford: Blackwell, 1990; *The Foundations of Dialogue in Science and Religion*. Oxford: Blackwell, 1998; *Thomas F. Torrance: An Intellectual Biography*. Edinburgh: T&T Clark, 1999.

complex issues that has characterized the Christian theological tradition at its best. Yet, this risk having been recognized, “rules of engagement” emerged, aiming at stimulating dialogue and encouraging creativity and innovation while still remaining firmly anchored within the great living tradition of theological reflection.

However, this appeal to the natural sciences is neither arbitrary nor opportunistic. It is clear to me that a positive working relationship between Christian theology and the natural sciences is demanded by the Christian understanding of the nature of reality itself – an understanding which is grounded in the doctrine of creation, which demands a unitary approach to knowledge, while being responsive to diversity, including stratification, within that creation. There is thus an ontological imperative for exploring the natural sciences as *ancilla theologiae*.²⁹

The decision to use the working methods and assumptions of the natural sciences as the natural dialogue partner for Christian theology thus seems to me to be entirely appropriate. One of the most distinctive themes of Christian theological method down the ages has been its quest for a theological elixir – a universal method, independent of the irritating and restricting specificities of history, geography, and culture, which is capable of being used by all thinking people in all places and at all times. In the first period of serious Christian theological reflection, the *philosophia perennis* of Plato, refracted through many rather different prisms, was held to be the key to a universal theology. As we noted earlier, leading representatives of the Enlightenment believed that it was possible to establish a universal and necessary rational foundation for all human thought, theology included, through the recognition of the sovereignty of reason. Yet both these approaches ultimately ran into the sands, the victims of the relentless and unforgiving tendency of history to expose as particular what was believed to be universal.

The quest for universality might be chastened; it has never, however, been completely abandoned. It has not escaped the notice of philosophers or theologians that the methods and assumptions of the natural sciences seem to many today to represent the closest approximation conceivable to a universal method, capable of transcending ethnic, gender, cultural, and religious barriers. Without in any way making Christian theology dependent on such methods and assumptions, a scientific theology aims to use the common themes of the scientific enterprise – such as how reality may be discerned, represented, and encountered – to illuminate the related (though not identical) challenges faced by theology.³⁰

²⁹ See especially the discussion in McGrath, *A Scientific Theology 1: Nature*, 20–5.

³⁰ In connection with this point, Mark Worthing’s careful account of Pannenberg and Rahner makes some useful observations: Mark W. Worthing, *Foundations and Functions of Theology as Universal Science: Theological Method and Apologetic Praxis in Wolfhart Pannenberg and Karl Rahner*. Frankfurt am Main: Peter Lang, 1996.

While *A Scientific Theology* can be read both as a treatise on the relation of Christian theology and the natural sciences and a substantial constructive essay on the recalibration of theological method, it is probably best seen as a defense of the entire theological enterprise itself. I set out the case for insisting that Christian theology be recognized as a distinct legitimate intellectual discipline in its own right, with its own sense of identity and purpose, linked with an appreciation of its own limitations and distinctive emphases within the human quest for wisdom as a whole. The scientific theology advocated in *Nature, Reality, and Theory* is fundamentally a theological *system* (rather than a loose assemblage of essentially independent ideas), which seamlessly integrates a number of themes to yield a coherent vision of the theological enterprise, and provides a justification of its existence and methods in the face of modern and postmodern criticisms and anxieties.

The method can be applied at both the microtheological and macrotheological levels – in other words, both *analytically* in exploring specific issues within theology (such as developing models of doctrinal development or the emergence of heterodoxy, both of which can be accommodated with ease within the theoretical framework the method affords), and *synthetically* in the development of a “big-picture” systematic theology.

To judge both from my personal correspondence and the review columns of leading theological journals, the scientific theology project has generated immense interest within both the theological and scientific communities, and led to the most extensive review coverage of any of my works thus far in the learned literature and beyond. Many wrote to me asking it if might be possible to present the core ideas of a scientific theology in a more accessible form, and perhaps explaining more about how I came to develop this approach in the first place. It was an entirely reasonable request. In 2004, I published *The Science of God: An Introduction to Scientific Theology*, which was very generously received.

Yet other reviewers and correspondents raised deeper issues. They rightly asked for clarification of some points, and a more extended engagement with some issues which they believed arose from the work. In particular, many asked for at least some indication of how my projected “scientific dogmatics” might relate to the methodology set out in *Nature, Reality, and Theory*. I would like to take the opportunity to thank my reviewers and correspondents – who I fear are too many to allow me to name them individually – for the obvious care with which they have read these long volumes, and the penetrating questions they posed.³¹

³¹ I would particularly single out the following reviews for their comprehensive and critical engagement with my approach, as set out in these three volumes: Brad Shipway, “The Theological Application of Bhaskar’s Stratified Reality: The Scientific Theology of

I believe firmly in honoring such criticisms, which have rightly probed my thinking at points of importance. This book is my holding response. I hope that it will not seem defensive; if anything, I have found myself to be stimulated and encouraged by my critics, and am delighted to be able to explore some of the themes of my work in greater detail. Rather than respond to criticisms on a point by point basis, this work consists of a series of essays, focusing on some of the more pressing questions raised by these many requests for further clarification, explanation, and expansion.

One point needs to be made immediately. The scientific theology project is driven and directed by a methodology. This has certain obvious advantages, most notably those of conceptual coherence and intellectual robustness. One major disadvantage must, however, be conceded. As some of my correspondents correctly pointed out, *methodologically directed theologies are necessarily limited by that methodology*. The method may establish a framework; it cannot flesh out its every aspect. The method proposed for a scientific theology creates a robust skeleton; it cannot, however, create nor situate all the muscles, sinews, and internal organs that go to make up the Christian vision of reality in its totality. Those must be added either by an extension of the original methodology, or by the application of ancillary approaches.

Readers with a good knowledge of historical theology will immediately appreciate the point at issue, which is particularly evident in the writings of most theologians who combine academic and pastoral ministries. For example, F. D. E. Schleiermacher's sermons show a much greater cultural and intellectual breadth and vitality, not to mention a judicious pastoral application, than his method-driven *Glaubenslehre*. Yet both sermons and systematic theology

A. E. McGrath." *Journal of Critical Realism* 3 (2004): 191–203; Benjamin Myers, "Alister McGrath's Scientific Theology." *Reformed Theological Review* 64 (2005): 15–34; Elmer Colyer, "Alister E. McGrath, a Scientific Theology, Volume 1: Nature." *Pro Ecclesia* 12 (2003): 226–31; Colyer, "Alister E. McGrath, a Scientific Theology, Volume 2: Reality." *Pro Ecclesia* 12 (2003): 492–7; Colyer, "Alister E. McGrath, a Scientific Theology, Volume 3: Theory." *Pro Ecclesia* 13 (2004): 244–40. For a landmark evaluation from a Catholic perspective, including criticism of my views on the limited capacities of human reason, see James F. Keating, "The Natural Sciences as an *Ancilla Theologiae Nova*: Alister E. McGrath's *A Scientific Theology*." *The Thomist* 69 (2005): 127–52. An important assessment of my approach up to 1999 can be found in Ross H. McKenzie, "Foundations of the Dialogue between the Physical Sciences and Theology." *Perspectives on Science and Christian Faith* 56 (2004): 242–54. This review is especially significant on account of McKenzie's status as one of the world's leading theoretical physicists.

are the work of the same theological mind³² – in one context, liberated from the limitations of his method, and in the other, given intellectual depth by the coherence of that same method. Any theologian with a vision for the importance of method will experience a similar tension.

I do not myself regard this as a major difficulty, given my specific agenda in developing this approach. The theological situation today primarily demands the construction of a skeleton, without which any resulting theology lacks structure or stability. Yet however important this may be, it cannot by itself lead to the construction of the full richness of the Christian theological heritage. In this collection of essays, readers will note my concern both to consolidate and transcend the specific theological method I set out in the three volumes of *A Scientific Theology*. However, they will notice that in some of my other theological writings I develop ideas in somewhat different manners, and often to a greater depth. This is not an inconsistency; it reflects a recognition of the limits of any theological method, and a conscious decision to work around them.

If I can put it simply, a rigorous dogmatic method both *stimulates* and *limits* theological reflection. It stimulates it, by providing a substantial, reliable framework on which a systematic theology may be constructed. Yet it also limits such reflection, by imposing restrictions which are determined by the specifics of the method itself, not by the Christian tradition in general. The task that I have set myself in writing a future *Scientific Dogmatics* is the application of the core method in such a way that its underpinning and illumination of central theological themes will be evident, even if the exposition of such themes ultimately transcends the method. The method establishes the framework; what is placed on that framework is partly determined by that method, and partly by ancillary methods that are required to supplement it. In this present volume, I concern myself only with exploring the shape of the dogmatic skeleton that shapes and supports this future scientific dogmatics.

Introducing the Essays

And so we turn to the essays gathered together in this volume. In what follows, I shall offer a brief introduction to each, so that readers are alerted in advance to points of importance or interest.

³² See the useful analysis of Richard R. Niebuhr, “Schleiermacher on Language and Feeling,” *Theology Today* 17 (1960): 150–67.

The first essay needs a little explanation, in that it is an article about me, rather than by me. Many have written to me asking if it might be possible to have a brief, basic summary of the intellectual elements and pathways constituting the “scientific theology” project. While appreciating the relative brevity of my introductory volume *The Science of God*, these correspondents have not unreasonably pointed out that even this compressed account of my ideas might seem to some to be unduly demanding. While it is true that it takes rather less time to read a single work of 75,000 words than three volumes amounting to 400,000 words, many pleaded for something rather more digestible and manageable – if possible, an order of magnitude shorter, 7,500 rather than 75,000 words.

The point is well taken. The first essay in this collection represents exactly such a brief introduction, written from an appreciative yet critical perspective by Dr. Benjamin Myers of the University of Queensland, Australia.³³ Myers does a superb job of contextualizing the “scientific theology” project, summarizing its key themes, and making some important criticisms – all in less than one-tenth of the wordage of my own introduction. In view of its reliability, concision, clarity, and critical acumen, readers wanting a brief introduction to my ideas can do no better than begin by reading Dr. Myers’ review. It sets the context admirably for my nine essays that follow it.

As these nine essays assume that readers are already familiar with the basic arguments of the “scientific theology” project, Dr. Myers’ review will help newcomers to orientate themselves to those basic themes. However, I must emphasize once more that the present collection of essays does not aim to repeat the arguments of the three original volumes of *A Scientific Theology*. They are set out and defended in those volumes, and those basic lines of reasoning are not replicated here. The essays collected in this volume are chiefly concerned with further development and exploration of those themes, although I have included three items which will help readers gain a sense of the historical development of the arguments of those earlier volumes.

The second essay engages the question of whether the very idea of a “scientific theology” is intellectual nonsense – a contradiction in terms. A large number of my correspondents, while enjoying the high degree of intellectual robustness of my approach, wondered how it would stand up against the criticisms directed against religion in general, and theology in particular, by Richard Dawkins, Oxford University’s Professor of the Public Understanding

³³ Benjamin Myers, “Alister McGrath’s Scientific Theology.” *Reformed Theological Review* 64 (2005): 15–34. Dr. Myers has made some minor editorial changes to the original article to adapt it for publication in this format.

of Science. Dawkins is one of the world's most prolific and intellectually engaging atheist writers, who is totally opposed to any relationship between the natural sciences and Christian theology. Having recently written a reasonably comprehensive critique of Dawkins' views on religion,³⁴ I had little hesitation in deciding to produce such a response.

This essay thus attempts to clear the ground for the more detailed exploration of the themes of my approach, by asking whether the kinds of criticism that Dawkins directs against Christian theology in general can be sustained. Dawkins is an important dialogue partner, even if his criticisms of Christian theology are often somewhat predictable, formulaic, and misdirected. However, his challenge to theology to demonstrate its intellectual credentials and relevance is not unfair, even if some might object to the somewhat strident tone in which that challenge is framed. At its heart, Dawkins' critique of theology can be seen as a legitimate, if unduly dogmatic, demand to know by what standards theological statements are to be adjudicated, tempered by a deep-seated suspicion on his part that they are without a secure foundation or a meaningful criterion of truth. This essay aims to offer at least a preliminary evaluation of this critique.

The next two essays deal with aspects of the critically important discipline of natural theology. Readers of *A Scientific Theology*, particularly the first and second volumes, will be aware of the importance that I attach to the reform and renewal of natural theology, while expressing concerns about existing approaches, especially those to emerge during the heyday of English rationalism. Each of these two essays was written for quite different purposes, and addresses different themes relating to natural theology. Their common theme is that God is able to address humanity in and through the natural order, raising the question of how we are to *discern* such revelatory actions, patterns, events, and structures in the first place.

The third essay in this collection is primarily of historical interest. It takes the form of a sermon preached before the University of Oxford on Sunday 4, November 2001 at the University Church of St. Mary the Virgin. This "university sermon" lays the groundwork for an assessment of the significance of natural theology, especially in relation to Christian apologetics and spirituality. The sermon opens by citing Joseph Addison's famous "Ode," appended to a major essay entitled "On the impressions of divine power and wisdom in the Universe." This hymn was sung earlier in the service during which

³⁴ Alister E. McGrath, *Dawkins' God: Genes, Memes and the Meaning of Life*. Oxford: Blackwell, 2004.

the sermon was preached, and forms an admirable introduction to its themes. This “Ode” takes the form of an extended meditation on Psalm 19.1–4, which I here cite in the language of the King James Version, familiar to Addison:

The heavens declare the glory of God; and the firmament sheweth his handy-work.
Day unto day uttereth speech, and night unto night sheweth knowledge.
There is no speech nor language, where their voice is not heard.
Their line is gone out through all the earth, and their words to the end of the world.

In this “Ode” Addison develops the idea of the celestial bodies bearing witness to the power and providence of the one who created them. It seemed an ideal prelude to the topic of my sermon on that occasion, and allowed me to begin to explore issues relating to transcendence and transignification in a reasonably accessible way.

The fourth essay sets out in detail my concerns about the impact of the Enlightenment on natural theology, which I develop with particular reference to classic English approaches to natural theology. As a participant in a number of events held in the late spring of 2005 to celebrate the bicentenary of the death of William Paley (1743–1805), I found myself reflecting on the severe difficulties faced by the specific understanding of natural theology with which he is associated. This essay includes elements of two major addresses on this topic I delivered around this time: a lecture on natural theology delivered at the Villa Serbelloni, Bellagio, Lake Como, on Saturday April 24, and the Paley Memorial Sermon, preached at Carlisle Cathedral on Sunday May 23, 2005. The essay represents a critique of Paley’s general approach, and sets out the case both for the intellectual renewal and conceptual repositioning of natural theology in the future.

The essay can be seen both as an affirmation of the intellectual excellence of the English tradition of natural theology, and as a plea for its renewal and redirection. The programmatic renewal of the category of natural theology extends far beyond the natural sciences, and offers the possibility of interdisciplinary connectivity on a significant scale. In particular, it emphasizes that natural theology is an imaginative, as much as a rational, undertaking. Natural theology is an obvious point of convergence for theology, the natural sciences, philosophy, aesthetics, literature, and art, holding out the possibility of reconnecting disciplines that have long since ceased to talk to each other. This essay, while developing some themes of the “scientific theology” project, also lays the ground for a major work I hope to write in the next year, setting out a new vision for natural theology, suggesting that the discipline can and should be renewed.

The fifth essay deals with the all-important concept of stratification, which is an essential component of the critical realism that underpins my theological method. In the second volume of *A Scientific Theology*, I develop the notion of stratification with reference to the works of Roy Bhaskar. In this essay, I note the earlier use of the concept during the 1920s and 1930s by writers such as Nicolai Hartmann, and consider how the growing interest in the phenomenon of “emergence” within the natural sciences relates to this notion. As will be clear from internal references, the essay was written primarily with a German-speaking readership in mind, addressing issues of particular importance within the German-language Protestant theological tradition. Nevertheless, these issues are important to a wider constituency, and I have therefore included it in this collection.

Perhaps the most significant aspect of a stratified approach to reality, whether in the sciences or humanities, is that it poses a fatal challenge to the reductionist tendencies of our age. The importance of the concept of stratification for theological method is explored in this essay through an extended engagement with the intellectual project of Heinrich Scholz. Scholz is not well known in the English-speaking theological world, although his influence on German-language theology and philosophy was considerable, particularly during the 1920s. Most significantly for our purposes, Scholz argued for a *mathesis universalis*, a universalization of intellectual methods along the lines suggested by Leibniz. This essay examines this approach, so characteristic of the Enlightenment, and asks what can be learned from its failure, and how the concept of stratification allows this weakness to be overcome.

The two essays which follow deal with the important theological issue of the development of doctrine, raising the question of whether the natural sciences offer theology any plausible evolutionary models which might illuminate this complex process, in whole or in part. In the third volume of *A Scientific Theology* I proposed that the evolution of scientific theories offered a helpful model for doctrinal development, and put forward a model based on Otto von Neurath’s image of a boat at sea as a non-foundational analogue to this complex process.³⁵ That process of model-building is still under way, and will, I hope, lead to a major future monograph on the development of doctrine. However, many of my correspondents asked for further reflection on how the natural sciences might help us understand the phenomenon of doctrinal development. I am therefore offering two interim responses to these inquiries.

The sixth essay represents a substantial and long overdue evaluation of whether biological evolutionary models possess any validity or heuristic utility

³⁵ McGrath, *A Scientific Theology 3: Theory*, 213–21.

for the development of Christian theology. It is an extremely important, contentious topic, which has long demanded detailed, extensive discussion. Many works of academic and popular theology have begun to use language and schemata which are derived from the neo-Darwinian paradigm, particularly in relation to the development of doctrine and the emergence of church structures. The essay raises significant doubts about the legitimacy of using such biological analogues, while at the same time noting some of the fascinating issues that they raise – above all, the question of whether there exist “islands of stability” within an ongoing evolutionary process.

This substantial, groundbreaking essay evaluates the biological analogies at the theologian’s disposal, and arrives at what I believe to be a realistic assessment of their merits and weaknesses. This analysis raises some highly important questions, two of which may be singled out as illustrative of the capacity of biological analogues to evoke serious theological reflection. Is the Chalcedonian Definition of the person of Christ to be seen as an “island of stability,” a region of theological convergence in which the guiding forces of the evolutionary process overwhelm the contingencies of history? And, equally important, is Chalcedon’s use of specific metaphysical categories to be seen as an evolutionary “spandrel” (to use Stephen Jay Gould’s classical evolutionary analogy)? If so, what are the implications for Christological reflection today? This essay opens up new paradigms for understanding and evaluating doctrinal development, which it is hoped will prove illuminating and helpful to the theological task. Like any groundbreaking essay, it will prove to be controversial. However, it is a controversy which I believe has the potential to cast light, rather than create heat, and I make no apologies for getting this overdue discussion under way.

The seventh essay examines the way in which the Swiss developmental psychologist Jean Piaget’s empirically derived idea of “assimilation” offers a helpful framework for understanding some aspects of the development of doctrine, noting particularly how it illuminates some significant patterns of change observed during the patristic period. The reason for exploring Piaget’s ideas at this point will be obvious: if we are able to achieve at least something of an understanding of how the developing human mind naturally shapes its conceptual frameworks, we will be in a better position to understand what F. D. E. Schleiermacher encourages us to think of as the “natural heresies of Christianity,” which arise partially through assimilation of the gospel to existing religious or cultural categories.

The history of doctrine is open to being read from this perspective, and the results are highly instructive – especially when Piaget’s related concepts of “accommodation” and “equilibration” are brought into play. While Piaget’s conceptual analytical framework may not necessarily enable us to identify which doctrinal developments are to be deemed legitimate and which improper, they certainly alert us to some of the mechanisms by which illegitimate develop-

ment takes place. It may also be pointed out that Piaget's analysis allows us to appreciate that such assimilation may often be *natural*, rather than degenerate or malevolent, perhaps allowing a degree of theological realism to be injected into the often heated debate over the origins and significance of heresy.

The next two essays take a very different form. In the conclusion to the final volume of *A Scientific Theology*, I mentioned my habit of producing "working papers in scientific theology" as part of the research leading up to the writing of these volumes.³⁶ I have received a large number of requests to publish at least some of these. Unfortunately, many are not suitable for publication in any form, as they take the form of my running comments on, or annotations of, core texts (particularly from Athanasius, Augustine, Aquinas, Kant, Barth, and Torrance). On rereading them recently, however, some stood out as being more accessible and interesting. Two working papers written in preparation for the "scientific theology" project are included in this collection. I would ask readers to bear in mind that these were written for my own personal purposes, and were not intended to be published. Annotation in these two working papers is sparse, as my main concern was to establish lines of argument for myself, rather than to document and justify them in detail for others.

The first of these working papers, dealing with the role of ordering in a scientific theology, was drafted back in December 1995. It sets out how the idea of "the order of things" can act as a theological *Leitmotif*, establishing an important dialogue with the natural sciences on the one hand, while laying a viable foundation for Christian dogmatics on the other. For example, I note how a theology of atonement could easily be developed using the themes of disruption and restoration of divine order.

This working paper played an important role in persuading me to develop the "scientific theology" project, partly on account of its theological utility. However, it also persuaded me of the possibility of using this approach to enter into dialogue with other disciplines, as well as exploring its apologetic potential. Although I do not address this in the original paper, recent work on the role of order in ancient Assyrian and Egyptian religion suggests that the theme may be of major importance to the wisdom traditions of the Ancient Near East,³⁷ thus

³⁶ McGrath, *A Scientific Theology 3: Theory*, 295 n.2.

³⁷ I have in mind works such as Jan Assmann, Bernd Janowski, and Michael Welker, eds., *Gerechtigkeit: Richten und Retten in der abendländischen Tradition und ihren altorientalischen Ursprüngen*. Munich: Fink, 1998; Stefan M. Maul, "Der assyrische König: Hüter der Weltordnung." In *Priests and Officials in the Ancient Near East*, edited by Kazuko Watanabe, 201–14. Heidelberg: Universitätsverlag C. Winter, 1999; Jan Assmann, *Ma'at: Gerechtigkeit und Unsterblichkeit im alten Ägypten*. Munich: C. H. Beck, 2001.