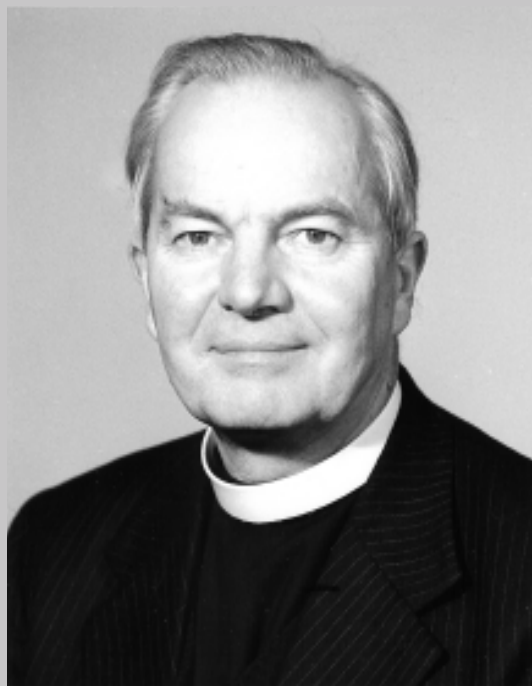


Participatio

Journal of the Thomas F. Torrance Theological Fellowship



Vol. 7 (2017)

Participatio is the journal of the Thomas F. Torrance Theological Fellowship (www.tftorrance.org), a research fellowship within the Christian Church and tradition based on the theology of Thomas F. Torrance. The journal's mission is two-fold: to apprehend the significance of Torrance's work and to advance his evangelical and scientific theology for the benefit of the Church, academy, and society.

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FEATURE ARTICLE

A MANIFESTO FOR INTELLECTUAL ENGAGEMENT:

Reflections on Thomas F. Torrance's *Theological Science* (1969)

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*This lecture was given to the T. F. Torrance Theological Fellowship at the 2016 meeting of the American Academy of Religion. It focuses on my own multiple readings of one of Torrance's best-known works, *Theological Science* (1969), exploring its strategy for encouraging and informing intellectual engagement between theology and other disciplines, most notably the natural sciences. The lecture locates *Theological Science* within the context of Torrance's overall theological project, and considers its distinct approach to theological rationality and its wider implications.*

Good afternoon, ladies and gentlemen. Let me begin by expressing my delight at being able to honour the memory of Tom Torrance in this way. There is no doubt in my mind that Torrance is one of the most interesting and engaging British theologians of the 20th century, and it is quite likely that he'll be one of the relatively few such theologians to find a readership in the next generation. Nobody really understands the mechanisms and factors governing the reception of the theological past. We can certainly try to make sense of why some writers continue to be read today where others have been discarded and forgotten. But we cannot predict whom the future will value and remember. Nevertheless, it seems to me that a core criterion is that a writer must continue to be useful; that is to say, a future generation must find a theological writer to engage meaningful questions in a manner and with a quality that seem to outshine more recent alternatives. That's one of the reasons why I am confident that Torrance will continue to be remembered in coming decades.

Now before I go any further, I need to clarify a few points. First, I am not a specialist in Torrance. I am a theologian with various special interests — such as the relation of Christian theology to the natural sciences — which make Torrance a natural and winsome dialogue partner. And second, although I gladly use Torrance in developing my own theological approach, mine is not the same as his. I found the quality of his engagement with some important questions to be immensely helpful to me as I developed my own position, despite the differences which exist between us. Let me make it clear that my theological *respect* for Torrance does not depend on theological *agreement* with him at every point, but on my recognition of the quality and depth of his theological vision which demands to be engaged and (where possible!) appropriated. I make certain theological moves that Torrance does not. Yet this is not because I have misunderstood him, but because I have chosen to take a different course at points.

So why is Torrance so significant? I suspect each of us here today would answer this question in slightly different ways, reflecting our own concerns and interests. It goes without saying, I think, that my own personal history and research agendas shape my particular response. I would like to give you four reasons for valuing him as a theologian, and I will be focusing on the fourth of these in my lecture this afternoon. The first reason is this: Torrance is an outstanding example of someone who consciously mediates the interpreted wisdom of the past. He is someone who is clearly nourished by the past, having appropriated and interpreted it in his own theological project.

Many of you will enjoy, as I do, reading the works of C. S. Lewis. Professional theologians sometimes get irritated when I suggest that Lewis was one of the most significant theological voices of the 20th century, but I am unrepentant and unapologetic in this matter. One of Lewis's most important reflections concerns how the present configures and incorporates the past, finding itself both nourished and critiqued by the wisdom of earlier generations as "the clean sea breeze of the centuries" blows through our minds.¹ As it happens, Lewis wrote those words when commending Athanasius' *de Incarnatione* as an example of the wisdom of the past which still retains its pertinence and luminosity today. Torrance mediates to us, in his own distinct way, a theological appropriation of the wisdom of Athanasius, John Calvin, and Karl Barth. Where some theologians invite us to break free from the past only to end up imprisoning us in the deficient and anaemic theological framework of modernity, Torrance invites us to be refreshed and reinvigorated by the classics of the past.

1 C. S. Lewis, "On the Reading of Old Books" (1944) in *Essay Collection* (London: HarperCollins, 2002), 440.

A MANIFESTO FOR INTELLECTUAL ENGAGEMENT

My second reason for valuing Torrance builds on this. I'm a theologian of the Church of England. I don't care for the word "Anglican" any more, as I no longer consider it particularly meaningful, either theologically or ecclesologically. Like Dorothy L. Sayers and C. S. Lewis, I prefer to articulate and affirm a consensual Christian orthodoxy rather than any of its specific denominational implementations, including my own. Now while I don't theologize very much *about* my own ecclesial tradition, I most certainly theologize from *within* it. I find that the rich theological tradition of the Church of England gives me a context and a framework which enable me to do theology in a creative yet accountable way. I can draw on writers such as John Donne, George Herbert, and Thomas Traherne — just to give a few rather splendid seventeenth-century examples easily supplemented by writers such as Lewis and Sayers in more recent times — who offer me resources, both imaginative and conceptual, for my own attempts to do theology.

Torrance is a leading representative of the Reformed theological tradition. It is not a tradition to which I myself belong; it is, however, a tradition which I treat with the greatest respect. Indeed, at times I feel slightly jealous of its formidable intellectual resources, evident in the realm of literature as in theology. (I am sure that I am not the only one here this afternoon who admires Marilynne Robinson's *Gilead*.) As I read Torrance, I see him both theologizing *out of* this tradition and theologizing *about* it. In other words, Torrance recognizes the Reformed tradition as offering both resources and stimuli for theological reflection, while the same time seeing himself as part of a community of faith that is, so to speak, responsible for safeguarding and advancing its distinct theological tradition (think, for example, of his *School of Faith*). Torrance, as you all know, is no passive recipient of the Reformed faith, but clearly sees himself as an active interpreter of this living theological tradition. In part, I believe that Torrance's theological strengths reflect his active and informed participation in this chronologically extended process of theological reflection within the Reformed tradition, particularly with a clear affirmation of its distinctively Scottish embodiments and representatives.

Now let me reassure you that I have no intention of jumping theological ships! I am very happy in my present ecclesial location, despite its obvious shortcomings and difficulties. But my own base within the Church of England helps me appreciate the distinct strengths of other such locations. I hope that those of you who are confessionally Reformed will allow me to pay you the compliment of acknowledging your obvious strengths to which, I believe, Torrance has contributed significantly.

The third point at which Torrance has made a significant contribution concerns the interpenetration of historical and systematic theology. One of the many

pleasures of being able to address this distinguished gathering is that since you already know so much about Torrance, I do not need to provide you with a survey of his academic and professional career. So I will merely highlight the importance of the fact that Torrance initially went to New College Edinburgh as Professor of Church History from 1950-2 and subsequently transitioned at an opportune moment to the chair of Christian Dogmatics, which he held from 1952 until his retirement in 1979. Torrance's systematic theology involves engagement, criticism, and retrieval of the theological legacy of the past, especially the approaches of Athanasius, Calvin, and Barth. We might think of that famous quote from Barth (which Torrance might modify slightly in terms of the personalities to be engaged, but not in terms of the general principle at stake):

As for theology, we cannot be in the church without taking responsibility as much for the theology of the past as for the theology of our own present day. Augustine, Thomas Aquinas, Luther, Schleiermacher and all the others are not dead but living. They still speak and demand a hearing as living voices, as surely as we know that they and we belong together in the church.²

Reading some of Torrance's later writings — especially his two major late works *The Trinitarian Faith* (1988) and *The Christian Doctrine of God* (1996) — brings home to us the importance of this creative interplay between historic resources and contemporary reflection.

Now there are points at which Torrance's reading of the theological past may need nuancing. For example, I have niggling concerns that *The Christian Doctrine of God* seems, at times, to superimpose concepts upon an older theological vocabulary that are actually grounded in contemporary scientific culture. I think, for instance, that this may well be the case with his discussion of the concept of *perichoresis*. And while I value Torrance's readings of Athanasius, Calvin, and Barth, I have some reservations about his reading of Augustine, particularly his concerns about what he styles as Augustine's "inherent dualism." Like Colin Gunton, Torrance offers what I believe to be a somewhat skewed reading of Augustine, happily corrected, however, by recent scholarship.³ But I can live with this. The history of systematic theology is not exactly short of misreadings of the great and the good. The important thing is to ensure a respectful dialogue between systematic and historical theology, informed by the best scholarship on the one hand, while on the other hand recognizing that historical scholarship

² Karl Barth, *Die protestantische Theologie im 19. Jahrhundert* (Zürich: Evangelischer Verlag, 1952), 3.

³ For comment, see Bradley G. Green, *Colin Gunton and the Failure of Augustine: The Theology of Colin Gunton in Light of Augustine* (Eugene, OR: Pickwick Publications, 2011).

can change its mind from time to time on matters of importance to systematic theology.

Yet there is a fourth area in which I believe Torrance has made a significant contribution, what we might call a *scientifically engaged theology*. By this, I mean a theology which is not defensive about its own distinct vision of its task and foundations, but realizes that it can only be enriched by an active, informed, and *critical* engagement with other intellectual traditions, especially the natural sciences. I wish this afternoon to focus on this fourth strength of Torrance's theology as I believe it to be one of his more significant achievements.⁴ Let me illustrate this from my own narrative.

I began my academic career by studying the natural sciences at Oxford University. After an undergraduate degree in chemistry with a specialization in quantum theory, I moved into the field of biological sciences for my doctorate, working in the Oxford laboratories of Professor Sir George Radda. While I was doing my doctoral research, I persuaded the university authorities to allow me to read for a first degree in theology at the same time. So in the summer of 1978, Oxford University awarded me both a doctorate in the field of molecular biophysics and a first-class honours in theology.

Studying theology at Oxford in the years 1976-8 was fascinating. Torrance was being discussed within the Faculty of Theology at Oxford around this time, focusing on his *Space, Time and Incarnation* (1969). However, I did not really pick up on this, having instead developed a particular interest in the systematic theologies of both Karl Barth and Emil Brunner. I had a real concern to develop intellectual links between Christian theology and the natural sciences, and at that stage I considered both Barth and Brunner as offering significant possibilities for interdisciplinary dialogue in this respect. I had taken a specialist paper in the field of science and religion while studying theology at Oxford, and I knew that there was much work that needed doing.

I first began to read Torrance seriously when I moved to Cambridge University in 1978 to undertake theological research and also to prepare for ministry in the Church of England. I had been elected to the Naden Studentship in Divinity at St. John's College, Cambridge, which gave me access to Cambridge's excellent theological research libraries. I had been impressed by the example of two theologians I had studied at Oxford in 1977, Wolfhart Pannenberg and Jürgen Moltmann. Both had begun their theological careers by focusing on moments in the history of the discipline, cutting their theological teeth on classic episodes

⁴ For further comment, see Myk Habets, *Theology in Transposition: A Constructive Appraisal of T. F. Torrance* (Minneapolis: Fortress Press, 2013), 27-66.

from the theological past. I eventually decided I would use my time at Cambridge to research the development of the theology of Martin Luther. Professor Gordon Rupp (1910-86), a Luther expert who had recently retired as Dixie Professor of Ecclesiastical History at Cambridge, agreed to be my supervisor. In the event, I broadened out my research to consider the development of the doctrine of justification (a major theme, of course, in Luther's works) within the Christian tradition as a whole, as well as the general question of the intellectual origins of the European Reformation, especially in Germany and Switzerland.

My immersion in Christian theology lasted much longer than I had anticipated, partly because it proved so interesting, and partly because I soon realized that there was so much I needed to learn. In fact, it was not until 1995 that I felt I understood enough about the history and methods of Christian theology to begin writing seriously about the relationship of the natural sciences and theology. However, I immediately began reading works about the relation of science and faith to get a sense of the questions being asked and the approaches being adopted. And so I came across Torrance's work *Theological Science*⁵ which I bought in Heffer's bookshop in Cambridge on 2 June 1979 and then devoured over the next few weeks.

By the time I had finished this book, I knew that exploring the relation of science and theology was going to be hugely stimulating, just as I also knew that Torrance was someone I would be engaging in detail with both pleasure and profit. It was as if someone had turned a light on so that I could see things in a new way. Torrance brought a new intellectual clarity and rigor to my reflections, allowing me to see connections and correlations which I otherwise might have missed. *Theological Science* offered me a manifesto for intellectual engagement in two ways: first, it encouraged interdisciplinary dialogue between theology and the natural sciences, and second, it set out an intellectual framework for its pursuit by creating intellectual space for that interaction while preserving the distinct identity of both fields of research.

Having by then read many more of his books, I finally met Torrance in 1986. This was a completely fortuitous encounter. I had been invited to a conference of younger theologians to explore how we might think about the relation of science and theology. We were told that some invited guests would be present, but no mention was made of any specific names. The conference was held in a wonderful location — St. George's House, an intellectual retreat center right in the heart of Windsor Castle. Although the event was due to start at 4:00 p.m., for some reason I wrote this down in my diary as "14:00." As a result, I

5 Thomas F. Torrance, *Theological Science* (London: Oxford University Press, 1969).

arrived two hours early. The conference organizers were mildly amused at my embarrassment and suggested that I make myself comfortable while I waited for things to get under way. They showed me into a rather splendid Victorian sitting-room, telling me that someone else had also arrived early and that we might as well get to know each other.

And so I met Torrance, who had made the long journey from Edinburgh to Windsor earlier that day. We spent the next two hours in discussion, focusing especially on his *Theological Science*. The rest of the conference was quite interesting, but there was no doubt in my mind as to its intellectual highlight. I went back to Oxford with my mind racing, having realized that the relation of science and theology was not merely important; it was conceptually exciting.

Torrance's *Theological Science* was a book that I would return to at several points in my career. From my notes, I can see that I gave it a close reading on three occasions. As I have already indicated, the first such reading took place in June 1979. What Torrance provided me with at that critical stage in my development was a theological map which allowed me to respect the fundamental difference between theological science and the natural sciences, while at the same time seeing them as aspects of a greater human quest to understand reality. What particularly impressed me about Torrance was that he obviously had understood some of the core themes of a scientific research culture, especially within the physical sciences. My two subsequent re-readings of that work have persuaded me that the views about the methods of the natural sciences which Torrance expressed in 1969 have stood the test of time remarkably well.

Although not a professional scientist, Torrance clearly managed to absorb the fundamental principles of the scientific method while focusing especially on some themes in modern physics. He does not engage with the biological sciences and omits serious engagement with some areas of physics which I personally think are theologically enriching, particularly quantum field theory. But these are mere niggles. Torrance has clearly got the basics of the scientific method right and has grasped its theological significance. Not all theologians have managed to do this. If I might give an obvious example, I find myself constantly frustrated by the late Wolfhart Pannenberg's idiosyncratic misreading of scientific concepts and his seeming failure to come to terms with the fundamental scientific principle that research methods have to be adapted to the objects of investigation.⁶ This is an insight of major theological importance, and Torrance has firmly grasped it.

6 This is especially evident in Wolfhart Pannenberg, *Wissenschaftstheorie und Theologie* (Frankfurt am Main: Suhrkamp Verlag, 1977). For the many problems with Pannenberg's approach, see Daniel R. Alvarez, "A Critique of Wolfhart Pannenberg's Scientific Theology," *Zygon* 11, no. 3 (2013): 224-50.

I read *Theological Science* in detail for the second time in preparing for my intellectual biography of Torrance early in 1998.⁷ Whereas my first close reading of this book two decades earlier had been driven by my own yearning to develop a coherent understanding of the relation of science and faith, my second was driven by what I hope was an equally respectful yearning to understand the development of Torrance's own theological vision, and above all the emergence of his distinct understanding of the relation of theology and the natural sciences. How did Torrance develop these ideas? What was their origin? And most importantly, what chronological account could I offer of their emergence?

It proved, I think, relatively easy to give an account of the fundamental intellectual themes of Torrance's mature understanding of the relation between science and theology. What proved more elusive was filling in the fine details of the process of chronological development that led to this viewpoint. Torrance published relatively little on the relation between the natural sciences and Christian theology before *Theological Science*. Yet there are good reasons for thinking that some of his core insights formed early in his career, partly through his reading of Daniel Lamont's *Christ and the World of Thought* (1934), which set out a vision of a coherent theological engagement with intellectual culture, including the natural sciences.⁸ Through Lamont, Torrance discovered the writings of the theologian Karl Heim (1874-1958), who held that Christian theology was under an obligation to interact with both the natural order and the natural sciences. For a theologian to ignore the issues thrown up by the natural sciences is, according to Heim, "a rebellion against God, who has placed us in a reality which inevitably confronts us with questions of this kind, and who has given us an intelligence which cannot rest until we have sought for some sort of answer to these questions."⁹

The influence of Lamont is evident in a course of lectures on "Science and Theology" which Torrance delivered while he served as Professor of Systematic Theology at Auburn Theological Seminary, New York, during the academic year 1938-39.¹⁰ In these lectures, Torrance argued that science and theology should

7 Alister E. McGrath, *T. F. Torrance: An Intellectual Biography* (Edinburgh: T&T Clark, 2000).

8 To judge by his citations in his early lectures, Torrance was particularly influenced by two of his former Edinburgh lecturers: Hugh Ross Mackintosh (1870-1936) and Lamont (1869-1950).

9 Karl Heim, *Christian Faith and Natural Science* (London: SCM Press, 1953), 30.

10 I cite extensively from the 61-page typescript of these lectures entitled "Science and Theology," in McGrath, *T. F. Torrance*, 199-205. The TS may now be found in the Thomas F. Torrance Manuscript Collection in the Special Collections, Princeton Theological Seminary Library.

not to be understood as two disconnected and non-interacting disciplines, as if there could be two hermetically-sealed compartments within the mind that exclude interaction as a matter of principle. Torrance highlighted the importance of “a belief in the ultimate consistency of things as they are in themselves” for both science and theology. But how was this belief in the ultimate coherence of reality to be affirmed? The scientist may well believe “that there is a principle of order in the universe” which the natural sciences can uncover and explore. But can they account for it? Theology, on the other hand, is able to offer an account of that ordering seen from its own distinct perspective, which it grounds in the nature of the Christian God.

Torrance’s approach to the relation of science and theology clearly mirrors that of Lamont, although Torrance develops some of his ideas in new directions. For Torrance, the natural sciences aim at accurate description and generalization but cannot strictly be said to offer explanations which go beyond a simple re-description of the natural world. “Science cannot tell us anything about the ultimate origin or ends of things. If these questions are to be answered, they must be answered within the sphere of religion.”¹¹ Torrance thus affirms the complementarity of science and theology, provided that both are correctly understood.

Science only informs us what light is thrown upon reality by the empirical observation of the facts of external nature. When science claims that this is all that can be said, it is no longer science but the species of philosophical theory called naturalism.¹²

Yet we find little from Torrance’s pen on this topic in the two decades following those lectures. *Theological Science* was published in 1969 and represents a significantly developed and modified version of his 1959 Hewett lectures delivered at Union Theological Seminary, New York, and two other centres. There was already a connection between Torrance and Union Seminary. As noted earlier, Torrance served as Professor of Systematic Theology at Auburn Theological Seminary for the 1938-39 academic year. This seminary was subsequently incorporated into Union Theological Seminary shortly after Torrance’s departure in the summer of 1939. Yet I could find virtually nothing to help me understand the process of the text’s development during that 10 year period. There were tantalizing hints of that process of development at many points in his published writings, but I had no means of correlating these hints into a coherent narrative.

11 Torrance, “Science and Theology,” 11. Note also Torrance’s statement that “science simply describes the behaviour of things as phenomena,” *ibid.*, 42.

12 Torrance, “Science and Theology,” 14.

Let me give an example of such hints. In July 1964, Torrance published an editorial in the journal *Theology Today* dealing with some aspects of contemporary ecumenical debates. It is impossible to read the early parts of that editorial without seeing parallels with *Theological Science*. Some sections of this article, located midway between the original lectures of 1959 and the publication of *Theological Science* in 1969, offer a tantalizingly brief glimpse of an earlier formulation of some of the major work's core themes. The following passage is especially significant:

Science refers to the kind of knowledge which is forced upon us when we are true to the facts we are up against. Here we do not think in the way we want to think, but in the way we have to think if we are to do justice to the "object" we are investigating . . . The rational person, free though he is, thinks as he is compelled to think by the external world. Science is a rigorous extension of that rationality in which we distinguish what is "out there" from our own subjective "images." In science we ask questions and answer them under the compulsion of what is "over against us," and so let our thoughts take shape in accordance with the nature of what we experience and under its pressure upon us.

Scientific thinking is not free thinking, but thinking bound to its chosen object, thinking which develops special modes of inquiry and proof appropriate to the nature of that object. Because a special science is bound to its own field in that way, it will not allow another department of knowledge working in quite a different field to dictate to it on its own ground, either in prescribing its methods or in predetermining its results. Rather does each science allow its own subject-matter to determine how knowledge of it is to be developed and tested, for method and subject-matter are not to be separated.¹³

We find precisely these thoughts set out and developed at much greater length and in substantially more detail in *Theological Science*. Those of you who were taught Christian dogmatics at Edinburgh by Torrance may well recognise these words from the first of his lectures on Christology in which he unfolded the basis of his understanding of theological method and the tasks of Christology.¹⁴

And finally, I read *Theological Science* again, closely and completely, in the spring of 2016 in preparation for this lecture this afternoon. Once more, my agenda had changed. My concern this time round was not to develop my own ideas, nor to understand the historical development of Torrance's ideas, but rather to reflect on the important question of Torrance's potential theological

13 Thomas F. Torrance, "Science, Theology and Unity," *Theology Today* 21 (1964): 149-50.

14 Thomas F. Torrance, *Incarnation: The Person and Life of Christ*, ed. Robert T. Walker (Downers Grove, IL: InterVarsity Press, 2015), 4-5.

legacy. What is there in Torrance's theological work — above all, of course, *Theological Science* — that a future generation might find useful and helpful? I have already highlighted some broad general areas in which Torrance might have some potential appeal to the future. I would now like to focus down and become somewhat more specific.

So let me begin my reflections on Torrance's significance by asking this question: why did Torrance choose to engage the natural sciences in his lectures of 1959? The guidelines for the Hewett Lectures did not oblige Torrance to speak on this topic; it was clearly his own choice. Torrance tells us that the background to these lectures lay in his friendship with the prominent British physicist Sir Bernard Lovell (1913–2012), who served as the first Director of Jodrell Bank Observatory. Lovell was a cousin of Margaret Edith Spear, whom Torrance married in October 1946. Torrance's ensuing conversations with Lovell raised some important questions. How did theology compare to the natural sciences? Could theology be described as *scientific* in any meaningful sense?

These seemed to be important questions to Torrance. And he believed that they had not been engaged particularly well by the theologian whom he had come to regard as something of a lodestar — Karl Barth. Torrance clearly felt that Barth's discussion of the important theme of theology as a science "fell somewhat short" of what he had expected and of what he believed to be necessary for the task of theological reflection.¹⁵ For Torrance, theology needed to advance "through and beyond Barth" to develop such themes properly, exploring the "profound harmonies and symmetries of the divine grace" which expressed the "inner logic of God's creative and redemptive operations in the universe."¹⁶

So was Torrance right to be critical of Barth here? I have to confess that I myself arrived at a similar judgment in the 1980s as I tried to develop a theological framework to help me engage the relation of theology and the natural sciences. As I will make clear in a moment, Barth has some very important things to say in this area. Yet I must admit that I found Emil Brunner a more engaging theological conversation partner at this point, especially in his landmark work on anthropology, *Man in Revolt*, in which he attempts to delineate a Christian account of the foundations and limits of the natural sciences and offers what I

15 Note the opening comments in Thomas F. Torrance, "My Interaction with Karl Barth," in *How Karl Barth Changed My Mind*, ed. Donald K. McKim (Grand Rapids, MI: Eerdmans, 1986), 52-64.

16 Thomas F. Torrance, "Newton, Einstein and Scientific Theology," *Religious Studies* 8, no. 3 (1972): 233-50; quote at 248. Cf. Thomas F. Torrance, *Transformation & Convergence in the Frame of Knowledge: Explorations in the Interrelations of Scientific and Theological Enterprise* (Grand Rapids, MI: Eerdmans, 1984), 282.

personally found to be quite helpful reflections on both Marxist and Freudian accounts of human nature.¹⁷ I keynoted a conference at Zurich back in September 2016 to mark the 50th anniversary of Brunner's death, and it became clear from the other presentations given on that occasion that he left behind a usable theological legacy.

In fairness, however, I must immediately emphasize how helpful Barth is to a principled dialogue between theology and the natural sciences, mainly on account of his insistence that it is not possible to develop a universal method capable of being applied across all disciplines. Rather, Barth argued that it was necessary to identify the unique object of Christian theology and respond in a manner which was consonant with its distinctive characteristics. Although the basic features of this idea can be seen in Barth's earlier writings, the idea is set forth with particular clarity in his 1927 *Göttingen Dogmatics*. In this important work, Barth criticized the views of Hans Hinrich Wendt (1853-1928), who had argued that a "scientific" knowledge was not determined by nor dependent upon the specific nature of its subject matter and that the same research method was more or less applicable to all intellectual disciplines.¹⁸

Wendt's view had earlier been criticized by Martin Kähler (1835-1912), who insisted that the specific object of a discipline must determine its methods.¹⁹ Barth rightly sided with Kähler, declaring that it was essential to respect the unique subject matter of Christian theology and respond accordingly.²⁰ Barth's vigorous defense of the distinctiveness of Christian theology prompted a response from the philosopher Heinrich Scholz, who argued for a universal method capable of being applied to all disciplines.²¹ There is much more that needs to be said about the background to this discussion, but perhaps you will allow me to refer to my esteemed Oxford colleague Johannes Zachhuber, who sets the background to this debate superbly.

Torrance, in building on Barth's approach, sets out two basic principles. First, theology is to be understood as a human discipline which aims to use human reason to produce, to the extent that this is possible, an ordered account of what can be

17 Alister E. McGrath, *Emil Brunner: A Reappraisal* (Oxford: Wiley Blackwell, 2014), 133-153.

18 Hans Hinrich Wendt, *System der christlichen Lehre*, vol. 1 (Göttingen: Vandenhoeck & Ruprecht, 1907), 2-3.

19 Martin Kähler, *Die Wissenschaft der christlichen Lehre* (Leipzig: Deichert, 1893), 5.

20 Karl Barth, *Die christliche Theologie im Entwurf* (Munich: Kaiser Verlag, 1927), 115.

21 For the background, see the outstanding study of Johannes Zachhuber, *Theology as Science in Nineteenth-Century Germany: From F. C. Baur to Ernst Troeltsch* (Oxford: Oxford University Press, 2013).

known of its object. It shares this desire with other sciences, including the natural sciences. Second, theology *alone* recognizes the self-revelation of God in Christ as its object, and hence as the sole foundation and criterion of its basic statements. Colin Gunton nicely summarizes Torrance's concerns here in these words:

God's objective truth confronts us all with a demand which our subjective rationality may seek to encompass, according to both God's and its limits, but which must never stray over those strict limits.²²

Torrance's scientifically informed and engaged approach contrasts sharply with that of Wolfhart Pannenberg, whose theological project seems to me to mark a reversion to the problematic modernist notion that a single research method can be applied to all disciplines.²³ Pannenberg's approach, particularly as set out in his *Theology and the Philosophy of Science*, is similar to that of Scholz in that it shows a questionable grasp of the methods of the natural sciences and is both complicated and muddled by his idiosyncratic notion of a "field." Torrance, in marked contrast, has a good grasp of the methods of the natural sciences and a surer sense of their theological relevance. He has a secure grasp of the fundamental point that both Christian theology and the natural sciences "recognize the impossibility of separating out the way in which knowledge arises from the actual knowledge that it attains."²⁴

Torrance argued that both these principles could be upheld, while respecting the genuine differences between theology and the natural sciences, if it was agreed that all intellectual disciplines or sciences are under an intrinsic obligation to give an account of reality "according to its distinct nature (Greek: *kata physin*)."²⁵ For Torrance, this means that both scientists and theologians are called to "think only in accordance with the nature of the given."²⁶ The object which is to be investigated must be allowed a voice in this process of inquiry. The distinctive characteristic of a "science" is to give an accurate and objective account of things in a manner that is appropriate to the reality being investigated. Both theology and the natural sciences are thus to be seen as *a posteriori* activities which respond to "the given" rather than as *a priori* speculation based on philosophical

22 Colin E. Gunton, "Eastern and Western Trinities: Being and Person. T. F. Torrance's Doctrine of God," in *The Promise of Trinitarian Theology: Theologians in Dialogue with T. F. Torrance*, ed. Elmer L. Colyer (Lanham, MD: Rowman & Littlefield, 2001), 115.

23 Alvarez, "A Critique of Wolfhart Pannenberg's Scientific Theology."

24 Torrance, *Theological Science*, 10.

25 Ibid.

26 Thomas F. Torrance, *Theology in Reconstruction* (Grand Rapids, MI: Eerdmans, 1996), 9.

first principles. In the case of the natural sciences, this “given” is the world of nature; in the case of theology, it is God’s self-revelation in Christ.

Physics, biology, and psychology — to mention just a few examples — each have their own vocabularies and research methods and engage with nature at their own distinctive levels. This point has long been understood and is not controversial. For example, consider the comments of J. Robert Oppenheimer (1904-67), widely regarded as one of America’s finest nuclear physicists:

Every science has its own language . . . Everything the chemist observes and describes can be talked about in terms of atomic mechanics, and most of it at least can be understood. Yet no one suggests that, in dealing with the complex chemical forms which are of biological interest, the language of atomic physics would be helpful. Rather it would tend to obscure the great regularities of biochemistry, as the dynamic description of gas would obscure its thermodynamic behaviour.²⁷

Oppenheimer rightly notes that each natural science develops a vocabulary and a working method which is appropriated or adapted to its object. There is no “universal” scientific method. Each science develops procedures which are adapted to the nature of its own particular object.

There are, of course, questions that need to be raised here, for example concerning the place of social constructs in theology and the emergent properties of Christian doctrines — such as their demarcated social roles which emerge within specific communal or cultural contexts. Yet Torrance’s approach, suitably extended, is perfectly capable of dealing with these questions. It is thus important to note that we find this same recognition on multiple methodologies within the scientific enterprise in the writings of Roy Bhaskar (1944-2014), perhaps one of the most significant recent writers on the philosophy of the social sciences. Bhaskar offers theology a rich, informing framework for its own explorations as well as for the calibration of its intellectual possibilities in relation to other disciplines.

Naturalism holds that it is possible to give an account of science under which the proper and more or less specific methods of both the natural and social sciences can fall. But it does not deny that there are significant differences in these methods, grounded in real differences in their subject-matters and in the relationships in which these sciences stand to them . . . It is the nature of the object that determines the form of its possible science.²⁸

27 J. Robert Oppenheimer, *Science and the Common Understanding* (London: Oxford University Press, 1954), 87.

28 Roy Bhaskar, *The Possibility of Naturalism: A Philosophical Critique of the Contemporary Human Sciences*, 3rd ed. (London: Routledge, 1998), 3.

Torrance thus affirms the scientific character of theology, while insisting that there is no generalized or universal methodology which can be applied uncritically to all sciences. Like Bhaskar, Torrance affirms that "the nature of the object . . . determines the form of its possible science." In other words, ontology determines epistemology. In that each science deals with a different object, it is under an obligation to respond to that object according to its distinctive nature. The methods which are appropriate to the study of one object cannot be abstracted and applied to everything else. Each science develops procedures which are appropriate to the nature of its own particular object in which it "has solved its own inductive problem of how to arrive at a general conclusion from a limited set of particular observations."²⁹ Theology thus has a legitimate position within the spectrum of scientific possibilities.

Now Torrance could perhaps have made more of this point if he had engaged more thoroughly with the field of quantum mechanics. He could, for example, have drawn on Werner Heisenberg (1901–76), who emphasized that exploring a new field or area of reality inevitably involved the development of a new language and way of thinking which were fundamentally adapted to what was being experienced and encountered: "Our thought processes will always develop a language suitable to the envisaged domain of reality that accurately reflects the way things are in this domain."³⁰ I cannot help but feel that there is a missed opportunity here. Yet Torrance's point stands on its own merits.

Torrance's vision of theology thus rests on a fundamental conviction that there exists a real world outside the human mind which is grasped — not constructed by — human reason. Reason, in turn, engages with each aspect of that real world according to its distinct identity and property, rather than laying down in advance how theology (or any other science) can do its work. Torrance put this point particularly clearly in his Keese Lecture delivered at the University of Tennessee at Chattanooga in April 1971:

Scientific theology, no less than natural science, is concerned with the discovery of appropriate modes of rationality or cognitive instruments with which to enter into the heart of religious experience, and therefore with the development of axiomatic concepts with which to allow its interior principles to be disclosed, and in that light to understand, as far as we may, the rational structure of the whole field of God's interaction with man and the world he has made.³¹

29 Torrance, *Theological Science*, 106.

30 Werner Heisenberg, *Ordnung der Wirklichkeit* (Munich: Piper, 1986), 44.

31 Torrance, "Newton, Einstein and Scientific Theology," 244.

Torrance thus locates Christian theology within the broad spectrum of human attempts to engage the real world while identifying and respecting its distinct nature. Christian theology can be understood as a “theory,” a “speculative penetration into the structure of things,” or a “refined ‘lens’ through which we see into the underlying order of nature or rather allow it to disclose itself to us.”³²

Let me conclude by standing back from the fine detail of Torrance’s approach in *Theological Science* and reflect on its broader significance as a “Manifesto for Intellectual Engagement.” Earlier in this lecture, I suggested that one of the factors involved in persuading a future generation to retrieve the ideas and approaches of a theologian from the past is a sense that this theologian offers them resources and approaches which exceed those of the present in helping them to engage significant questions with intellectual integrity. I want to suggest that Torrance speaks plausibly and powerfully to theologians such as myself who reject intellectual isolationism on the one hand, and intellectual accommodationism on the other. Theology needs to be able to speak into our culture without being absorbed by it. Yet being *distinct* does not entail being *disconnected*.

If theology is to maintain a significant position as a voice in contemporary cultural and academic debates, it needs to have its own sense of identity and resilience, linked with both the capacity and the motivation for engaging others. I am convinced that Torrance offers us a framework which allows us to see theology as a legitimate discipline with its own distinct integrity and methods that arise from the specific objects of its engagement. It does not need to be defensive in that it can take its proper and legitimate place within the broad spectrum of human scientific disciplines, each of which develops research methods and vocabularies adapted to the object of its investigation and, in the case of Christian theology, its adoration.

There are, of course, other theologians who also offer us some such framework. Yet Torrance’s characteristic approach has a particular theological seriousness and depth which make me believe that it will meet the concerns of those who rightly have misgivings about more pragmatic approaches to dialogue and engagement which seem inattentive towards preserving the distinct identity of the Christian community of faith. Torrance frames such dialogue within a rigorous theological perspective which both encourages and informs our endeavours. *Theological Science* is indeed a “Manifesto for Intellectual Engagement” — not simply for the natural sciences but for any other human attempt to come to terms with human nature and this strange universe within which we find ourselves.

32 Torrance, “Newton, Einstein and Scientific Theology,” 242.

RESPONSE ARTICLE
to Alister McGrath's
"A Manifesto for Intellectual Engagement"

THEOLOGY, SCIENCE, AND THE POWER OF THE RING

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Abstract: *This paper for the 18 November 2016 meeting of the T. F. Torrance Fellowship in San Antonio, Texas responds to Alister McGrath's reflections on Thomas Torrance's 1968 book, Theological Science. It begins by offering an analogy from the character of Tom Bombadil in J.R.R. Tolkien's The Lord of Rings—that theologians rightly respect and learn from the sciences, but should not become enamored by their power. It then builds on Torrance's reminder that there is no singular Science, but that the objectivity of a science is best constructed on a sustained attention to the particular object of study, a method that is then applied to the task of a theological science. Next, utilizing a rubric for studying Karl Barth learned from the late Timothy Lull, the paper argues that Torrance—like his mentor Barth—is convinced that theology must continually focus on Jesus Christ as its critical source of knowledge. The final sections present an assessment of Torrance's approach to natural theology and the rationality of theological science, and conclude with appreciation for Torrance as a Christian theologian.*

I am thankful to the T. F. Torrance Fellowship for the invitation to respond to Alister McGrath's reflections on Thomas Torrance's *Theological Science*.¹ Torrance, as you have already heard, is "one of the most interesting and engaging British

1 *Theological Science* (Oxford: Oxford University, 1969).

theologians of the 20th century.”² In addition, since I count myself within the fold of the Reformed tradition—I am a Presbyterian Minister of Word and Sacrament after all—I am also drawn to Torrance, who skillfully and creatively articulates my theological tradition.

In that light, it is worth adding that, since Dr. McGrath is also a leading voice in theology and in its relationship with the sciences (albeit in twenty-first century), there is a kind of parallel here between him and Thomas Torrance, isn’t there? I have learned from both how to pursue more effectively a central component of my identity and vocation, that is, how to create a “scientifically engaged theology.”³ I also continue to encounter Dr. McGrath’s work daily through my teaching the class entitled simply Science and Religion at California State University, Chico. His *Introduction to Religion and Science*⁴ was already assigned for this course when I joined the faculty of the public—and thus secular—university where I teach science and religion. Using by analogy the key conviction in Torrance’s work that ontology defines our epistemology because there is a “givenness”⁵ to the object of study, I can affirm that there is a “givenness” to the work of Alister McGrath in my life.

And thus I find many reasons to offer gratitude for this opportunity to respond to Dr. McGrath and to discuss the thought of Thomas Torrance.

My Method

So as to set out a nucleus for my remarks, I offer this lapidary summary of Torrance’s core thesis:⁶

Theology is a rational human enterprise or science. It bases itself on the Word of God as its Object, and its particular rationality and objectivity offer substantive connections with, as well as certain dissimilarities from, the natural sciences.

2 McGrath, “A Manifesto for Intellectual Engagement: Reflections on Thomas F. Torrance’s *Theological Science*,” (1969), 1.

3 McGrath, “A Manifesto,” 5.

4 McGrath, *Science and Religion: A New Introduction*, 2nd ed. (Oxford: Wiley-Blackwell, 2010).

5 This word first appears in the Preface (viii) and recurs repeatedly throughout *Theological Science*.

6 Here is a parallel statement from Torrance: “What we have been concerned to do, is to show that Christian theology has its place of enquiry within the field of rational knowledge, and to claim that in accordance with its attempt to behave in terms of the nature of its own proper object, it must be allowed to adopt and modify language, to shape and form its own concepts, and to delimit or expand its use of terms, like any other branch of knowledge or science” (*Theological Science*, 25).

My method in this paper will be to stay as close as possible to Torrance's *Theological Science* and to Dr. McGrath's paper—the latter I will only cite sparingly (because I will make the bold assumption that you just heard it!)—while making reference as necessary to the wider discussion of theology and the sciences and to Torrance's other work. I therefore will not engage secondary literature in any detail. (Indeed space limits me in this way.) Throughout, I will pose a few questions for Dr. McGrath to take up as he chooses.

Tom Bombadil and the One Ring

Oh yes, one other part of my method—I will introduce other important voices as relevant. One of those voices is the novelist J. R. R. Tolkien.

The natural sciences present a peculiar allure for theologians. Maybe we lack self-esteem and find ourselves envious of the cultural power of these sciences. For whatever reason, we often feel that, if we simply find the right science, then we might magically unlock a new power for theology.

As an alternative, I would promote theological use of the sciences along the lines of Tom Bombadil in Tolkien's magisterial epic, *The Lord of the Rings*. On Frodo's trip to Rivendell in *The Fellowship of the Ring*, Bombadil this "Master of wood, water and hill," takes the Ring—"the One Ring of Power to rule them all"—and plays with it. He finds it beautiful, but not irresistible. Bombadil can see Frodo (the Ring-bearing hobbit) when the Ring makes him invisible to others. He can wear it himself with no effect. Bombadil even tosses the Ring in the air and makes it disappear, produces it in his other hand, and finally returns it to Frodo. Later, the Council of Elrond debates the best way to destroy the Ring, and the Elf Erestor comments that perhaps Bombadil will play a part in this because "It seems that he has a power even over the Ring." "No, I should not put it so," said Gandalf. "Say rather that the Ring has no power over him. He is his own master. But he cannot alter the Ring itself, nor break its power over others."⁷

In some ways, this is how I read Torrance's (and similarly Karl Barth's) approach to the sciences. We do not simply *play* with the sciences like Tom Bombadil, but we do admire their beauty without being overwhelmed by them. Nor do we become thinned out and invisible by using them. This might be a way (citing McGrath) that we "reject intellectual isolationism on the one hand, and intellectual accommodationism on the other."⁸

7 *The Fellowship of the Ring, Part One, The Lord of the Rings* (New York: Ballantine Books, 1965), 348.

8 McGrath, "A Manifesto," 16.

In any event, I offer this image in this spirit, and I take this to be consonant with Torrance when he applauds the proper use of the sciences and their methods, particularly an *objectivity* that is tuned to the object of study.⁹ At the same time, I note that Torrance recognizes that theology has its own rationality and subject matter. It doesn't have to succumb to the power of the Ring in order for it to be legitimate.

Objectivity and the Givenness of the Subject

I have already begun to discuss *objectivity* in Torrance's *Theological Science*. This is correlated with another conviction: that there is no, one Science. In fact—as is generally the case in French, but not in English—we do better to refer to “the sciences” (or *les sciences*) or the “science of x,” such as physics, biology, or (to follow Torrance) theology. As Torrance comments in the third section of *Theological Science* (citing A.D. Ritchie's *Studies in the History and Methods of Sciences*), “there is no Science in the singular, for there are only sciences.”¹⁰ “There is no one scientific method that is universally applicable.”¹¹ And thus we must reject “the common error of supposing that physics is the one and only science and that all other studies just creep in as hangers-on or else are not scientific at all.”¹²

In this light, I applaud Dr. McGrath's work throughout his paper to demonstrate what this attention to the object of study means. I particularly commend his comments about Barth, restoring him as a “scientific theologian” in this sense. McGrath's reflections on Barth are directly applicable to Torrance:

I must immediately emphasise how helpful Barth is at some important points to a principled dialogue between theology and the natural sciences, mainly on account of his insistence that it is not possible to develop a universal method, capable of being applied across all disciplines; rather, it was necessary to identify the unique object of Christian theology, and respond in a manner which was consonant with its distinctive characteristics.¹³

9 This is captured beautifully in the German word that Barth employs in his discussion of theological method, *Sachlichkeit*, which bases itself on the *Sache*, “the thing” or “the matter” being observed.

10 *Theological Science*, 106.

11 *Ibid.*, 107. On a related note, on page 10 of his paper, Dr. McGrath writes, “Torrance clearly managed to absorb the fundamental principles of the scientific method” (cf. 18). I wonder if this singular is sustainable, or are we better talking about “the methods of the sciences”?

12 *Theological Science*, 107 (citing Ritchie).

13 McGrath, “A Manifesto,” 12. Cf. Torrance, *The Ground and Grammar of Theology* (Charlottesville, University Press of Virginia, 1980), 89-90.

In addition, to the lack of a singular, universalizable Science and its correlate, “the Scientific Method,” I do need to circumscribe a further limitation to scientific thought, perhaps with a reminder of Bombadil and the Ring specifically on how we read Scripture. Here, I will draw on a common mentor to both Dr. McGrath and me, C. S. Lewis who is indeed “one of the most significant theological voices of the 20th century.”¹⁴ Lewis contended that we read Scripture, not by working toward a putative scientific reading of Scripture (if by “scientific” we mean something monolithic), but by reading in its own light.¹⁵ In other words, a sound biblical hermeneutic does not need a natural scientific validation. On page 18 of his paper, Dr. McGrath offers a hint in the need to engage “the place of social constructs in theology.” What to do with this latter thread in Torrance? Is an analysis of social constructs another voice in the dialogue with theology when we consider the sciences? If Torrance is laying out a “Manifesto for Intellectual Engagement,” what other engagement ought theology have?

The Lull Rubric

At this point, I would like to take a brief (but relevant) excursus by referencing a quip that one of my professors at Pacific Lutheran Theological Seminary, the late Timothy Lull, made about Barth. (Tim, who had an eternally wry smile on his face, quipped so well.) And since Torrance is deeply influenced by Barth, it works for him too. I will call it the *Lull Rubric*. Here is what Tim told me one day:

What is the answer to every theological loci for Barth? Jesus Christ.

So let’s try it—What is *creation*? Jesus Christ. Creation is outward basis of the covenant in Jesus Christ.

What is *election*? Jesus Christ. He is both the elected and rejected One.

What is the *Word* of God? Jesus Christ . . . (etc.).

This is how the Lull Rubric works—start every answer to a theological question with “Jesus Christ” and proceed from there. It is not a bad summary of Barth nor an entirely distorting path to understand Torrance.

14 Dr. McGrath is stunningly prolific and has authored three books (by my count) to my one on the topic of Clive Staples Lewis (who is sometimes playfully referred to as “St. Clive” in my circles).

15 Lewis wrote that we would have preferred in the Bible “something we could have tabulated and memorized and relied on like the multiplication table,” but the Bible is not like that. Similarly, we don’t use the Bible “as encyclopedia or encyclical, but by steeping ourselves in its tone and temper and so learning its overall message” *Reflections on the Psalms* (London: Geoffrey Bles, 1958), 112.

Where does the Lull Rubric leads our understanding of *Theological Science* and particularly how theology as a science relates to the other sciences on the nature of truth?

I return to the objectivity of knowledge. In the fourth chapter, "The Nature of Truth," Torrance poses the question, What is theological knowledge? And he answers, Jesus Christ. Or, with a bit more elaboration,

Knowledge is real only as it is in accordance with the nature of the object, but the nature of the object prescribes the mode or rationality we have to adopt towards it in our knowing, and also the nature of the demonstration appropriate to it. The object of theological knowledge is the Truth of God as it is in Jesus . . .¹⁶

Thus, there exists a striking similarity with the other sciences and yet also this difference: "justification by the Grace of God in Jesus Christ applies not only to our life and action, but to our knowledge, and is essentially relevant to epistemology."¹⁷

Later, Torrance comments on the question of how can we verify theological statements scientifically? Again the answer is Jesus Christ, or stated with more nuance, "the verification of our theological statements consists, as we saw, in their reference to Jesus Christ... [as it] reaches us through the Church and through the witness to Him in the Scriptures in the midst of the Church."¹⁸

"The Problems of Logic" (chapter five in *Theological Science*) must feel weighty because Torrance uses the greatest amount of pages in the book for this topic (almost eighty). He asks, "How are we to relate the *logos* of man to the *Logos* of God, formal logic to the Logic of God?" His answer: "By 'the Logic of God' we can only mean Jesus Christ, for He and no other is the eternal *Logos* of God become flesh."¹⁹

My question for Dr. McGrath is not simply, "Who is Jesus Christ?" (as important as that question is). Instead, I want to pursue further, "How do we relate the specific knowledge of God that we find in Jesus Christ with the universal knowledge of God's creation through the sciences?" Secondly—and perhaps because I teach in a Department of Comparative Religion—I advocate clarity with one additional word to Torrance's title, namely *Christian Theological Science*.²⁰ It's not as elegant, but necessary. And so I arrive at a second question:

16 *Theological Science*, 198.

17 *Ibid.*, 198.

18 *Ibid.*, 199-200.

19 *Ibid.*, 205-6.

20 This comment raises several issues that I hope to address in future publications, but here are two. First of all, there is considerable question as to whether other religious

Is there anything in a pluralistic religious context that problematizes Torrance's particularly Christocentric convictions that theology is a science?

Natural Theology

This last section leads quite easily to a further implication of Torrance's thought, namely, *natural theology*.²¹ Torrance can state rather boldly, "natural theology may offer the greatest hindrance to natural science and to scientific theology alike."²² Then he notes the concept of complementarity in quantum physics. "Therefore the more exactly natural science and scientific theology are pursued, the sharper the distinction but the greater the complementarity exists between them." Thus he asserts "there is indeed a form of natural knowledge" of God, but this "cannot be worked up into a 'natural theology.'"²³ He concludes that natural theology can offer reasoning, "which will remove from sceptical minds that which obstructs direct intuitive apprehension of the living God."²⁴ In another context, he employs this lovely idiom—that natural theology ought to be "theological geometry."²⁵ Torrance means by this combination that geometry is not autonomous, but "must be pursued with indissoluble unity with physics."²⁶ So too with natural theology.

And although I am keen on this phrase "theological geometry," it raises some questions. Accordingly, I would like to ask Dr. McGrath—who has certainly done some extensive work on the topic of natural theology—What do we do with natural theology in Torrance? If we take Torrance's point seriously that theology is a special science, is there, more or less, a symmetry of theological science, on the one hand, with natural sciences, on the other? A bit more critically stated, Torrance often comments that twentieth century science was

traditions' system of teaching can be called "theology" without importing Christian notions. Secondly, however one answers the previous question, I do realize that there are some fascinating differences in how other religious traditions treat science. For example, Buddhists approach science in markedly different ways from how I do as a Christian in the Reformed tradition. See, Alan B. Wallace, ed., *Buddhism and Science: Breaking New Ground*, Columbia Series in Science and Religion (New York: Columbia University Press, 2003).

21 I find Torrance's comments instructive in *Ground and Grammar of Theology*, 75-109.

22 *Theological Science*, 102.

23 *Ibid.*, 103.

24 *Ibid.*, 104.

25 "Incarnation and Space and Time," in *Space, Time, and Incarnation* (London: Oxford University Press, 1969), 70.

26 *Ibid.*, 69.

less dualistic and more amenable to Christian theology, but what happens if this situation changes and science returns to a dualism or heads in another direction, less amenable to Christian orthodoxy? Do we abandon our work with a Christian natural theology?

On the other hand, if theology is a science, can it revise its dogmas as the natural sciences do? For example, one could consider the Chalcedonian definition and the hypostatic union: Are these revisable scientific paradigms as the Jesus Seminar proffers? Is Chalcedon analogous to Newtonian physics in their relationship with quantum theory?

The Rationality of Theological Science

In my core definition of *Theological Science*, I offered that Torrance's view is that "*Theology is a rational human enterprise or science.*" As much as I applaud this conviction, it raises some concerns.

What does Torrance's definition of theology force theology to be? In other words, I certainly agree theology is rational, but can it include story, community, and ritual? Or perhaps better put, can Christian life and practice include these elements and shouldn't theology serve the entirety of Christian life and practice? Admittedly, the burden of *Theological Science* (and related books and lectures) is to engage with the natural sciences and their methods; nonetheless Torrance seems particularly resistant to mysticism (as did his mentor, Barth) and thus myth.²⁷ In the great tradition of "mere Christianity" (to cite C. S. Lewis), this constitutes a blind spot. Torrance, in my view, has allowed Rudolf Bultmann to define *myth* and therefore to set it in absolute contrast to history and rationality.²⁸ Here I will draw on my own undergraduate studies in Classics, on what I have learned from Lewis about both Christian life and the nature of myth,²⁹ from N. T. Wright's magisterial work on story in his *New Testament and the People of God*,³⁰ and in my work as a pastor, where the congregation naturally leaned toward

27 See *Theological Science*, 187-90.

28 Cf. his discussion of the "transition from *mythos* to *logos*" in the work of Athanasius in *Ground and Grammar of Theology*, 117-18. See also Bultmann, "Kerygma and Myth," in Hans Werner Busch, ed., *Kerygma and Myth: A Theological Debate* (New York: Harper & Brothers, 1961), 10-11.

29 Since this was an area of academic specialization for Lewis, he wrote extensively on myth. E.g., "Myth in general is not merely misunderstood history... nor diabolical illusion... not priestly lying... but at its best, a real unfocused gleam of divine truth on human imagination" (*Miracles* [New York: Macmillan, 1960], 138).

30 N. T. Wright, *The New Testament and the People of God: Christian Origins and the Question of God*, vol. 1 (Minneapolis: Fortress, 1992), 69-74.

stories, anecdotes, and illustrations, and struggled with discursive, cognitive theological exposition. I am not at all confident that Bultmann understood myth accurately, on the one hand, and that we can remove myth or story from faith.

And so I continue to additional questions: "How then can theology engage both the rationality of science and the nonrational elements of narrative or story (to use a less controversial term than 'myth')?" And if we are to engage contemporary science, I have learned from Robert McCauley's book *Why Religion is Natural and Science is Not*,³¹ that religious practice is defined by community and especially by narrative. Thus it is "cognitively natural" in this sense, while science and theology are less cognitively natural and thus they take real brainwork. That is not to say that theology, because it is hard work should be discarded—many of us would be out of jobs!—but that this hard work must be complemented by more cognitively natural, easier work such as story, narrative, or myth (I believe those terms can be employed more or less interchangeably in this context.)

How might Torrance, or Dr. McGrath, or both, respond to this concern that Torrance's definition of theology is too restrictive in the history of Christian faith and practice and, more importantly, to an integration with contemporary cognitive science?

The Future of a "Manifesto for Intellectual Engagement"

Dr. McGrath has entitled his paper "A Manifesto for Intellectual Engagement." I would like to suggest with him that one follows thinkers as a "no passive recipient,"³² but instead learns from them, critiques them, and seeks to develop and even to improve their thought. As Barth once quipped, "If there are Barthians, I am not one of them."³³

In that spirit, and keeping in mind that *Theological Science* is on the way to being fifty years old and that manifestos generally look ahead, what might it be like to follow Torrance's lead in *this* century, especially on the relation between theology and the sciences? I can suggest one direction. My work in the past two decades has been on emerging adults' engagement with faith and science. When about thirty to thirty-four percent of those in the United States between eighteen and thirty do not affiliate with the church and one of the top six reasons given

31 Robert McCauley, *Why Religion is Natural and Science is Not* (Oxford: Oxford University Press, 2011).

32 As McGrath writes of Torrance and the Reformed tradition, "Manifesto for Intellectual Engagement," 3.

33 Cited in Harold Nebelsick, "Karl Barth's Understanding of Science," in John Thompson, ed., *Theology Beyond Christendom: Essays on the Centenary of the Birth of Karl Barth, May 10, 1886*, Princeton Theological Monograph Series (Eugene, OR: Wipf and Stock, 1986), 201.

is that the church is “antiscience,”³⁴ I take this to be an issue of the viability of the Gospel. It represents a problem about which Torrance can offer leadership, if nothing else, since he was a minister of the Gospel who engaged the sciences.

What indeed are the implications for the future of a theological science? How has science changed since 1969? What are new directions for Torrance’s enterprise in the twenty-first century? I end my questions here, although naturally I have many more that I would like to pose to Torrance since he is a generous and generative Christian thinker.³⁵

Meeting Thomas Torrance

Through *Theological Science*, Torrance makes a remarkably consistent point: *Theology, as a science, like all other sciences, pays particular attention—and creates its methods—in light of its object, namely, Jesus Christ.* (Let us never forget the Lull Rubric.) In this light, I close with one final reflection on Torrance.

The one and only time I heard Torrance live was at a meeting of the Theological Students Fellowship at Princeton Theological Seminary in 1991. It has been published in *Preaching Jesus Christ Today* and entitled “Incarnation and Atonement in the Light of Modern Scientific Rejection of Dualism.”³⁶ I remember most his opening remarks—which did not make their way into the text of the book—in them he said something akin to, “I am, and have always been, simply a preacher of the Gospel.” In some very unusual, important, and remarkable ways that is what he is in *Theological Science* as well.

And perhaps that is also the greatest compliment I can give Thomas Torrance as a theologian.

In sum, I thank you for this opportunity to consider his work and to respond to Dr. McGrath. I look forward to our conversation about this remarkable theological mind.

34 Pew Research Center, “Nones’ on the Rise,” October 9, 2012, <http://www.pewforum.org/2012/10/09/nones-on-the-rise/> and David Kinnaman, *You Lost Me* (Grand Rapids: Baker, 2011), 131ff.

35 For example, how would the concept of theology as a science sound to the best critiques of modern atheists? I think, for example, of Christopher Hitchens’s abhorrence at the interaction of religion and science because Christianity has “no evidence.” (“That which can be asserted without evidence can be dismissed without evidence.”) If one contrasts that contention with Torrance’s confidence that they can and are both sciences, does Torrance have a reasonable rejoinder? Put another way, taking the revelation of Jesus Christ’s divinity as a given is quite a high bar, and must that conviction be also proven instead of accepted as quasi-axiomatic?

36 Grand Rapids: Eerdmans, 1994, 41-71.

OTHER ARTICLES

THOMAS TORRANCE: SCIENCE, THEOLOGY, AND THE CONTINGENT UNIVERSE

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Abstract: *Thomas Torrance is a towering figure in twentieth century theology and one of few theologians of his stature to engage in dialogue with the natural sciences. In this paper I discuss and critique three aspects of this engagement: (1) the sense in which, for Torrance, theology is itself a science; (2) Torrance's redefinition of "natural theology" by way of an analogy from physics; and (3) some specific assumptions and findings of the natural sciences which Torrance discusses, which both accord well with the Christian doctrine of creation and also give scope for the more traditional kind of natural theology which Torrance rejects.*

Introduction

Thomas Torrance is undoubtedly one of the most significant British theologians of the twentieth century, a point brought out well in Alister McGrath's fine biography.¹ Of particular interest to someone like me, who had a scientific career and in later life turned to theology and ordination in the Church of England, is Torrance's engagement with the sciences. My own mentor and role model in following this path has been John Polkinghorne. Polkinghorne, who has been one of the most distinguished contributors to the science-religion dialogue, acknowledges that interdisciplinary work is difficult because one cannot hope to attain the same level of expertise in more than one discipline. Polkinghorne does, however, commend

¹ Alister E. McGrath, *T. F. Torrance: An Intellectual Biography* (Edinburgh: T&T Clark, 1999).

Torrance as a systematic theologian who has seen the significance of engaging with what science has to say.² Torrance himself sees theology's interest in science as arising from the specific way God has revealed himself as Creator and Redeemer "within the creaturely objectivities of the world."³ He goes on:

Thus arising out of the very heart of theology there is an unquenchable interest in the scientific understanding of creaturely being, and for the whole fabric of worldly existence as the medium in which God has placed man and constituted him what he is in relation to Himself . . . That is the reason for the peculiar interest of theology in the rise and progress of natural science, and for the fact that its own scientific pursuits cannot be separated from the scientific pursuits that are pursued in the same world about other aspects of creaturely being.⁴

There are three main areas of Torrance's engagement with science that I would like to discuss in this paper, following on from my earlier work on Torrance in my book *The Heavens Declare*⁵ and my paper on Torrance in *Theology and Science*.⁶ The first, discussed also by Alister McGrath and Greg Cootsona in this volume,⁷ is the way in which Torrance sees theology itself as "scientific." Here Torrance raises deep issues as to what theology might, or might not, have in common with science, and what it means for theology to be a rational mode of discourse. The second is the subject briefly alluded to by Cootsona, namely the implications of Torrance's redefinition of natural theology as a kind of "theological geometry," again with implications for the rationality of theology. The third is to look at some of the specific things Torrance says about science which, to my mind, seem to allow for a kind of natural theology that is more traditional than Torrance's own redefined version. It will be apparent that, while I am a great admirer of Torrance, my respect for him does not depend on agreement in every

2 John Polkinghorne, *Faith, Science and Understanding* (London: SPCK, 2000).

3 Thomas F. Torrance, *Theological Science* (Edinburgh: T&T Clark Ltd, 1969; paperback edition, 1996), 56.

4 Ibid., 57.

5 Rodney D. Holder, "Thomas Torrance: Natural Theology Redefined," in Rodney D. Holder, *The Heavens Declare: Natural Theology and the Legacy of Karl Barth* (West Conshohocken: Templeton Press, 2012), 138-168.

6 Rodney D. Holder, "Thomas Torrance: 'Retreat to Commitment' or a New Place for Natural Theology?" *Theology and Science* 7, no. 3 (2009): 275-296, <http://dx.doi.org/10.1080/14746700903036544>

7 Alister E. McGrath, "A Manifesto for Intellectual Engagement: Reflections on Thomas F. Torrance's *Theological Science* (1969)," *Participatio* 7 (2017): 1-16; Greg Cootsona, "Theology, Science, and the Power of the Ring: Response Article to Alister McGrath's 'A Manifesto for Intellectual Engagement,'" *Participatio* 7 (2017): 17-26.

point, and like McGrath "I make certain theological moves that Torrance does not."⁸ Indeed, I also differ somewhat from my great theological teacher, Alister McGrath himself!

Theology as a Science

As noted by McGrath and Cootsona,⁹ Torrance believes that theology is a science. The basic thesis of *Theological Science*, and repeated many times elsewhere, is precisely that theology is scientific because it relates to its object in the way appropriate to it. Our knowledge of the reality of our object of study, just as in the sciences, is determined by the way in which that object confronts us. As McGrath notes, this can be expressed simply by the phrase "ontology determines epistemology."¹⁰ For Torrance, this is what makes theology a "*rational event*."¹¹ Moreover, "This means that an antithesis between reason and faith must be ruled out, for faith is the behaviour of the reason in accordance with the nature of its divine Object."¹² A further important point that Torrance makes, also picked up by Cootsona¹³ and to which we shall return, is that there is no one scientific method, for each of the sciences has its own methodology.

Now it seems to me that this definition affirms something important, but is also open to criticism. The important point is that it distances us from a Kantian idealistic view in which external reality is somehow a construct of our human thought processes. Scientists would agree with Torrance here. Whereas Kant thought, *a priori*, that space had to be Euclidean because this was how the mind constructs its experience of space, Einstein demonstrated that space is curved. Quantum theory has developed out of the bizarre, counter-intuitive world presented to us by experiment, and it is certainly not something we could have thought of *a priori*. We are certainly up against something outside of us impinging on us here, which even challenges our normal modes of logical reasoning. This is the reverse of the mind imposing its own constructs on the world.

Although rational experience is only possible in the first place because our minds are structured in a particular way and, moreover, nature does indeed yield its secrets in response to the coercive questions we ask of it, Torrance believes that Kant goes too far in elevating this insight into a general principle whereby

8 McGrath, "Manifesto for Engagement," 2.

9 Ibid., 11, 15; Cootsona, "Theology, Science, and the Power of the Ring," 18.

10 McGrath, "Manifesto for Engagement," 15.

11 Torrance, *Theological Science*, 11.

12 Ibid., 33, n. 2.

13 Cootsona, "Theology, Science, and the Power of the Ring," 19-20.

"the conformity of the object to the mind of the knowing subject is attributed to our power of knowing or is predicated of our human nature." Because of this, Kant presents us with the dangerous temptation "to discount the thing in itself as a mythological projection."¹⁴

There is in fact a balance to be struck here. Philosophers of science now recognize the "theory-laden nature" of observation. Thus, no observation or experiment in science is uninterpreted. One always approaches an experiment with some preconceived notion or theory of what a measurement might mean, even if it stands to be corrected by what nature reveals. Torrance is somewhat ambivalent here. On the one hand, he affirms that, in the light of his definition of the character of theology, "a genuine theology is distrustful of all speculative thinking or of all *a priori* thought."¹⁵ On the other hand, he seems to recognize the point when he refers elsewhere to "the all-important interdependence of theory and experiment."¹⁶

Having made these positive comments, I now offer some criticism. Mainly, I wonder whether the similarity Torrance sees between theology and the natural sciences is not rather weak. In contrast, Wolfhart Pannenberg, whom McGrath criticizes,¹⁷ believes that theology is scientific if it proposes hypotheses and seeks to confirm them (a point noted by Ted Peters¹⁸). McGrath is right to criticize Pannenberg for getting the science wrong, notably with his view of field theory. However, as we shall see, Torrance is also vulnerable to the same criticism. More importantly for the present discussion, Pannenberg's view of God as "the all-determining reality," and his view of theological hypotheses as explanatory, looks to me a lot more like science. Indeed, Nancy Murphy¹⁹ and Philip Hefner,²⁰ who are major contributors to the science-religion dialogue, have seen Pannenberg's view as expressible in terms of scientific research programmes after the manner of Imre Lakatos. Like McGrath, I have a preference for evaluating hypotheses by way of inference to the best explanation (IBE), but more particularly by way

¹⁴ Torrance, *Theological Science*, 89.

¹⁵ Ibid., 33.

¹⁶ Thomas F. Torrance, *Divine and Contingent Order* (Edinburgh: T&T Clark, 1981; revised edition, 1998), 40.

¹⁷ McGrath, "Manifesto for Engagement," 7, 13.

¹⁸ Ted Peters, *Science, Theology, and Ethics* (Aldershot, UK; Burlington, VT: Ashgate, 2003), 26.

¹⁹ Nancey Murphy, "A Lakatosian Reconstruction of Pannenberg's Program: Responses to Sponheim, van Huyssteen, and Eaves," in Carol Rausch Albright and Joel Haugen, *Beginning with the End: God, Science, and Wolfhart Pannenberg* (Chicago and La Salle, IL: Open Court, 1997), 409-426.

²⁰ Philip Hefner, "The Role of Science in Pannenberg's Theological Thinking," in Albright and Haugen, *Beginning with the End*, 97-115, esp. 109-111.

of Bayesian confirmation theory after the manner of Richard Swinburne.²¹ One problem with the Lakatosian approach is the predictive quality of theological research programmes — predictions look a lot less specific than in the scientific realm. But my main point is that IBE, confirmation theory, and Lakatos' methodology all make theology look more like a science than does simply "relating to the object in the way appropriate to it."

Thomas Langford noted that Torrance's concept of "theological 'science' is so different from every other 'science' that only the most formal characteristics of similarity remain."²² However, he sees the term "science" as having apologetic value and contrasts Torrance with theologians who thought that being "scientific" meant being "anti-dogmatic." Cootsona makes a linguistic point in referring to the way one refers in French to the "sciences" rather than, as in English, to "science."²³ I would offer a somewhat similar point with reference to German. The word *wissenschaftlich* is usually translated "scientific" (and the noun *Wissenschaft* as "science"), but in reality it refers to any academic discipline. It conveys, as Torrance himself notes, "a rigorous, disciplined, methodical, and organized knowledge," and Torrance affirms that theology is just this.²⁴ However, what English speakers generally mean by "science" is what the Germans call *Naturwissenschaft*, meaning "natural science." If theology is *wissenschaftlich* rather than *naturwissenschaftlich*, Langford's point is somewhat mitigated.

A problem with taking the objectivity of God as the starting point for theology is that the very existence of God is disputed in the world outside theology. For Torrance, "Christian theology arises out of the actual knowledge of God given in and with concrete happening in space and time."²⁵ It is concerned with "the fact of God's self-revelation," and of course this means fundamentally God's self-revelation in Jesus Christ: "He [Christ] is the concrete embodiment of knowledge of God within our humanity."²⁶ It is here that Torrance most resembles his great mentor, Karl Barth, whom indeed he brought to the attention of the English-speaking world by sponsoring the translation of the *Church Dogmatics* and

21 Richard Swinburne, *An Introduction to Confirmation Theory* (London: Methuen, 1973); Richard Swinburne, *Epistemic Justification* (Oxford: Oxford University Press, 2001); and Richard Swinburne, *The Existence of God*, second edition (Oxford: Oxford University Press, 2004).

22 Thomas A. Langford, "T. F. Torrance's *Theological Science*: A Reaction," *Scottish Journal of Theology* 25, no. 2 (1972): 155-170.

23 Cootsona, "Theology, Science, and the Power of the Ring," 20.

24 Torrance, *Theological Science*, 116.

25 Ibid., 26.

26 Ibid., 45.

founding the *Scottish Journal of Theology*. It sounds just like what Dietrich Bonhoeffer referred to in Barth as a “positivism of revelation,” which Bonhoeffer saw as fine for the church but not for the outsider.²⁷ Peters’ criticism of starting with the assumption of God’s existence seems apt: “To presuppose its truth and then contend that this produces knowledge seems to beg the question” — and this is his accusation against Barth and his followers such as Torrance.²⁸

W. W. Bartley has criticized Protestant theology in the Barthian tradition as irrational for just this reason, dubbing it a “retreat to commitment.”²⁹ Heinrich Scholz, whom McGrath cites,³⁰ is similarly critical. In 1931 Scholz published an essay entitled “How is an evangelical theology possible as science?” in the journal *Zwischen den Zeiten*.³¹ In this essay Scholz put forward a number of criteria which were required to be fulfilled for any undertaking to count as science. These included freedom from contradiction, coherence, the capacity to be tested, congruity with what is physically and biologically possible, freedom from prejudice, and capacity of being expressed as a system of axioms and theorems. It seems to me that some of these are indeed essential, notably the first three. However, I would quibble with the fourth if it is meant to exclude the possibility of miracles by fiat, since that would introduce a “prejudice” of its own. The last is also contestable since it makes every science sound like pure mathematics. Nevertheless, it does seem to me that there are common grounds of rationality which can be used to evaluate theistic and atheistic hypotheses. Thus, Bayesian confirmation theory can be utilized to compare metaphysical hypotheses, just as it can be used to compare alternative scientific hypotheses, as acknowledged by atheist philosopher John Earman.³²

The problem, then, with Torrance’s position is that we are seemingly not allowed to bring evidence and the tools of a common rationality to bear on theology as we are in the sciences. For Torrance, our beliefs are justified because “we are given a profound inner experience through the Spirit of the objective

27 Dietrich Bonhoeffer, *Letters and Papers from Prison*, ed. Eberhard Bethge (London: SCM Press, 1971), 280, 286.

28 Peters, *Science, Theology, and Ethics*, 28.

29 W. W. Bartley III, *The Retreat to Commitment*, second edition (La Salle, Illinois, and London: Open Court, 1984).

30 McGrath, “Manifesto for Engagement,” 12-13.

31 Heinrich Scholz, ‘Wie ist eine evangelische Theologie als Wissenschaft möglich?’, *Zwischen den Zeiten* 9, Heft 1 (München: Chr. Kaiser Verlag, 1931), 8-35. Reprinted in *Theologie als Wissenschaft*, ed. Gerhard Sauter (München: Chr. Kaiser Verlag, 1971), 221-264.

32 John Earman, *Bayes or Bust? A Critical Examination of Bayesian Confirmation Theory* (Cambridge, MA: MIT Press, 1992), 153-154.

reality.”³³ The question is, how do we know that this is a genuine experience? It seems to me that an “internal” justification, testing against Scripture and discernment within the community, is not enough. We need rational argument, both for the existence of God — which is the task of natural theology — *and* for what Scripture says about him — what Swinburne has dubbed “ramified natural theology.”³⁴ While in my view certainly not undermining the central claims of Scripture, two hundred years and more of historical criticism of the Bible do make it difficult to read propositional truth straight out of its pages without some reasoned interpretation, including consideration of context, source criticism, and so on. In our present skeptical age we can no longer simply assert, “The Bible says . . . ,” and expect to be believed without argument.

Having raised the subject of natural theology — my second main area to consider with respect to Torrance’s engagement with the sciences — let us now move on to discuss what Torrance says about it.

Natural Theology

Natural theology as traditionally conceived concerns the knowledge of God open to us simply as rational creatures observing the world, apart from any special revelation. A typical definition is given by John Macquarrie: “Natural theology is the knowledge of God (and perhaps also of related topics, such as the immortality of the soul) accessible to all rational human beings without recourse to any special or supposedly supernatural revelation.”³⁵ Natural theology in this sense has a long, if chequered, history. St. Thomas Aquinas, for example, thought we could know *that* God exists from human reason alone, and his “five ways” can be seen as arguments forming a *praeparatio fidei*, or preparation for faith, in what comes to us by way of revelation:

The truths about God which St. Paul says we can know by our natural powers of reasoning — that God exists, for example — are not numbered among the articles of faith, but are presupposed to them. . . . God’s effects, therefore, can serve to demonstrate that God exists, even though they cannot help us to know him comprehensively for what he is.³⁶

33 Torrance, *Theological Science*, 28.

34 Richard Swinburne, “Natural Theology and its ‘Dwindling Probabilities’ and ‘Lack of Rapport,’” *Faith and Philosophy* 21, no. 4 (2004): 533-546. See also Rodney D. Holder, “Why We Need Ramified Natural Theology,” *Philosophia Christi* 15, no. 2 (2013): 271-282.

35 John Macquarrie in *The Blackwell Encyclopedia of Modern Christian Thought*, ed. Alister McGrath (Oxford: Blackwell, 1993), 402.

36 St. Thomas Aquinas, *Summa Theologiae*, 1a. 2, 2, Blackfriars edition (London: Eyre & Spottiswoode, and New York: McGraw-Hill, 1964), trans. Timothy McDermott OP, vol. 2, 11.

Now Torrance will have none of this (notwithstanding that Aquinas cites St. Paul here). As Cootsona notes,³⁷ for Torrance “natural theology may offer the greatest hindrance to natural science and to scientific theology alike.”³⁸ In the same place, Torrance goes on to say, “The purer theology is, the more strictly it behaves in terms of the nature of its Object, which is revealed as Grace — that is why justification by Grace alone not only sets aside natural goodness, but sets aside natural theology, for both belong to the natural life of the natural man.”³⁹ Reinforcing the point, he says:

Natural science starts from premises that do not include God, and moves in an opposite direction to theology in accordance with the nature of its subject-matter, but “natural theology” starts from the same premises and the same phenomena as natural science and seeks to move toward God, and in so doing brings itself into conflict with natural science and with pure theology, proving to be a source of confusion to both if not an actual obstacle in their progress.⁴⁰

Natural theology must be excised from scientific theology as a “sort of ‘foreign body,’” says Torrance, if scientific theology is to be consistent with its commitment to respond to God as he has actually revealed himself. Despite this, Torrance does make an important concession in seeing a role for natural theology in “helping to remove the grounds of rational doubt.”⁴¹

Torrance utilizes an analogy from science to make his point, the notion of complementarity in quantum theory. In quantum theory entities possess both particle and wave properties, which are “complementary” rather than “contradictory,” because the specific property that is seen depends on which of the mutually exclusive experimental set-ups is selected. Correspondingly, says Torrance, natural science and theology possess mutually exclusive ways of probing reality.⁴² However, as John Polkinghorne remarks, the notion of complementarity in quantum theory “provides no licence for the easy export of the notion to other disciplines.”⁴³ Torrance seems to be describing what Stephen J. Gould calls the NOMA (non-overlapping magisteria) position, whereas many of us do see areas of overlap such as commonly shared rational modes of enquiry

37 Cootsona, “Theology, Science, and the Power of the Ring,” 23.

38 Torrance, *Theological Science*, 102.

39 Ibid., 102.

40 Ibid., 103.

41 Ibid., 103.

42 Ibid., 102.

43 John Polkinghorne, *Quantum Theory: A Very Short Introduction* (Oxford: Oxford University Press, 2002), 37.

and broader questions such as science's need for metaphysical underpinning. The latter point is well brought out in the recent book *Beyond Matter* by Roger Trigg,⁴⁴ and indeed I shall point out later how Torrance, notwithstanding his apparent NOMA stance here, agrees with this.

For Torrance there is, despite the above, a natural knowledge of God which all possess "unless they obstruct or suffocate it."⁴⁵ However, this natural knowledge "cannot be worked up into a 'natural theology.'" But then, curiously, Torrance quotes Geddes McGregor with apparent approval: "It is being more and more widely admitted that a disposition towards theistic belief is a necessary antecedent to the presentation of a reasoned case for theism."⁴⁶ It does not seem a very big step to me to go from "removing the grounds for rational doubt" to "working up a natural theology" from "natural knowledge" as a *praeparatio fidei*, which would seem to be consistent with the Geddes quotation, even if Torrance himself intends otherwise.

The problem, as Torrance sees it, is that natural theology undermines Christology which, for Torrance, like his mentor and hero Barth, is the judge and starting point of his theology. McGrath quotes Torrance to this effect with particular clarity, citing a moving story from Torrance's life. Torrance had cause during World War II as an army chaplain to minister to a dying soldier who asked him, "Padre, is God really like Jesus?" Torrance unequivocally replied that yes, the only God there is had come to us in Jesus and "poured out his love to us as our Saviour." Reflecting on this episode later, Torrance wrote:

That incident left an indelible impression on me. I kept wondering what modern theology and the Churches had done to drive some kind of wedge between God and Jesus, and reflected on the damage done by natural theology to Christology and the proclamation of the Gospel! The evangelical teaching which I had from Karl Barth was considerably reinforced on the battlefield. There is no hidden God, no *Deus Absconditus*, no God behind the back of the Lord Jesus, but only the one Lord God who became incarnate in him.⁴⁷

The centrality of Christ for Torrance, as it was for Barth, is deeply impressive, and Christ is central to me too. However, in an age which is at once skeptical and pluralistic, we need to help people to see that what we claim to be revelation really is revelation. Some may just accept this without argument, but many

44 Roger Trigg, *Beyond Matter: Why Science Needs Metaphysics* (West Conshohocken, PA: Templeton Press, 2015).

45 Torrance, *Theological Science*, 103.

46 Torrance, *Theological Science*, 104, n. 1.

47 McGrath, *Torrance: Intellectual Biography*, 74.

will need first to be convinced that there is a God at all before that God can be identified with Jesus Christ. And this is where traditional natural theology, which I equate to the arguments that also come under the rubric of “philosophy of religion,” come into play, followed by the arguments of “ramified natural theology.”

I referred in my introduction to Torrance’s redefinition of natural theology as “theological geometry,” which is Torrance’s way of re-appropriating the concept or term which he otherwise sees as anathema. This may be a “lovely idiom,” as Cootsona puts it.⁴⁸ Indeed, Polkinghorne commends Torrance’s approach to natural theology, and resembles Torrance in recognizing it as “an integral part of the whole theological quest for understanding and by no means an isolable or merely preliminary sub-department of it.”⁴⁹ However, Polkinghorne’s actual treatment of natural theology is much more like the traditional view, arguing, as he does, towards theism from such factors as the comprehensibility of the universe — its openness to our human understanding through science — and its fine-tuned character.

Let us unpack Torrance’s “lovely idiom.” He draws an ingenious analogy from physics, indeed from Einstein’s general theory of relativity:

The fact that four-dimensional geometries are not just other ideal possibilities inventively thought up . . . but involve a profound correlation between abstract conceptual systems and physical processes, has considerable epistemological implications for theological as well as natural science. Since this gets rid of the old dualisms between material existence and absolute space and time, or between nature and supernature, it is no longer possible to operate scientifically with a separation between natural theology and revealed theology any more than between geometry and physics. In physics, this means that geometry cannot be pursued as an axiomatic deductive science detached from actual knowledge of physical processes or be developed as an independent science antecedent to physics, but must be pursued in indissoluble unity with physics.⁵⁰

This important passage continues thus:

In theology, this means that natural theology cannot be undertaken apart from actual knowledge of the living God as a prior conceptual system on its own . . . Rather must it be undertaken in an integrated unity with

48 Cootsona, “Theology, Science, and the Power of the Ring,” 23.

49 John Polkinghorne, *Science and Christian Belief* (London: SPCK, 1994), 3.

50 Thomas F. Torrance, *Space, Time and Incarnation* (Edinburgh: T&T Clark, 1969; paperback edition, 1997), 69.

positive theology in which it plays an indispensable part in our inquiry and understanding of God. In this fusion "natural" theology will suffer a dimensional change and will be made *natural* to the proper subject-matter of theology. No longer extrinsic but intrinsic to actual knowledge of God, it will function as a sort of "theological geometry" within it, in which we are concerned to articulate the inner material logic of knowledge of God as it is mediated within the organized field of space-time.⁵¹

It seems to me that two things are going on here. The first is that natural theology is in no sense an autonomous discipline, providing arguments based on common tools of rationality for theistic belief. It is subsumed within what Torrance variously calls "positive" theology, "scientific" theology, or simply "dogmatics."⁵² Indeed, it is interesting that Torrance cites Barth's approval of his incorporation of natural theology into theology proper.⁵³ Just as in general relativity geometry becomes part of physics because of the way space and matter are bound up together, so natural theology becomes a part of systematic theology.

One is led to conclude that natural theology in Torrance's formulation approaches nature already presupposing the truth of God's revelation in Christ and presumably the full-blown Nicene and Chalcedonian formulations. Indeed, Torrance affirms, "the doctrine of the Trinity belongs to the very groundwork of knowledge of God from the very start."⁵⁴ In that light Torrance certainly has very interesting things to say (and I shall come to some of them in the next section), but I would argue that this is not really "natural theology," but more correctly described as a "theology of nature." However, as I shall argue, these insights can be put to good use in the traditional way too. Indeed, perhaps what Torrance neglects is the reverse of how I expressed general relativity above. It is also the case that the curvature of space affects how matter behaves. So perhaps nature can tell us something about God as well.

The second thing going on is that general relativity's relational view of space-time and matter is useful in its own right in doing real work for theology, that is, it is not merely a useful analogy. It breaks down the dualism between space and matter just as Torrance wants to break down various dualisms himself, such as between nature and supernature. Torrance draws important consequences for theology from this. Space-time as an infinite receptacle led Newton to identify it

51 Ibid., 69-70.

52 Thomas F. Torrance, *The Ground and Grammar of Theology* (Belfast: Christian Journals Ltd, 1980), 15, 49-52.

53 Ibid., 91.

54 Ibid., 89.

with the infinity and eternity of God so that we are in God as in a container, but this ultimately led to the separation of God from nature and thus to deism.⁵⁵ Moreover, this view posed a problem for the incarnation, since "If God Himself is the infinite Container of all things He can no more become incarnate than a box can become one of the objects it contains."⁵⁶ This problem seems to be compounded since, for Newton, space and time are absolutes. General relativity's view of space-time and matter as intimately related apparently changes the position since now "space must be defined in terms of bodies or agents conceived as active principles, making room or creating space for themselves in the universe" — and presumably this includes God creating space for himself in the incarnation.⁵⁷

It is not at all clear to me that general relativity helps here in the way that Torrance believes, neither is it clear that Torrance entirely understands the physics (as noted above, this is an accusation McGrath rightly makes against Pannenberg's understanding of "fields"⁵⁸). Einstein's universe for Torrance may be described as "finite and unbounded." He goes on:

That is, so to say, instead of being closed from above down, the universe is to be regarded as open from below upward. The finite universe certainly has frontiers, but they are not frontiers at which it is turned back to be imprisoned in itself so much as frontiers where it is open indefinitely to what is beyond.⁵⁹

The trouble is that these are technical terms. First, Einstein's equations of general relativity allow for both finite and infinite universe solutions. The infinite universe solutions differ from Newton in so far as space is expanding, but how that would make any theological difference is far from clear. It is actually very difficult, and may be impossible, to know whether the universe is finite or infinite, this being determined by the density parameter Ω .⁶⁰ Ω greater than one gives a finite universe and Ω less than one an infinite universe, but the measured value is very close to one, making it difficult to tell. The only case we could be sure about would be a finite universe less than about 50 billion light years in dimension, since then we might see the same object from different

55 Torrance, *Space, Time and Incarnation*, 38.

56 Ibid., 39.

57 Ibid., 69.

58 McGrath, "Manifesto for Engagement," 13.

59 Torrance, *Divine and Contingent Order*, 79.

60 See John D. Barrow, *The Infinite Book* (London: Jonathan Cape, 2005), 144.

directions in the sky.⁶¹ Certainly a finite universe would solve some philosophical problems having to do with the actual existence of infinities in nature. However, Torrance's take on it is still problematic. A three-dimensional finite universe does not have boundaries in the same sense that a two-dimensional surface like the earth's does not. It is technically called a "closed" as opposed to an "open" universe which would be infinite, and it could indeed be described as turning back on itself. Moreover, it is difficult to see what "open indefinitely to what is beyond" can mean when there is no beyond. Into the bargain absolute space and time arguably still have meaning in general relativity, time being measured from the Big Bang singularity and space in terms of the microwave background radiation.⁶²

Torrance also has a problem with determinism versus indeterminism. A deist could equally adopt Einstein's universe as Newton's since it is just as deterministic; indeed, as Ernan McMullin argues, it is more deterministic since the inter-connectivity of matter, energy, and space-time serves strongly to limit contingency.⁶³ McGrath rightly notes Torrance's relative neglect of quantum theory which would add richness to his treatment,⁶⁴ and Tapio Luoma sees his misunderstanding of Einstein as behind this neglect.⁶⁵ Polkinghorne too believes that Torrance errs in ascribing indeterminism to the "dynamic field of space-time"⁶⁶ in general relativity — much like Pannenberg's error which McGrath rightly criticizes.⁶⁷ It is in the quantum realm, as well at the macroscopic level of chaotic systems and systems far from equilibrium, that one might see the universe as "open" in the sense which Torrance means. Indeed, since Torrance discusses the

61 As in the model of J.-P. Luminet *et al.* See J.-P. Luminet, J. Weeks, A. Riazuelo, R. Lehoucq, and J.-P. Uzan, "Dodecahedral Space Topology as an Explanation for Weak Wide-Angle Temperature Correlations in the Cosmic Microwave background," *Nature* 425 (9 Oct 2003): 593-595. A more popular, and somewhat updated, account is to be found in J.-P. Luminet, "A Cosmic Hall of Mirrors," *Physics World* 18, no. 9 (2005): 23-28.

62 Peter E. Hodgson, *Theology and Modern Physics* (Aldershot and Burlington, VA: Ashgate, 2005), 104; see also Colin Weightman, *Theology in a Polanyian Universe: The Theology of Thomas Torrance* (New York: Peter Lang, 1994), 191.

63 Ernan McMullin, "How Should Cosmology Relate to Theology?" in *The Sciences and Theology in the Twentieth Century*, ed. A. R. Peacocke (Stockfield: Oriel, 1981), 17-57, 56, n. 50.

64 McGrath, "Manifesto for Engagement," 7.

65 Tapio Luoma, *Incarnation and Physics: Natural Science in the Theology of Thomas F. Torrance* (Oxford & New York: Oxford University Press, 2002), 111.

66 Torrance, *Divine and Contingent Order*, 14.

67 John Polkinghorne, *Reason and Reality: The Relationship between Science and Theology* (London: SPCK, 1991), 93.

latter type of system, this point brings us nicely to a consideration of what he says about both the comprehensibility and contingency of the universe, which is perhaps where his greatest contribution to the theology-science dialogue lies.

Comprehensibility and Contingency

Torrance rightly sees the universe as possessing a rational order that is both open to human understanding and contingent. It seems to me that Torrance's insights here, despite himself, lend themselves to a natural theology of the more traditional kind, one in accord with the approach of John Polkinghorne. Thus, Torrance says:

This rational unity of the cosmos, spanning celestial as well as terrestrial spheres, which is the correlate of Judaeo-Christian monotheism, has ever since constituted one of the fundamental assumptions of the natural sciences: it is the ground of our confidence that wherever we may direct our enquiries we will find the universe accessible to rational investigation and thought, even though, as correlated to the unlimited reality and rationality of God, the rationality of the universe has an indefinite range that reaches beyond the limits of our finite minds.⁶⁸

The rational unity of the cosmos is grounded in the rationality of God. Yes, but the rational unity of the cosmos is something which scientists not only assume but find confirmed as they discover more and more about it. Can we not start instead from this rational unity and ask where it comes from? In other words, can we not, with Polkinghorne, use it as a natural theological argument?⁶⁹ Is not the rational unity best explained theistically, and can we not argue, as Richard Swinburne does, that the simplest and best explanation for it is creation by one God rather than many?⁷⁰ As Polkinghorne and Swinburne say in their different ways, theism does not compete with scientific explanations; rather, it explains why science explains. Alvin Plantinga also argues that theistic belief provides support for the very possibility of science: the mediaeval concept of *adaequatio intellectus ad rem*, which is based on the doctrine of the *imago dei*, well explains a host of human capacities, not least our ability to do science, something that naturalism has a much harder time doing.⁷¹

68 Torrance, *Divine and Contingent Order*, 3.

69 E.g. John Polkinghorne, "Where is Natural Theology Today?" *Science and Christian Belief* 18, no. 2 (2006), 169-179.

70 Swinburne, *Existence of God*, 145-147.

71 Alvin Plantinga, *Where the Conflict Really Lies: Science, Religion, and Naturalism* (New York: Oxford University Press, 2011), 269-270.

Torrance is aware that the comprehensibility of the universe was a deep mystery to his hero, Einstein. Torrance refers to "the free ungrudging will of God's love to create" and goes on:

That is the ultimate ground for what Einstein called the "incomprehensible comprehensibility" of the universe, which evoked from him as a man of science a constant wonder and deep sense of religious awe. It was with reference to this that he sometimes appealed to the Leibnizian notion of "pre-established harmony" behind the "miracle" of *Verständlichkeit*.⁷²

Indeed Einstein, though his God was something like that of Spinoza, came close to a natural theological argument of the kind I have mentioned:

You find it surprising that I think of the comprehensibility of the world (in so far as we are entitled to speak of such a world) as a miracle or an eternal mystery. But surely, *a priori*, one should expect the world to be chaotic, not to be grasped by thought in any way. One might (indeed one *should*) expect that the world evidence itself as lawful only so far as we grasp it in an orderly fashion. This would be a sort of order like the alphabetical order of words in a language. On the other hand, the kind of order created, for example, by Newton's gravitational theory is of a very different character. Even if the axioms of the theory are posited by man, the success of such a procedure supposes in the objective world a high degree of order which we are in no way entitled to expect *a priori*. Therein lies the "miracle" which becomes more and more evident as our knowledge develops.⁷³

Stanley Jaki noted that "even more revealingly" Einstein added the following to this passage:

And here is the weak point of positivists and of professional atheists, who feel happy because they think that they have not only pre-empted the world of the divine, but also of the miraculous. Curiously, we have to be resigned to recognizing the "miracle" without having any legitimate way of getting any further. I have to add the last point explicitly, lest you think that, weakened by age, I have fallen into the hands of priests.⁷⁴

The notion of contingency also offers possibilities for traditional natural theology. As we have seen, there is some misunderstanding as to where this contingency

⁷² Torrance, *Divine and Contingent Order*, 35.

⁷³ Albert Einstein, letter to Maurice Solovine, March 30, 1952, quoted in Stanley Jaki, "Theological Aspects of Creative Science," in *Creation, Christ and Culture: Studies in Honour of T. F. Torrance*, ed. Richard W. A. McKinney (Edinburgh: T&T Clark, 1976), 164.

⁷⁴ *Ibid.*, 164.

lies for Torrance, paradoxically more in relativity than quantum theory. However, Torrance is on better ground when he refers to the multi-levelled nature of the physical world — important for him in any case, as we saw, in demarcating different sciences with their own methods.

The importance of the hierarchy of levels is that higher levels cannot be reduced to lower levels. There is genuine novelty as one rises up the chain of complexity. Torrance argues that “the open character and endless spontaneity and surprise of its natural order” is “ultimately explicable only from beyond itself in the infinite differentiability of divine rationality and its inexhaustible source of possibility.”⁷⁵ Moreover, he says that the universe “constitutes an essentially *open* system with an ontological and intelligible reference beyond its own limits.”⁷⁶ Again, he says that the universe is characterized “not by closed rigid structures but by open-ordered structures, not by necessary truths of reason but by contingent truths which defy complete mathematical formalization,” and here the point is not dependent on a misreading of Einstein but compatible with the hierarchy of sciences.⁷⁷ The point about mathematical incompleteness is reinforced elsewhere by Torrance where he rightly draws on Gödel’s theorem, which represents the final nail in the coffin for any programme of scientific reductionism.⁷⁸

Torrance notes with approval Michael Polanyi’s claim “that all meaning lies in the higher levels of reality that are not reducible to the laws by which the ultimate particulars of the universe are controlled.”⁷⁹ Levels of reality are open upwards but not reducible downwards, and do not contain their sufficient reason within themselves for their own contingent order. The universe as a whole is like this, as an open system and an intelligible whole requiring a sufficient reason beyond itself.

This is a controversial claim but one which I believe Torrance is correct to make. A number of atheist scientists are also arch-reductionists. Thus, Richard Dawkins claims that human beings are “survival machines — robot vehicles blindly programmed to preserve the selfish molecules known as genes.”⁸⁰ Peter Atkins believes that “At the deepest level, decisions are adjustments of

⁷⁵ Torrance, *Divine and Contingent Order*, 23.

⁷⁶ *Ibid.*, 36.

⁷⁷ *Ibid.*, 38.

⁷⁸ E.g. Torrance, *Theological Science*, 255.

⁷⁹ Torrance, *Divine and Contingent Order*, 20; quoting Michael Polanyi, *Scientific Thought and Social Reality*, ed. F. Schwartz (New York: International Universities Press, 1974), 136-137.

⁸⁰ Richard Dawkins, *The Selfish Gene* (Oxford: Oxford University Press, 1989), v.

the dispositions of atoms in the molecules inside large numbers of cells in the brain.”⁸¹ And Francis Crick boldly announces: “The Astonishing Hypothesis is that ‘You,’ your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behaviour of a vast assembly of nerve cells and their associated molecules.”⁸²

If these claims are true, then all is up with the human race: there is no purpose, no meaning, and indeed no science. In particular, free will and the ability to make choices based on reason, rather than those choices being determined by antecedent physical causes going backwards in time *ad infinitum*, are vital. As J. B. S. Haldane observed, “It seems to me immensely unlikely that mind is a mere by-product of matter. For if my mental processes are determined wholly by the motions of atoms in my brain, I have no reason to suppose that my beliefs are true. They may be sound chemically, but that does not make them sound logically. And hence I have no reason for supposing my brain to be composed of atoms.”⁸³ However, Torrance’s point is now widely recognized, and the obverse of reductionism, namely emergence — the coming into being at higher levels of complexity of new phenomena with new laws to describe them — is seen as more descriptive of the way things really are. Particularly important is the phenomenon of “downward causation,” the idea that higher levels of organization, and scientific laws formulated at these higher levels, affect lower level entities; causation is not all one way, from lower to higher levels.⁸⁴

It seems to me, and Torrance would agree, that we should accord at least equal reality and causal efficacy to higher level phenomena such as consciousness as to those at the lowest levels, atoms and molecules. In fact, the study of whole systems, rather than simply individual parts, is increasingly seen as necessary in science, and is required for the study of subjects as diverse as quantum physics (especially the phenomenon of quantum entanglement) and systems biology.⁸⁵

There are two ways in which the insight of Gödel’s theorem strengthens the anti-reductionist, pro-emergentist case. The theorem states that any

81 P. W. Atkins, *The Creation* (Oxford: W. H. Freeman & Co., 1981), 35-37.

82 Francis Crick, *The Astonishing Hypothesis: The Scientific Search for the Soul* (London: Simon and Schuster, 1994), 3.

83 J. B. S. Haldane, *Possible Worlds and Other Essays* (London: Chatto and Windus, 1927), 209.

84 Donald T. Campbell, “‘Downward Causation’ in Hierarchically Organised Biological Systems” in *Studies in the Philosophy of Biology: Reduction and Related Problems*, ed. F. J. Ayala and T. Dobzhansky (London: MacMillan, 1974), 179-186.

85 Denis Noble, *The Music of Life: Biology Beyond the Genome* (Oxford: Oxford University Press, 2006).

mathematical system as complicated as (or more complicated than) arithmetic is incomplete, or else it is inconsistent. Indeed, true statements can be produced by human mathematicians that lie outside the scope of deduction within such a mathematical system. It follows from Gödel's theorem that physics is incomplete. There will be statements in physics that are true but unprovable. As Paul Davies puts it, "No rational system can be proved both consistent and complete. There will always remain some openness, some element of mystery, something unexplained."⁸⁶ And Stephen Hawking changed his mind about the possibility of a physical theory of everything precisely because this is ruled out by Gödel's theorem.⁸⁷ Torrance refers to the impossibility of complete logicalization of any science, because of Gödel's theorem, in a number of places.⁸⁸

The second way in which Gödel's theorem strengthens the anti-reductionist case is by countering the notion, propagated by proponents of "strong artificial intelligence," that the human mind is no more than a sophisticated digital computer. As Roger Penrose argues, computers operate algorithmically, that is, according to sets of rules that operate in the same way as the logical rules whereby mathematical theorems are derived by logical deduction from axioms.⁸⁹ There are, therefore, truths which a human being can know but which a computer can never derive.

Like Polkinghorne,⁹⁰ Torrance also rightly sees the thermodynamics of non-equilibrium or open systems — especially as in the work of Ilya Prigogine and his collaborators at the University of Brussels on dissipative systems far from equilibrium — as a locus for the emergence of extra factors in which temporal becoming has a place. Prigogine's work shows how a new kind of organization spontaneously emerges out of apparently random fluctuations far from a state of equilibrium.⁹¹

Torrance also, very significantly, sees contingency in the existence of the universe in the first place and in its initial conditions, and in the laws with which it is endowed. In cosmology, Torrance rightly notes, "relentless research carries

86 Paul Davies, *The Mind of God* (London: Simon and Schuster, London, 1992), 167.

87 Stephen W. Hawking, "Gödel and the End of Physics," public lecture, Dirac Centennial Celebration, Cambridge, 20 July 2002; <http://www.damtp.cam.ac.uk/dirac/dirac/hawking/>, accessed 13 February 2017.

88 E.g. Torrance, *Theological Science*, 255; *Divine and Contingent Order*, 52, 54, 157 n. 55.

89 Roger Penrose, *The Emperor's New Mind: Concerning Computers, Minds and the Laws of Physics* (Oxford: Oxford University Press), 1989. Penrose has responded to critics of his position in Roger Penrose, *Shadows of the Mind* (Oxford: Oxford University Press, 1994).

90 Polkinghorne, *Reason and Reality*, 38.

91 Torrance, *Divine and Contingent Order*, 55; *Ground and Grammar*, 12, 141.

us to zero points before which physical laws, as we have formulated them, become critical and peculiar, and even predict their own downfall."⁹² In a similar vein, Torrance writes:

Our theories have come up against the limits set for us by the initial conditions of nature which, though they cannot be accounted for within the frame of our physical laws, are nevertheless essential to the rational enterprise of science.⁹³

The breakdown of physical laws at the beginning is the reason why atheist Fred Hoyle disliked the Big Bang theory — which he was responsible for naming — and came up with his alternative of the "steady-state."⁹⁴ Today, this question is still very much alive, with cosmologists coming up with speculative theories, such as string theory or the Hawking and Hartle "no boundary proposal,"⁹⁵ to try and describe the first tiniest fraction of a second after the Big Bang, or even to avoid a beginning at all. Yet Alexander Vilenkin and his colleagues have shown through the singularity theorems they have proved that "all the evidence says that the universe had a beginning."⁹⁶

Not only is the Big Bang singularity a contingent event, it is also the case, says Torrance, that "contingence must be integrated into the basic structure of our scientific theories and explanations which means that physical laws themselves must be recognized as contingent."⁹⁷ Why the particular physical laws which pertain to our universe do so is a great mystery which leads cosmologists into further areas of arguably metaphysical, rather than scientific, speculation involving multiverses: enormous, usually infinite collections of universes in which all the different possible laws apply. Torrance has it right, saying:

There is no intrinsic reason in the universe why it should exist at all, or why it should be what it actually is: hence we deceive ourselves if in our natural science we think that we can establish that the universe could only be what it is.⁹⁸

92 Torrance, *Divine and Contingent Order*, 27.

93 Ibid., 27-28.

94 Helge Kragh, *Cosmology and Controversy: The Historical Development of Two Theories of the Universe* (Princeton, NJ: Princeton University Press, 1996), 253.

95 Stephen Hawking, *A Brief History of Time: From the Big Bang to Black Holes* (London: Bantam, 1988), 136-141.

96 Said by Vilenkin at a Cambridge symposium held in early 2012 in honour of Stephen Hawking's 70th birthday. See Lisa Grossman, "Death of the Eternal Cosmos," *New Scientist* 213, no. 2847 (Jan 2012): 6-7.

97 Torrance, *Divine and Contingent Order*, 28.

98 Ibid., 36.

In a footnote to the above quotation we find this very interesting passage:

This is a question as to the absolute necessity of our actual universe including its initial conditions: why is there something and not nothing, and why this particular something? — to which only an *extrinsic* answer can be given, i.e. from divine revelation. It must be distinguished, therefore, from the extremely interesting question behind the so-called “anthropic principle”: given the initial conditions of the universe, why has it expanded in such a way as to give rise to man? — to which an answer may be given in the light of the realization that if the universe were not what it actually is, no intelligent life could have developed and it would not be comprehensible.⁹⁹

Torrance then refers, *inter alia*, to the classic paper on the anthropic principle by Martin Rees and Bernard Carr,¹⁰⁰ which was brought to his attention by his friend, the great radio astronomer Sir Bernard Lovell. The “anthropic principle” is indeed very interesting and a matter on which I have written at length elsewhere.¹⁰¹ It has to do not just with initial conditions — which go beyond there being a singularity to such factors as the initial expansion rate and mean energy-density — but also with the values of the fundamental constants of physics. Both the initial conditions and the constants have to be “just right,” as Paul Davies puts it, “like Goldilocks’ porridge,” for the universe to give rise to life.¹⁰² It is not enough to say that the universe must be as it is, otherwise we would not be here, since it could have been different from what it is in infinitely many ways. Why it is the way it is demands an explanation since the conditions required for a life-conducive universe are so special. And here, if one is an atheist, one is virtually driven to speculate that all possible values of the constants are instantiated in different universes, or even that all possible laws of physics are instantiated in different universes. One is then not supposed to be surprised that a universe that is “just right” for us to exist does exist and that we are in that particular universe. Torrance is clear:

in a finite and expanding universe in which *time* enters as an essential ingredient into its empirical reality, the questions why there are initial conditions rather than not, and why the initial conditions are what they are, cannot be avoided.

99 Ibid., 146.

100 B. J. Carr and M. J. Rees, “The Anthropic Principle and the Structure of the Physical World,” *Nature* (1979): 605-612.

101 Rodney D. Holder, *God, the Multiverse, and Everything: Modern Cosmology and the Argument from Design* (Aldershot, and Burlington, VT: Ashgate, 2004); Rodney D. Holder, *Big Bang, Big God: A Universe Designed for Life?* (Oxford: Lion Hudson, 2013).

102 Paul Davies, *The Goldilocks Enigma: Why is the Universe Just Right for Life?* (London: Allen Lane, 2006), 3.

That is to say, the initial conditions, singularities though they are, are also boundary conditions that bear upon an intelligible ground beyond themselves, and that require this meta-empirical reference to be consistently and intelligibly integrated within the universe, upon the nature of which they have such a decisive influence.¹⁰³

It is a pity that Torrance focuses entirely on the singularity where physics breaks down. We can also talk about the conditions one second after the beginning, when the mean density needed to be within one part in 10^{15} of what it actually was for life to arise, or even 10^{-43} seconds after the beginning (the earliest time we can sensibly speak about) when the mean density needed to be right to one part in 10^{60} .¹⁰⁴ It is also a pity that Torrance does not focus on the need for the fundamental constants of physics to be “just right.” I do not have time to develop all the arguments and counter-arguments here (for example, the role of inflation in solving some of the fine-tunings at the expense of being fine-tuned itself, but then the subsequent development of inflationary multiverses), and so refer the reader to the literature.

Coming back to Torrance, it certainly looks to me as if cosmological and design arguments can be drawn from what he says. Why does the universe exist, and why is it structured in such a way that it gives rise to life? Inference to the best explanation would arguably lead us to prefer a theistic answer to one that says that the universe is just a brute fact. Bayesian confirmation theory can formalize the argument by comparing theistic and atheistic hypotheses, such as a brute fact universe or a multiverse not created by God.¹⁰⁵ It just strikes me as a pity that Torrance has ruled out such arguments by what he has said about natural theology and has thereby missed an important tool in the apologetic armory.

Conclusion

Thomas Torrance is one of few theologians of his stature to engage with the natural sciences. Indeed, he sees theology itself as a science. This is because theology engages with its object in the manner appropriate to it. I have noted the positive implication of this, that the object is given to us externally, just as curved space-time forces itself upon us. *Pace Kant*, in neither instance are we simply constructing what “must” be the case out of our own brain structures.

103 Torrance, *Divine and Contingent Order*, 46.

104 Holder, *Big Bang, Big God*, 88.

105 Holder, *God, the Multiverse, and Everything*, 88-112; Holder, *Big Bang, Big God*, 155-178.

On the other hand, this does seem to represent a minimal kind of commonality with science. In the modern world the reality of the object of theology is disputed, and it seems not enough to say that it is accorded to us by an inner experience of God's grace. We need to bring arguments to bear using tools of rationality that are shared across disciplines. We cannot, moreover, in the light of two hundred years of historical criticism, simply accept God's revelation to us in Scripture as given, but again need to bring rational tools of enquiry to bear. It is my belief that there are good arguments, both to support theistic belief and to render basic Christian tenets rationally supportable, but Torrance seems to deny us these.

Thus, Torrance denies the validity of natural theology as traditionally conceived. Rather, he reinterprets natural theology in an ingenious way, as a kind of "theological geometry" analogous to Einstein's incorporation of geometry into physics through general relativity. However, it appears to me that this leads, in Torrance's thought, more to what we should call a theology of nature than natural theology.

When discussing the natural sciences in detail, Torrance displays impressive erudition even if he entertains some misunderstandings. Of vital importance to him are the universe's comprehensibility and, in many different ways, its contingency. The openness of the universe to human scientific enquiry was a mystery for Torrance's scientific hero, Einstein, and I have pointed out that it can be used, as it is by John Polkinghorne, as an element in natural theological argument of the traditional kind. It accords with Christian doctrine, but can also point to the truth of that doctrine.

Similarly, the contingency of the universe accords with the Christian doctrine of creation, that God freely created the universe (and this particular universe at that) out of all the possible universes held in the mind of God. That contingency is most evident in the very existence of the universe in the first place, in its initial conditions (including its beginning at a singularity), in the particular laws instantiated in it (with the particular constants of physics with which these laws are endowed), in its incompleteness, and in its openness to genuine novelty in the increasing levels of complexity which arise in its unfolding evolution.

Despite my criticisms, I remain deeply impressed by Torrance's contribution to the science-religion dialogue and count him a worthy winner of the 1978 Templeton Prize.

THE FUNCTION OF SCIENTIFIC THEORY IN THE THOUGHT OF T. F. TORRANCE

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Abstract: *T. F. Torrance's interest in the nature of natural and theological science is well known, but his position relative to major contemporary philosophers and philosophical traditions is not. This paper surveys the positions advocated by several of the most important philosophers of science in the twentieth century and locates Torrance's views within that landscape. While few, if any, of the consequences of Torrance's understanding of scientific theory are unique, when taken as a whole they provide a compelling view of science that is rooted in distinctly Christian convictions.*

Introduction

T. F. Torrance's interest in the natural sciences, both in themselves as well as in their function as dialogue partners with Christian theology, is well known. However, Torrance was not particularly clear as to how his thoughts on the nature of science were either similar or dissimilar to the main views propagated during his academic career. Indeed, if one were to read Torrance's scientific and epistemological writings, one might be left with the idea that Torrance represents something like the consensus view among scientists and philosophers of science. While it is true that very little in Torrance's understanding of science is unique, it is clearly distinguishable from the most influential views put forward by major philosophers of science.

This paper intends to summarize the way various philosophers in the twentieth century understood the function of scientific theory and then to

show how Torrance's views are either similar or dissimilar from them.¹ It is not possible to understand Torrance's subtle and nuanced perspective unless one understands the major landmarks in the philosophical landscape at the time. Out of concerns for space, these views will be presented as succinctly as possible and without comment as to the criticisms that could and have been raised against them. Suffice it to say that, in this more or less chronological presentation of major philosophical perspectives, later views are largely developed in contrast to the ones that came before. It is also hoped that this approach, in addition to clarifying Torrance's understanding of scientific theory, will pique interest in the larger issues within philosophy of science among theologians and Torrance scholars by giving something of an introduction to a field with which they may not have much experience.

In the overwhelming majority of cases, Torrance did not engage substantively with these philosophers. As such, this paper will be more concerned with comparing and contrasting Torrance's position with those surveyed in the first half of the paper rather than attempting to explain how Torrance developed his views in conversation with them, for he did not do so. This paper is envisaged as being in the same spirit as Torrance's own essay comparing and contrasting the philosophy of Michael Polanyi with other important thinkers.²

Positivism

One of the major movements within philosophy of science in the early twentieth century, and one that Torrance responded to, is positivism. Ernst Mach was one of the primary influences on what became the positivism of the Vienna Circle. Mach championed a robust empiricism that aimed for scientific theory to go only as far as experience went and no further. Michael Polanyi summarizes the function of scientific theory in Mach's thought: "Scientific theory, according

1 Some will notice the conspicuous absence of thinkers like Albert Einstein and Michael Polanyi from this essay. Their omission is intentional. This is not because their work is unimportant and certainly not because they were not significantly influential for Torrance, but because the role of their contributions is often overshadowed by others in philosophy of science. Additionally, as Torrance engaged in more explicit dialogue with such thinkers, they are more widely known by Torrance commentators.

2 T. F. Torrance, "The Place of Michael Polanyi in Modern Philosophy of Science," in *Transformation and Convergence in the Frame of Knowledge* (Grand Rapids, MI: Eerdmans, 1984), 107-173. A robust constructive account of Torrance's philosophy of science is beyond the scope of this paper. For such an account, see Travis M. Stevick, *Encountering Reality: T. F. Torrance on Truth and Human Understanding* (Minneapolis, Fortress Press, 2016).

to Mach, is merely a convenient summary of experience. Its purpose is to save time and trouble in recording observations. It is the most economical adaptation of thought to facts, and just as external to the facts as a map, a timetable, or a telephone directory; indeed, this conception of scientific theory would include a timetable or a telephone directory among scientific theories.”³

Later, logical positivists like A. J. Ayer would crystallize this kind of understanding of scientific theory in the verification criterion of meaning. “The criterion which we use to test the genuineness of apparent statements of fact is the criterion of verifiability. We say that a sentence is factually significant to any given person, if, and only if, he knows how to verify the proposition which it purports to express — that is, if he knows what observations would lead him, under certain conditions, to accept the proposition as being true, or reject it as being false.”⁴ The key characteristic of the function of theory in positivist philosophy of science is the attempt to eliminate metaphysical considerations from scientific theory.

In this respect, positivism is seeking to remain in continuity with the scientific standards claimed by Isaac Newton. Newton famously attempted a similar elimination of non-empirical elements from scientific theory. In particular, Newton claimed that “Whatever is not deduced from phenomena, is to be called an hypothesis; and hypotheses, whether metaphysical or physical, whether of occult qualities or mechanical, have no place in experimental philosophy. In this philosophy particular propositions are inferred from the phenomena, and afterwards rendered general by induction.”⁵

Karl Popper

There is perhaps no greater single influence on the popular understanding of science in today’s world than Karl Popper. Versions of his philosophy of “critical rationalism” can be found, even in recent popular debates in science, such as that between Bill Nye and Ken Ham. The crucial difference between Popper and the positivists is that, while the positivists sought a criterion for whether a statement

3 Michael Polanyi, *Personal Knowledge: Towards a Post-Critical Philosophy* (Chicago: University of Chicago Press, 1958), 9.

4 Alfred Jules Ayer, *Language, Truth and Logic* (London: Victor Gollancz, 1964), 35.

5 Torrance, *Transformation and Convergence*, 16–18. Torrance cites this as coming from Newton, *Principia*, 575 [*The Principia: Mathematical Principles of Natural Philosophy*, tran. I. Bernard Cohen and Anne Whitman (Berkeley, CA: University of California Press, 1999), 943] and *Opticks: Or a Treatise of the Reflections, Refractions, Inflections & Colours of Light*, 4th ed. (London: G. Bell & Sons, 1931), 369.

or theory was *meaningful*, for Popper, the question was not over a statement's or theory's *meaningfulness*, but over its status as either *science* or *pseudo-science*.⁶

Popper argues that what distinguishes science from all forms of pseudo-science is that, unlike pseudo-science, science is inherently *falsifiable*. A scientific theory cannot be compatible with every conceivable piece of evidence.⁷ It must be incompatible with at least *some* conceivable evidence if it is to advance our knowledge. A scientific theory could be supported by a million observations, but that is no guarantee that the million-and-first observation will not show that what seemed to be a law of nature was really no more than frequently conjoined phenomena. For Popper, a scientific theory must declare *some* observations to be impossible. In this case, it is fairly simple to falsify the theory; one needs only to produce an observation of an occurrence that the theory claimed to be impossible.

Assume that we have deliberately made it our task to live in this unknown world of ours; to adjust ourselves to it as well as we can; to take advantage of the opportunities we can find in it; and to explain it, *if possible* (we need not assume that it is), and as far as possible, with the help of laws and explanatory theories. *If we have made this our task, then there is no more rational procedure than the method of trial and error — of conjecture and refutation:* of boldly proposing theories; of trying our best to show that these theories are erroneous; and of accepting them tentatively if our critical efforts are unsuccessful.⁸

Thomas Kuhn

In 1962, Thomas S. Kuhn published his landmark text, *The Structure of Scientific Revolutions*. In this work, Kuhn suggests that no scientific theories are perfect representations of the world as it really is but are always beset, to a greater or lesser degree, by various recalcitrant data which do not easily or naturally fit into the view of the world set forward by the theory. In light of this claim, Kuhn distinguishes between two kinds or modes of scientific activity. One of these is called "revolutionary science," in which scientists behave more or less (though not exactly) like Popper argues they should,⁹ treating such

6 Karl R. Popper, *Conjectures and Refutations: The Growth of Scientific Knowledge*, Revised 4th ed. (London: Butler & Tanner, 1976), 33-37.

7 Popper, *Conjectures and Refutations*, 36.

8 Popper, *Conjectures and Refutations*, 51, author's emphasis.

9 Thomas S. Kuhn, "Logic of Discovery Or Psychology of Research?" In *Criticism and the Growth of Knowledge: Proceedings of the International Colloquium in the Philosophy of Science, London, 1965*, Volume 4, ed. Imre Lakatos and Alan Musgrave (Cambridge: Cambridge University Press, 1970), 1.

data as a refutation of the theory and seeking a better alternative to replace it. The other kind or mode of scientific activity is what he calls "normal science," where such data is seen as merely anomalous and more or less ignored in the hopes that either subsequent research will show that the data was wrong in the first place, or else that there will arise a way to assimilate it into the reigning theoretical framework.¹⁰ In actual practice, anomalous data are not seen as being a real *danger* to the theory until trust in the theory has been eroded for one reason or another (sometimes due to the accumulation of anomalies).¹¹

While Kuhn does not wish to deny the reality and importance of revolutionary science, his book arises out of the conviction that *most* scientists spend *most* of their time within the context of normal science, where they engage in "research firmly based upon one or more past scientific achievements, achievements that some particular scientific community acknowledges for a time as supplying the foundation for its further practice."¹² Most of what we call science is done within the context of a theoretical framework that has two characteristics. First, when the foundational theoretical work was advanced, it "was sufficiently unprecedented to attract an enduring group of adherents away from competing modes of scientific activity." Second, "it was sufficiently open-ended to leave all sorts of problems for the redefined group of practitioners to resolve."¹³ In this kind of scenario, Kuhn says that scientists are operating with a "paradigm."

Because scientific theory functions, in this kind of context, as an overarching foundation on which scientific research is built and a framework in which scientific achievements are fitted, the paradigm within which scientists work not only partly determine what problems scientists will find both interesting and likely to be solvable and what kinds of explanations scientists will find plausible and compelling, but it will also begin to shape the *experience* of the scientist so that they begin to see the *world* in terms of the paradigm.¹⁴

10 Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3rd ed. (Chicago: University of Chicago Press, 1996), 82.

11 For an example of what it looks like for someone gradually losing confidence in a paradigm, see Kuhn, *The Structure of Scientific Revolutions*, 62-64.

12 Ibid., 10.

13 Ibid.

14 Ibid., 110-135. Some may notice a certain similarity between Kuhn's work and that of Michael Polanyi. Kuhn notes Polanyi's influence on his writing in his book. "Michael Polanyi has brilliantly developed a very similar theme, arguing that much of the scientist's success depends upon 'tacit knowledge,' i.e., upon knowledge that is acquired through practice that cannot be articulated explicitly." Ibid., 44n. Torrance notes this in *Transformation and Convergence*, 260n.

This understanding of the function of scientific theory may seem counter-intuitive, and was indeed seen as such by some, including Popper,¹⁵ Kuhn gives some examples of how different paradigms might not only *explain* the same phenomenon in different ways but also *experience* the phenomenon differently. One example is that of what we would now call pendular movement, such as we might see in a clock. This kind of movement was not always experienced this way. According to an Aristotelian interpretation, a weight suspended at the end of a string behaves the way it does because the weight wants to find its “natural” state of rest as close to earth as possible. As such, the function of the string is to constrain the fall. Kuhn argues that these two ways of interpreting the same phenomenon imply that people who inhabit these different paradigms actually *experience* things differently.¹⁶

This has profound implications for those who would claim that science is to be believed and privileged over other ways of gaining knowledge because it generates theoretical representations that are either true or approximately true (we will return to this idea later). If Kuhn’s account of the function of scientific theory is correct, then we cannot be assured that *any* of our theories is either true or approximately true because successive paradigms are not only different from one another, but we may not even be able to adequately *compare* them to one another. To make the implications of Kuhn’s philosophy as clear as possible, he will be quoted at length.

Let us, therefore, now take it for granted that the differences between successive paradigms are both necessary and irreconcilable. Can we then say more explicitly what sorts of differences these are? The most apparent type has already been illustrated repeatedly. Successive paradigms tell us different things about the population of the universe and about that population’s behavior. They differ, that is, about such questions as the existence of subatomic particles, the materiality of light, and the conservation of heat or energy. These are the substantive differences between successive paradigms, and they require no further illustration. But paradigms differ in more than substance, for they are directed not only to nature but also back upon the science that produced them. They are the source of the methods, problem-field, and standards of solution accepted by any mature scientific community at any given time. As a result, the reception of a new paradigm often necessitates a redefinition of the corresponding science. Some old problems may be relegated to another science or declared entirely “unscientific.”

15 Karl R. Popper, “Normal Science and its Dangers” in *Criticism and the Growth of Knowledge*, 51-58.

16 Kuhn, *The Structure of Scientific Revolutions*, 118-121.

Others that were previously non-existent or trivial may, with a new paradigm, become the very archetypes of significant achievement. And as the problems change, so, often, does the standard that distinguishes a real scientific solution from a mere metaphysical speculation, word game, or mathematical play. The normal-scientific tradition that emerges from a scientific revolution is not only incompatible but often actually incommensurable with that which has gone before.¹⁷

That is to say, after a science proceeds through a revolution, it is not usually the case that the new paradigm is better at answering all the questions that the old paradigm could answer and a few more;¹⁸ rather it is often the case that the new paradigm will simply declare some of the issues covered by the old paradigm as no longer part of the domain of that science.

This idea, that subsequent paradigms are frequently incommensurable with one another, should not be taken too strongly, especially when dealing with their practical implications. It is sometimes the case that a replaced paradigm can retain its usefulness as a “limiting case” of the new one.¹⁹ For example, Newtonian physics is not strictly translatable into Einsteinian physics. However, for many cases, including essentially everything in our daily lives, Newtonian physics gives us results that are indistinguishable from the Einsteinian results in practice. With appropriate restrictions, “replaced” theories and paradigms can sometimes function as special cases of those that replace them.²⁰

It is difficult to overstate Kuhn’s influence on subsequent philosophy of science. While his views have been critiqued in various ways, they remain perennially significant and those who work in the field are not free to ignore them. They must either accept them or else respond to them.

Imre Lakatos

Imre Lakatos was a passionate defender of Karl Popper’s philosophy of falsificationism. He believed that Popper was basically right, but he was troubled by some elements of Kuhn’s philosophy that he felt were warranted. There were some elements of Kuhn’s paradigm theory that seemed to be sound and needed to be accepted, but there were others that he found distasteful.

17 Ibid., 103.

18 Contra Richard Feynman, *The Character of Physical Law* (London: Cox and Wyman, 1965), 165.

19 For more on “limiting cases,” see Stevick, *Encountering Reality*, 184-187.

20 This is not the case for every replaced theory. For example, the Phlogiston theory of combustion is not a special case of the oxygen theory.

Rather than simply reject Kuhn's perspective, Lakatos sought to explain why Popper's philosophy need not deny what he felt were Kuhn's key advances.²¹

Perhaps nothing bothered Lakatos more than the fact that Kuhn not only failed to articulate the conditions under which a scientific theory should be abandoned, but claimed that it is actually impossible to articulate such conditions. For Lakatos, the difference between Popper and Kuhn could not be greater: "For Popper scientific change is rational or at least rationally reconstructible and falls in the realm of the *logic of discovery*. For Kuhn scientific change — from one 'paradigm' to another — is a mystical conversion which is not and cannot be governed by rules of reason and which falls totally within the realm of the (*social*) *psychology of discovery*. Scientific change is a kind of religious change."²²

As such, Lakatos set out to defend a kind of Popperian "critical rationalism" that did not fall victim to Kuhn's historical critique. In essence,²³ Lakatos proposed that the ideal, usually thought of as Popper's own view where a scientific theory can be refuted by a single observation, is intuitively false.²⁴ Part of this is because "some scientific theories are normally interpreted as containing a *ceteris paribus* clause: in such cases it is always a specific theory *together* with this clause which may be refuted."²⁵ Lakatos provides an example: "'All swans are white,' if true, would be a mere curiosity unless it asserted that swanness *causes* whiteness. But then a black swan would not refute this proposition, since it may only indicate *other causes* operating simultaneously. Thus 'all swans are white' is either an oddity and easily disprovable or a scientific proposition with a *ceteris paribus* clause and therefore undisprovable."²⁶

Lakatos disapproves of both Kuhn's position, which he believes turns scientific change into nothing more than "religious change,"²⁷ as well as what he regards as a naïve reading of Popper. He contrasts his more sophisticated falsificationism with a more Kuhnian perspective.

21 In fact, Lakatos takes the somewhat questionable approach of presenting his perspective as if it actually *was* Popper's views, if not distorted by caricature. Most philosophers would consider Lakatos' account of scientific theory as going beyond Popper, even if Lakatos attempted to keep continuity with Popper's philosophy.

22 Imre Lakatos, "Falsification and the Methodology of Scientific Research Programmes," in *Criticism and the Growth of Knowledge*, 93.

23 Those who wish more detail can find it in Lakatos' original exposition, "Falsification and the Methodology," 91-196.

24 Ibid., 103.

25 Ibid., 101.

26 Ibid., 102.

27 Ibid., 93.

The Duhemian *conservative conventionalist* (or “methodological justificationist,” if you wish) makes unfalsifiable by *fiat* some (spatio-temporally) universal theories, which are distinguished by their explanatory power, simplicity, or beauty. Our Popperian *revolutionary conventionalist* (or “methodological falsificationist”) makes unfalsifiable by *fiat* some (spatial-temporally) singular statements which are distinguishable by the fact that there exists at the time a “relevant technique” such that “anyone who has learned it” will be able to *decide* that the statement is “acceptable.”²⁸

In practice, Lakatos suggests that proper rational activity consists in pursuing a “research program” in which we hold on to a “hard core” of theoretical convictions that are surrounded by what he calls a “protective belt of auxiliary hypotheses.”²⁹ In doing this, Lakatos hopes to abandon the idea that one piece of seemingly contradictory evidence must force an abandonment of an otherwise fruitful theory without tumbling into a view that claims that empirical considerations are not seen as decisive for theory choice.

Lakatos’ position, however, brings with it several implications that may be undesirable. It means that we can no longer decide whether it is rational to accept a particular theoretical framework in any given moment. The rationality or irrationality of accepting a particular research program depends upon whether it is successful or unsuccessful, which Lakatos ties with whether it leads to a progressive or a degenerating problemshift, respectively.³⁰ However, Lakatos also points out that we are frequently unable to decide whether a problemshift is either progressive or degenerating until many years have gone by.³¹ By his own admission, he believes that the goal of “instant rationality,” where we can be assured of the rationality of our behavior at any moment, is a “utopia,” and that all epistemological theories which attempt to secure it for us ultimately fail.³²

This admission, which appears after a lengthy analysis of historical case studies, raises the question as to whether Lakatos, by his own assessment, has succeeded in his defense of key elements of Popper’s philosophy. If one cannot determine at any point in time whether they are behaving rationally and rationality can only be assessed after the fact, could one not say that the best one can hope for is to be deemed rational by subsequent generations of

28 Ibid., 106.

29 Ibid., 132-137.

30 Ibid., 133.

31 Ibid., 173-174.

32 Ibid., 174.

scientists and philosophers? While this does not tie the philosophical notion of “truth” to “[changing] consensus,” which Lakatos clearly dislikes,³³ it could be seen as a significant critique of a crucial aspect of Popper’s thought that was untouched by Kuhn’s work. For Popper, we may not know for sure that we have a true theory, but we can know for sure when we should abandon a theory. For Lakatos, this decision might not be clear until decades or centuries later.

Regardless of whether any individual finds Lakatos’ work convincing, anyone interested in the interaction between theology and the philosophy of science should be aware of his work as it has become rather influential among theologians and theologically-minded Christian philosophers.³⁴ Despite this influence, it must also be noted that Lakatos has by no means said the final word on the function of scientific theory.

Paul Feyerabend

Lakatos had a philosophical foil during his life in the person of Paul K. Feyerabend. These two men disagreed profoundly but seemed to respect one another and enjoy one another’s company.³⁵ If Lakatos was searching for rules of rationality and sought the ideal that scientific change was either rational or else rationally reconstructable,³⁶ Feyerabend was skeptical of any kind of rule that is seen to govern *a priori* how science may or may not proceed.

It is clear, then, that the idea of a fixed method, or of a fixed theory of rationality, rests on too naive a view of man and his social surroundings. To those who look at the rich material provided by history, and who are not intent on impoverishing it in order to please their lower instincts, their craving for intellectual security in the form of clarity, precision, “objectivity,” “truth,” it will become clear that there is only *one* principle that can be defended under *all* circumstances and in *all* stages of human development. It is the principle: *anything goes*.³⁷

Feyerabend has the reputation of being a radical relativist but, as this quotation shows, he was not trying to say that *anything* counts as science but that, if we

33 Ibid., 92.

34 Perhaps most influentially in Nancey Murphy, *Theology in the Age of Scientific Reasoning* (Ithaca: Cornell University Press, 1990), and those following her, such as J. Wentzel Van Huyssteen, *Essays in Postfoundationalist Theology* (Grand Rapids: William B. Eerdmans Publishing Company, 1997).

35 Paul K. Feyerabend, *Against Method*, 3rd ed. (London: Verso, 1993), vii.

36 Lakatos, “Falsification,” 93.

37 Feyerabend, *Against Method*, 19.

feel we must follow a rule rigidly and at all times, the only rule we can follow is that anything goes, or at least anything *can* go.

While Feyerabend is not known as providing a fundamentally new way of conceiving scientific theory, as his approach was mostly critical rather than constructive, he remains important for the purposes of this essay for a few reasons. First, he represents a crucial voice that can remind us to look for the limits of our theoretical constructions. Second, he represents a decidedly non-Lakatosian perspective that, even if not accepted, needs to be noted within the theology-science interaction. Third, while Torrance's references to Feyerabend are almost non-existent,³⁸ there are certain areas of resonance between the two men that have inspired a monograph and deserve further engagement.³⁹

Bas Van Fraassen

One of the more influential understandings of the function of scientific theory to emerge in the later years of Torrance's career is the position known as "constructive empiricism" advocated by Bas C. Van Fraassen. Constructive empiricism is, in some ways, a further development of one of the key ideas of positivism, that experience is the only relevant criterion for whether we should accept a theory or not. Specifically, Van Fraassen's understanding is that "[s]cience aims to give us theories which are empirically adequate: and acceptance of a theory involves as belief only that it is empirically adequate."⁴⁰

In spite of a family resemblance, there are some crucial differences between Van Fraassen's views and that of the positivists. Van Fraassen has no problems with accepting scientific theories that go beyond experience, only that we do not *believe* anything other than the theory's empirical adequacy. Indeed, Van Fraassen states, "I use the adjective 'constructive' to indicate my view that

38 The only explicit reference to Feyerabend of which I am aware is in an audio recording of a Q&A session after a lecture when Torrance was asked to reflect on Feyerabend. His response is rather critical and seems to reflect more an awareness of Feyerabend's reputation rather than a robust engagement with his work. https://www.gci.org/_lib/playaudio.php?program=MiscAud/TorranceGrammar2QA&title=Grammar+and+Ground (Accessed November 27th, 2017), 12:40-13:20.

39 See David Munchin, *Is Theology a Science?: The Nature of the Scientific Enterprise in the Scientific Theology of Thomas Forsyth Torrance and the Anarchic Epistemology of Paul Feyerabend*. Studies in Systematic Theology, vol. 7, ed. S. V. D. Bevens and Miikka Ruokanen (Leiden: Brill, 2011), and David Munchin, "'Is Theology a Science?' Paul Feyerabend's Anarchic Epistemology as Challenge Test to T. F. Torrance's Scientific Theology," *Scottish Journal of Theology* 64 (2011): 449.

40 Bas C. Van Fraassen, *The Scientific Image* (Oxford: Oxford University Press, 1980), 12.

scientific activity is one of construction rather than discovery: construction of models that must be adequate to the phenomena, and not discovery of truth concerning the unobservable."⁴¹

Van Fraassen's views also have resonances with Popper because of his stress on empirical adequacy. As stubborn phenomena count against the "truth" of a Popperian conjecture, so they count against the "empirical adequacy" of a Van Fraassenite theory. There is, however, the stronger notion that we are committed to our theories: "Acceptance involves not only belief but a certain commitment. Even for those of us who are not working scientists, the acceptance involves a commitment to confront any future phenomena by means of the conceptual resources of this theory. It determines the terms in which we shall seek explanations."⁴² For Van Fraassen, the importance of scientific theory is not so much in providing knowledge of the structure of the world, but in aiding the scientist in designing experiments.⁴³ As such, Van Fraassen is a committed anti-realist when it comes to interpreting scientific theories. However, he remains much less hostile to extra-empirical theoretical construction than the positivists.

Scientific Realism

One philosophical tradition that would seem to be a natural ally with Torrance's epistemological concerns is that of "scientific realism." Torrance often spoke of himself as a realist and valued realism to a high degree. However, if someone comes to the term "scientific realism" through Torrance's writings, they might get the impression that he presents something like the consensus view of what philosophers mean when they defend realism within the philosophy of science. This is not the case.

There are so many views that fall under the name "scientific realism"⁴⁴ that to attempt any unified discussion under this heading is bound to lead to confusion. While James Clerk Maxwell and Albert Einstein could truly be called "realists," this paper will focus on a particular tradition within scientific realism that, it is hoped, will illuminate ways in which Torrance's views are different from

41 Ibid., 5.

42 Ibid., 12.

43 Ibid., 73.

44 It does not do much to clarify things if we restrict ourselves to views calling themselves "critical realism," as there are many such views and they are by no means identical. For a discussion of the different ways the term has been used, see Andreas Losch, "On the Origins of Critical Realism," *Theology and Science* 7, no.1 (2009): 85–106.

the mainstream of scientific realism within philosophy of science in the latter twentieth century.

1962 was a watershed year in philosophy of science. It saw the publication of Kuhn's massively influential *Structure of Scientific Revolutions*. There was a second significantly important philosophical work published that same year, Grover Maxwell's "The Ontological Status of Theoretical Entities," that set out to establish a realistic interpretation of scientific theories over and against the characteristic positivist practice of treating scientific theories as "convenient fictions" or "calculating devices" in which "talk about [theoretical] entities is translatable without remainder into talk about sense contents or everyday physical objects."⁴⁵ Such views, to Maxwell, were so manifestly false that he hoped that his paper would be nothing more than a "demolition of straw men." The paper is a grand manifesto about the failure of positivistic philosophy of science.

Since the publishing of Maxwell's paper, many scientific realists have written to defend the reality of our theoretical entities. One of the more comprehensive defenses of this tradition of scientific realism comes from Stathis Psillos whose monograph, *Scientific Realism: How Science Tracks Truth*,⁴⁶ takes up many of the main arguments for and against realism. Psillos' aim is to defend "the view that mature and genuinely successful scientific theories should be accepted as nearly true" which, to him, is "an intuitively compelling philosophical claim."⁴⁷

In defending this claim, Psillos divides his book into four parts dealing with, respectively, the failure of strict empiricism, challenges to scientific realism, criticisms of alternatives to realism, and an attempt to provide a helpful articulation of the kinds of "tools" the realist needs to be able to sustain their position, such as the concept of verisimilitude and the reference of our theoretical terms. To express this structure in other terms, Psillos' approach seems to be primarily that of putting forth a philosophical position and then defending it more by attempting to refute its rivals than by constructing arguments for its acceptance or plausibility. This is not necessarily to its detriment. It does, however, reveal that Psillos believes the burden of proof should lie on those who would disagree with him rather than himself.

45 Grover Maxwell, "The Ontological Status of Theoretical Entities," in *Philosophy of Science: The Central Issues*, ed. Martin Curd, J. A. Cover (New York: W. W. Norton & Company, 1998), 1052.

46 Stathis Psillos, *Scientific Realism: How Science Tracks Truth*, Philosophical Issues in Science, ed. W. H. Newton-Smith (New York: Routledge, 1999).

47 Ibid., xvii.

Much could be said on the question as to whether to seek “approximate truth” is the proper goal of our scientific theories,⁴⁸ but Psillos represents something of a consensus view of the mainstream of the scientific realist tradition, though it should be noted that realist philosophers can be so divided as to the specifics of their views that philosopher Jarrett Leplin says they make a majority perspective appear as the minority.⁴⁹ What various realist perspectives tend to have in common is a stress on the reliability of our scientific theories to generate statements that are true. Science is a truth- (or approximate truth-) generating enterprise and should be relied upon as such. Much stress is laid on the fact that realism “works,” in that scientists who rely upon a realistic interpretation of their theories tend to be able to marshal that knowledge to the end of actual technological achievements that, it is argued, would not be possible if scientific theories were merely conventions.⁵⁰ While Torrance describes himself as a realist and shares certain interests with this mainstream of scientific realism, there are significant differences between them.

T. F. Torrance

We have surveyed several important understandings of the function of scientific theory throughout the twentieth century. For the positivists, scientific theory is the cataloguing of experience for organization and analysis. For Popper, scientific theories are bold, but fallible, conjectures we make about the nature of the world. For Kuhn, a scientific theory (in his sense of “paradigm”) is a coherent story we tell about the world that has explanatory power but that makes no claim to final authority. For Lakatos, theories are tools with a “hard core” of theoretical convictions with a “protective belt” of “auxiliary hypotheses,” that aim to produce “novel facts.” For the realists, theory aims at giving us an account of the world that is at least “approximately true.” Some of them overlap to one degree or another, while others represent more or less radical breaks with the views that have come before them.

Thomas F. Torrance, as a theologian interested in the theory and practice of science, has his own nuanced perspective on how science operates and on the function of scientific theory. Torrance’s views cannot be completely separated from the views already surveyed. His views will bear a certain family relation to

48 See Stevick, *Encountering Reality*, 112-114.

49 Jarrett Leplin, “Introduction,” in *Scientific Realism*, ed. Jarrett Leplin (Berkeley: University of California Press, 1984), 1.

50 See Norris, *Against Relativism: Philosophy of Science, Deconstruction, and Critical Theory* (Oxford: Blackwell, 1997), 248-264.

these others, especially in their implications. These similarities do not, however, diminish the significance of Torrance's perspective.

Science, whether natural or theological, is concerned with knowledge of reality and, for Torrance, we know something authentically only when we know it in accordance with its own nature (*kata physin*). This conviction is so central to Torrance's theological and epistemological concerns that it has been called the "fundamental axiom of Torrance's theology."⁵¹ This seemingly innocuous and even obvious axiom, when unpacked, has some profound implications for the function of scientific theory.

Perhaps the most far reaching implication for the purposes of this paper is that this conviction means that reality itself must always take precedence over our theoretical representations of it, no matter how good or helpful they may be.⁵² This is perhaps most clear in Torrance's writings when he uses Anselm as a dialogue partner to articulate a three-fold meaning of "truth."⁵³ First, there is truth when a sentence makes grammatical sense, a usage that could be called the syntactical truth of the sentence. Almost no one uses "truth" in this sense, but Anselm and Torrance want to include it under this term.

The second use of "truth" is the way almost everyone throughout history has used it, to describe a sentence that not only makes syntactical sense but actually refers faithfully to a state of affairs beyond itself. In this case, "truth" is something that characterizes our *statements* in their *relationship* to reality. Statements are more or less true to the degree that they more or less faithfully represent what is the case. This is the kind of truth that scientific realists hope to achieve in scientific theory. The perfect theory is one that tells "a literally true story of what the world is like."⁵⁴ Realists are quick to point out that, while it is their goal, they do not necessarily believe they have achieved such a literally

51 Elmer M. Colyer, *The Nature of Doctrine in T. F. Torrance's Theology* (Eugene, OR: Wipf and Stock, 2001), 15.

52 T. F. Torrance, "Theological Realism," In *The Philosophical Frontiers of Christian Theology: Essays Presented to D. M. MacKinnon*, (Cambridge: Cambridge University Press, 1982), 179.

53 Torrance's major discussions can be found in his *Reality and Evangelical Theology* (Philadelphia: Westminster, 1982), 126–37; *Reality and Scientific Theology*, Revised 2002 (Edinburgh: Scottish Academic, 1981), 143–47; "The Place of Word and Truth in Theological Inquiry According to St. Anselm," in *Studia Mediaevalia Et Mariologica*, P. Carolo Balic OFM Septvagesium Explendi Annum Dicta, ed. P. Zavalloni (Rome: Antonianum, 1971), 142–47; "Ethical Implications of Anselm's De Veritate," *Theologische Zeitschrift* 24, no. 5 (1968): 309–13.

54 Van Fraassen, *The Scientific Image*, 8.

true story, and that science, in the meantime, “aims at fruitful metaphor and at ever more detailed structure.”⁵⁵

If the first meaning of “truth” is the truth of a statement (in the syntactical sense), and if the second meaning of “truth” is the truth of a statement’s signifying something beyond itself, the third meaning of “truth” is the truth of “being.” Torrance, following his reading of Anselm, uses “truth” in a way to speak of something being what it is and not something else. While this usage of truth is non-standard (as most philosophers use it in the second sense above and may find this third usage discomforting), it highlights the crucial element of his understanding of the function of scientific theory.⁵⁶ Our theories can be true to the degree to which they adequately bear witness to the truth of reality itself.⁵⁷ However, just as we may never conflate our statements with that to which they refer, so we may never conflate reality with our knowledge of it.

This highest level of truth, in Anselm, is explicitly tied to the being of God, upon which all other truth depends. This helps to illuminate Torrance’s distinctly Christian starting point in his reflections on truth. For Torrance, the marginalization of the truth of statement by the truth of being is not merely one convention among others, but one that is demanded by the gospel itself.⁵⁸ All theology is an attempt to bear witness, through our statements, to the living Word of God.

This approach, arising out of distinctly Christian convictions, has implications that overflow into philosophy of science. Very few, if any, of these implications, when taken individually, are unique or without precedent in the history of the philosophy of science. Taken as a whole, however, Torrance’s position is noticeably different than each of the philosophers surveyed above. Torrance develops his understanding of the function of scientific theory as an overflow of his Christian convictions. This stands in sharp contrast to the practice of the logical positivists, who began with our experience of nature; of Popper, who responded to the weakness of such a view; of Kuhn, who began with the history of science; and of

55 Ernan McMullin, “A Case for Scientific Realism,” in *Scientific Realism*, ed. Jarrett Leplin, 35.

56 For a considerably expanded discussion of Torrance’s understanding of truth, see Stevick, *Encountering Reality*, 99-145.

57 It is interesting that, while Torrance almost never speaks of our theories “bearing witness” to the truth of reality, it is essentially the same relation as between our biblical-theological statements and the realities of the gospel. For the closest Torrance comes to using “bearing witness” in this way, see *Theological Science* (Oxford: Oxford University Press, 1969), 331-332.

58 Ibid., 134.

the scientific realists who, since Maxwell's paper, seem to begin with something like a scientific version of apologetics.

It is at this point that Torrance's position becomes noticeably different from the mainstream of scientific realism as discussed above. It was mentioned that, even when scientific realists reject the idea that our current theories provide a "literally true story of what the world is like," that is the ultimate goal of our theories. It is hoped that eventually our theories will indeed function like that, providing something of a one-to-one correspondence with reality.

For Torrance, by contrast, the function of scientific theories is to facilitate our attempt to "make contact" with reality in order to gain kataphysic knowledge of it.⁵⁹ As we come into contact with reality through our theories, we allow the inherent rationality of reality to call our theoretical formulations into question and force their revision. In this way, Torrance's views find a parallel in those of Karl Popper. However, Torrance disagrees with Popper in a few ways. While Torrance acknowledges that even our best theoretical formulations *risk* falsification, they do not *seek* falsification.⁶⁰ Rather, they seek to disclose reality to one degree or another, even if it should turn out that they are inadequate to the task.

Torrance calls attention to this fundamental function of scientific theories by calling them "disclosure models."⁶¹ Our theories are models of reality. However, they do not seek to be "picturing models," where the assumption is that there is, or should be, a one-to-one relationship between the model and reality. Rather, they seek to become transparent media through which we discern reality as it really is.⁶² In this way, there is a resonance between Torrance's and Kuhn's

59 Torrance takes this term from Polanyi: "One may say, indeed, quite generally, that a theory which we acclaim as rational in itself is thereby accredited with prophetic powers. We accept it in the hope of making contact with reality; so that, being really true, our theory may yet show forth its truth through future centuries in ways undreamed of by its authors." *Personal Knowledge*, 5.

60 Torrance, *Transformation and Convergence*, 121.

61 Torrance's key discussions of disclosure models can be found in his *Reality and Evangelical Theology*, 49–51; *Reality and Scientific Theology*, 85–86; *The Ground and Grammar of Theology* (Charlottesville, VA: University Press of Virginia, 1981), 124–27. See David Munchin, *Is Theology a Science?*, 227–233, for a discussion on "fluid axioms" that are deeply related to disclosure models. Indeed, they are largely just a different angle on the same topic.

62 For the language of "transparent medium," see T. F. Torrance, *Divine Meaning: Studies in Patristic Hermeneutics* (Edinburgh: T&T Clark, 1995), 319; *God and Rationality* (Oxford: Oxford University Press, 1971), 120; *Reality and Evangelical Theology*, 96–97, 117; *Ground and Grammar*, 125–126; *Theological Science*, 28, 39–40, 239–240, 245–246, 298; *Theology in Reconstruction* (Grand Rapids, MI: Eerdmans, 1965), 57; *Transformation and Convergence*, 89–90.

views. Disclosure models need to be coherent within themselves and, while they seek to be a faithful representation of reality, they need not tell a literally true story of what the world is like. Indeed, should use of the disclosure model have the result of new insight and understanding that results in its being marginalized or discarded, it will be because it has succeeded, not failed, in doing its job in facilitating contact with reality which was able to stand in judgment over it.⁶³

Torrance uses a handful of different metaphors to describe the way theory functions. Theory can be seen as a lens through which we discern reality, though subsequent investigation may reveal that any one of our “lenses” may have distorted reality in one way or another.⁶⁴ In his early work, Torrance used the idea of “analogue” to describe the function of our theories.⁶⁵ One helpful way of understanding the kind of investigation that, according to Torrance, helped to facilitate the development of modern science is the change in legal questioning from *quaestio* to *interrogatio*.⁶⁶ His account of this shift is worth quoting at length:

[Lorenzo Valla] wanted something more than the kind of question that had been traditionally asked in the West after Boethius, which was directed at untying a knot in some tangled piece of knowledge that we already have. In the mediaeval mode, this proceeded by posing problem questions, drawing distinctions, and by a logical process of argumentation for and against, straightening out the lines of thought from the premises to the conclusions: but all that this seemed to succeed in doing was to clarify knowledge that we already have. What Valla wanted was a mode of inquiry in which questions yield results that are entirely new, giving rise to knowledge that we cannot derive by an inferential process from what we already know. He found that kind of question in the works of the Latin Stoic lawyers and educators like Cicero and Quintilian: that is, for example, the kind of question employed in a court of law where documents,

63 Note that this appraisal of the replaced theory is different than Popper’s, whose philosophy claims that theories are replaced when they fail, rather than when they succeed.

64 For “lenses” language, see Torrance, *Incarnation*, 233; *Reality and Evangelical Theology*, 49-51, 117-118; *Reality and Scientific Theology*, 54-55, 147; *The Christian Frame of Mind* (Colorado Springs, CO: Helmers and Howard, 1989), 149; *Ground and Grammar*, 125-126; *The Mediation of Christ*, Revised ed. (Colorado Springs, CO: Helmers and Howard, 1992), 20; *Transformation and Convergence*, 89-90, 273-274.

65 With the exception of the quote from *Theological Science* below, it seems that Torrance’s use of “analogue” was more or less restricted to his *Theology in Reconstruction*.

66 For the relevant passages in Torrance, see *God and Rationality*, 34; *Juridical Law and Physical Law*, 2nd ed. (Eugene, CO: Wipf and Stock, 1997), 37; *Transformation and Convergence*, 267-268; *The Hermeneutics of John Calvin* (Edinburgh: Scottish Academic, 1988), 111-112.

witnesses, states of affairs are interrogated directly and openly, without any prior conception of what the truth might be, so as to let the truth itself, the whole truth and nothing but the truth, come to view.... Calvin applied it to the interpretation of the Scriptures, and thus became the father of modern biblical interpretation, but Francis Bacon applied it to the interpretation of the books of nature, as well as to the books of God, and became the father of modern empirical science, not of course that he was himself a great scientist — he lacked the mathematics for that — but he conceived of the empirical method which was to become so tellingly important.⁶⁷

Torrance describes what this kind of engagement looks like within the field of the natural sciences:

In the process of question and answer in some field, we find imposed upon us a new and enlightening form which we judge to be an important intimation or essential clue to the reality we are investigating. We make it central and organize the other forms round it in a harmonious pattern of reference. Then we imaginatively and tentatively project that as a hypothesis and put it as a complex question to the reality we are investigating in such a way that the answer is clearly intuited, and so once again in the light of what is revealed we proceed to reconstruct it. We clarify and sharpen its focus as an act of interrogation, we simplify and unify its conceptual form, in the hope that it will become such a transparent medium for our apprehension that our thoughts will fall under the power of the logic or the interior connection in the components of reality itself. This is the theory or “mechanism,” what we now call a “model,” or better still an “analogue” (especially for the more concrete and less mechanical sciences), but it remains only an instrument of reference in the successive advances of our cognitive interrogation, a kinetic model or analogue that is to be “operationally defined” (in Einstein’s sense), and must never be allowed to become fixed or rigid for that would suppress its intended function in discovery.⁶⁸

Much more could be said about what exactly is implied by Torrance’s notion of “disclosure models,”⁶⁹ but this summary of his position is sufficient to demonstrate both Torrance’s views and where they can be situated relative to the others surveyed above. As such, much of the remainder of this paper will consist of a close reading of this quotation and its implications.

Torrance believes that the key to the development of a scientific theory is to have “imposed upon us a new and enlightening form which we judge to be

67 Torrance, *Transformation and Convergence*, 267-268.

68 Torrance, *Theological Science*, 239-240. See also *Reality and Scientific Theology*, 26-27.

69 See Stevick, *Encountering Reality*, 159-195.

an important intimation or essential clue to the reality we are investigating." Already we can see the wide gulf between Torrance and the positivists. The very first step of theory development involves going beyond a strict representation of experience and the role of personal judgment in deciding which experiences are central and which are peripheral.⁷⁰

We then proceed by putting our incipient theory "as a complex question to the reality we are investigating in such a way that the answer is clearly intuited." So far, this looks rather a lot like Popper's procedure of conjectures and refutations. However, Torrance's perspective is more shaped by realist convictions. For Popper, a scientific theory is a bold conjecture which we hope will be true and which, ideally, we know ahead of time what new evidence would cause us to give it up and create a new theory. By contrast, Torrance suggests that we put this "question" to reality with the expectation that it will not, in fact, turn out to be entirely correct but that a theory can be *inadequate* (even *significantly*, or non-trivially inadequate) and yet not necessarily be *false*.⁷¹ Reality might not only say "no" to our false conjectures, it may also say "kind of" to our question. When this happens (this, again, is the expected result of a Torrancean disclosure model), our next step is not to throw out the theory and begin from scratch, but to modify and adjust our model. By doing so, we hope to ask a better "question" in order to get a better, or at least more illuminating answer.

The goal of this process of posing and revising our questions to reality is the hope that over time we will be left with something that "will become such a transparent medium for our apprehension that our thoughts will fall under the power of the logic or the interior connection in the components of reality itself." This goal reveals both Torrance's profoundly realist concerns as well as differentiation from the mainstream of realist philosophy of science.

For Torrance, the goal is for us to be able to encounter without distortion reality itself and come under the compulsive authority of its own inherent rationality. This is decidedly more realist than Kuhn's position which, while stressing the importance of coherence, is relatively unconcerned with what is "really out there."⁷² Torrance's view is also more realist than Van Fraassen's

70 See Polanyi on connoisseurship. *Personal Knowledge*, 54-55.

71 For Torrance's repeated claims that the inadequacy should not be seen as implying its falsehood, see *Divine Meaning*, 65; *Reality and Scientific Theology*, 89; *Theological Science*, 86; *Theology in Reconstruction*, 50, 51, 69-70, 90-91.

72 Even if this was not Kuhn's intent, there are places where he seems to be a more thoroughgoing relativist. "If I am right, then 'truth' may, like 'proof,' be a term with only intra-theoretic applications." Kuhn, "Reflections on My Critics," in Lakatos and Musgrave, *Criticism and the Growth of Knowledge*, 266.

because it seeks not merely to "save the phenomena," but to actually connect with the inherent intelligibility of reality.⁷³

The goal of our scientific theories also reveals the significant difference between Torrance and other philosophers of science. Torrance is not interested in seeking theories that are to be accepted because they are "true" or "approximately true," or because they are the result of an inference to the best explanation available to us at a given moment in time. Our theories may turn out to satisfy any or all of these stereotypically "realist" concerns, but satisfying them is not the goal of Torrance's realism. The goal is not to develop theories that are characterized by the truth of *statement* but that allow us to make contact with the truth of *being*. It is because Torrance makes this not entirely uncontroversial distinction within the very notion of "truth" that his realist convictions seem out of step with much of realist philosophy of science.

According to Torrance's account of the function of scientific theories, scientists proceed with their empirico-theoretical engagement with their objects of study by adopting a flexible, inherently revisable manner of investigation that is conscious, as far as possible, of its presuppositions and is self-correcting of them. Over time, reality will continue to disclose itself to us through these models resulting in their change. Sometimes, this change will be incremental, and will look like Kuhnian "normal science." Other times, it will be dramatic, in which case it will look like Popper's program of conjectures and refutations.

Conclusion

In the light of this survey of key thinkers we can see that Torrance's understanding of the function of scientific theory has resonances with each of them, with the possible exception of the positivists. Like Popper, Torrance strongly affirms the "right" of reality to call all of our most cherished theories into question, forcing their revision into something more appropriate. Like Kuhn, Torrance believes that our engagement with reality is never theory-neutral but that our theory choice can influence the "answers" we receive from reality and

73 Bas C. Van Fraassen, "To Save the Phenomena," in *Scientific Realism*, ed. Jarrett Leplin, 250-259. It should be noted that Van Fraassen is not always as radically anti-realist as he claims. "In just the same way, I claim that the success of current scientific theories is no miracle. It is not even surprising to the scientific (Darwinist) mind. For any scientific theory is born into a life of fierce competition, a jungle red in tooth and claw. Only the successful theories survive — the ones which *in fact* latched on to actual regularities in nature." *The Scientific Image*, 40. These "actual regularities" seem to have metaphysical implications. We also see a similar oblique reference to realist convictions in Wittgenstein. See Stevick, *Encountering Reality*, 150-157.

that we must strive to develop a framework of thought that is faithful to what we are investigating. Like Lakatos, Torrance wants to admit the important points raised by Kuhn without tumbling into relativism. Like Feyerabend, Torrance is committed to a radically *a posteriori* approach to scientific knowledge, refusing to decide before investigation how we must conduct that investigation.⁷⁴ Like Van Fraassen, Torrance rejects the idea that the *goal* of scientific theory is to achieve an entirely adequate representation of reality in our statements. Like the realists, Torrance believes that we are not free to develop merely coherent accounts of what reality *might* be like but must press on to relate our theories to how the world actually is.

There are, of course, significant differences between Torrance and each of these philosophers. For example, Torrance believes that Popper's theory "assumes that the relation between our concepts and being can be specified in a clear and determinate manner,"⁷⁵ which he rejects. Torrance's staunch realist concerns would also likely incline him to reject Kuhn's tendency toward relativism, though he never states this explicitly.

While Torrance does not do a great job explaining his own views relative to the rest of the philosophical landscape at the time, and while his own views are seldom, if ever, unique, he does have a compelling understanding of the function of theory in the natural and theological sciences. It is not clear whether Torrance developed his views in conscious engagement with the thinkers in this paper. However, for all his similarities with them at any given point, his views are distinct from all of them and function as something like a synthesis of many of their crucial insights.

Whether or not Torrance is to be followed in every aspect of his understanding of the function of theory in natural and theological science, he provides a helpful model of a theologian who is sufficiently engaged with scientific practice and philosophy of science so as to be able to provide his own account of science that is worthy to be considered alongside the greatest contemporary philosophers of science. This is a welcome example for any who may worry that theologians interested in science may participate only by appropriating the work of secular philosophers and scientists. Torrance shows us that, even in our contemporary situation, theologians may be able to suggest ways to move beyond false philosophical dichotomies.

74 Also, the two men are agreed that there are no rules for how we must verify knowledge gained in the context of justification. See Stevick, *Encountering Reality*, 92-93.

75 Torrance, *Reality and Scientific Theology*, 49.

WHAT DOES ATHENS HAVE TO DO WITH EDINBURGH?
Can an Immanent-Realist View of Universals Help us
Understand T.F. Torrance's Conception of Reality?

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Abstract: *The kataphystic epistemology of T.F. Torrance is established upon a conception of reality determined by God's self-revelation in Jesus Christ. However, understanding exactly what Torrance conceived the nature of reality to be is one of the more difficult challenges facing his interpreters. Torrance did not articulate his view of reality in formal proofs, but rather as the obedient response to God's self-revelation. Problematically, however, Torrance's attempts to establish connections between a theologically determined conception of reality and the view of reality in twentieth century physics has been subjected to continued criticism. This paper asks whether a fresh approach can help to clarify what Torrance's conception of reality is via a comparative analysis with an immanent-realist reading of Aristotle's formal discussion of ousia in the Categories. It is not argued that Torrance developed his conception of reality under the determination of Aristotelian metaphysics. It is argued that by such an analysis, we might understand Torrance's theologically determined understanding of reality a little better, particularly on the crucial matters such as the actual existence of reality independent of the observer and its own intrinsic intelligibility in intimate conjunction with phenomena.*

T.F. Torrance's *kataphystic* epistemological approach implies a particular conception of reality. The "scientific" attempt to know reality in accordance with its nature, such that reality might be known under the determination of its inherent rationality (instead of the human mind impressing its own rational

forms upon reality) contains within itself fundamental convictions about the way things are.¹ However, Torrance did not provide a focused metaphysical or formal account of his ontology to accompany this epistemology.² On one level, this is understandable; Torrance was a Christian theologian operating with a view of reality which he believed to be necessitated by God's self-revelation as the Triune Creator. What is the need for formal proof of realist ontology when obedience to God's self-revelation requires an understanding of reality that undergirds a *kataphystic* epistemology? In this respect, Torrance had a robust theological foundation for believing reality to be amenable to an epistemological stance in which knowledge is formed in accordance with the nature of reality.

However, the way in which Torrance described his conception of reality has left some work for those who follow behind. Torrance tended to communicate his convictions about reality by co-ordinating his theologically determined understanding of reality to the natural sciences, chiefly physics.³ Yet, many interpreters and critics of Torrance have drawn attention to the problematic nature of Torrance's understanding of developments in twentieth century science.⁴ Consequently, the attempt to explicate Torrance's understanding of reality through his discussion on the natural sciences is fraught with difficulties

1 This inquiry has been given fresh impetus recently by T. Stevick, *Encountering Reality: T.F. Torrance on Truth and Human Understanding* (Minneapolis: Fortress Press, 2016).

2 Perhaps the closest he comes is his theses on truth, T.F. Torrance, "Truth and Authority: Theses on Truth," *Irish Theological Quarterly* 38 (1972), 215-242.

3 This is a common feature in Torrance's corpus. See, for example, T.F. Torrance, *The Ground and Grammar of Theology*, Belfast: Christian Journals, 1980. New Edition, (Edinburgh: T&T Clark, 2001), 110-145.

4 Including, W.H., Wong, "An Appraisal of the Interpretation of Einsteinian Physics in T.F. Torrance's Scientific Theology," PhD, The University of Aberdeen (1994); T. Luoma, *Incarnation and Physics: Natural Science in the Theology of Thomas F. Torrance* (Oxford: Oxford University Press), 2002, 116-117; C. Weightman, *Theology in a Polanyian Universe: The Theology of Thomas Torrance* (New York: Peter Lang, 1994), 191-193; D. Munchin, *Is Theology a Science? The Nature of the Scientific Enterprise in the Scientific Theology of Thomas F. Torrance and the Anarchic Epistemology of Paul Feyerabend* (Leiden: Brill Academic Publishers, 2011), 58-59, 61-67; I. Barbour, *Issues in Science and Religion* (London: SCM Press, 1966), 272 n27. Meanwhile, contrary understandings of Einsteinian physics are commonplace. A. Fine, *The Shaky Game: Einstein, Realism and Quantum Theory* (Chicago: Chicago University Press), 1986, 86-111; J., Polkinghorne, *Reason and Reality: The Relationship between Science and Theology* (Atlanta: Trinity Press International, 1991), 85; A., Grünbaum, "The Philosophical Retention of Absolute Space in Einstein's General Theory of Relativity," *Philosophical Review* 66.4 (1957), 525-534.

and limited in what it can achieve.⁵ Given these difficulties, the inquiry into the conception of reality that provided the foundation for Torrance's *kata physin* epistemology may be well served by adopting new angles of approach.

This essay is a comparative analysis between Torrance's theologically determined understanding of reality and an immanent-realist understanding of universals in Aristotle's *Categories*. It is argued that - although these are two incredibly different approaches to understanding reality - a comparative analysis yields some interesting connections on account of which new avenues of approach are opened to Torrance's conception of reality. At first sight, this seems unlikely. Aristotle's analysis of being *qua* being provides a formal account of the way things are. Torrance, however, articulated his understanding of reality under the determination of God's self-revelation as Triune Creator. So, while I am aware that the approach taken here is counter-intuitive, it is my view that some new light can be shed on Torrance's understanding of reality by holding it in relation to an immanent-realist view of universals.

To be clear, this is *not* a proposal that Torrance's conception of reality is determined by Aristotle, and nor is this a proposal that we should understand Torrance within such a schema. Rather, it is a suggestion that our understanding of Torrance's *theologically determined* conception of reality may be aided through holding it in relation to a formal ontology with which it has some points of compatibility.

Kataphystic Knowledge

Kataphystic knowledge asserts that knowledge is authentic only when it is determined in both conceptual representations and the method of inquiry by the actual state of affairs in reality.⁶ To know *kata physin* is to know reality in accordance with its nature.⁷ Torrance traced the use of this phrase to the "dogmatic" scientists of Alexandria in the first century AD,⁸ in their conception of

5 For example, J. Morrison, *Knowledge of the Self-Revealing God in the Thought of Thomas Forsyth Torrance* (New York: Peter Lang, 1997), 77-97.

6 T.F. Torrance, *God and Rationality* (London: Oxford University Press, 1971), 52-53, 114-116 & T.F. Torrance, *Theological Science* (London: Oxford University Press, 1969), 25-26, 198.

7 T.F. Torrance, *Divine Meaning: Studies in Patristic Hermeneutics* (Edinburgh: T&T Clark, 1995), 204-205.

8 T.F. Torrance, *Theological and Natural Science* (Eugene: Wipf and Stock Publishers, 2002), 5-6. *Contra* Stevick, who has argued that Torrance traced the term to fourth century Greek patristic writers. Stevick, "Kata Physin: A Critical Exploration of the Epistemology of T.F. Torrance as it Relates to the Philosophy of Theological and Natural Science," PhD, University of Saint Andrews (2015), 3-6.

"science as proceeding strictly in accordance with nature (*kata physin*), in order bring to light the actual nature of reality under question."⁹ In the light of this precedent, *kataphystic* knowledge is a disciplined form of human knowing, such that thought may be determined in accordance with the nature of reality, so to facilitate the disclosure of the order of things in reality itself.

As a corollary of this, in *kataphystic* epistemology human reason does not operate according to its own laws or *a priori* logical constructs, but rather in accordance with the rationality that is inherent to reality. This is well demonstrated by Torrance's understanding of scientific knowledge as a disciplined form of knowledge, which attempts to "know something strictly in accordance with its own nature."¹⁰ For Torrance, knowing in accordance with its nature involves the natural intelligible form of reality to shape the structure of human concepts concerning it. Torrance explained that scientific knowledge is that through which "we bring the inherent rationality of things to light and expression as we let the realities we investigate disclose themselves to us under our questioning and we on our part submit our minds to their intrinsic connections and order."¹¹ As such, the counterpoint to Torrance's conception of *kataphystic* epistemology is the object-making mode of thought he associated with the transcendental idealism of Immanuel Kant, in which "a thing is 'known' only as it is coercively grasped and projected as an 'object' through an inflexible conceptual structure," which imposes its own version of rational form upon reality.¹²

As a function of this determination of thought from the side of reality, Torrance posited a distinction between general science and special science.¹³ General science is the scientific principle that *reality is to be known in accordance with its nature*. Special science is the determination of a specific mode of inquiry by the unique demands of the nature of the particular reality it is orientated toward. The special sciences are the manifold of sciences, necessitated by principle of general science to know different realities in accordance with their nature.¹⁴ By this mechanism, Torrance repudiated a universal scientific method, which would constitute the imposition of an *a priori* logical framework upon reality.¹⁵

9 Torrance, *Theological and Natural Science*, 6.

10 T.F. Torrance, "Science, Theology and Unity," *Theology Today* 21 (1964), 149-154.

11 Torrance, *Theological Science*, xi.

12 Torrance, *God and Rationality*, 9-10.

13 Torrance, *Theological Science*, 112ff.

14 See also Alister McGrath's comments on the stratification of the sciences. A.E., McGrath, *A Scientific Theology, Volume 2: Reality* (London: T&T Clark, 2002), 219-226.

15 Torrance, *Theological Science*, 112.

There is no one universal scientific approach to all possible objects, because all possible objects are not the same, and they require a corresponding manner of being cognized. Through this, Torrance articulated the fundamental premise of his *kataphystic* approach: human reason does not operate in accordance with its own laws, but rather, it operates in accordance with the independent nature of reality.¹⁶

Torrance's *kataphystic* approach is well demonstrated by his understanding of the dogmatic science of the sixteenth century. Here, a universally applied method of valid inference from fixed axioms was replaced with an attempt to develop positive knowledge that is determined by reality itself.¹⁷ To illustrate, Torrance pointed to Francis Bacon's interrogative questioning in which – so Torrance understood – Bacon sought to allow the implicit rational structure of reality to be disclosed through speculative questioning, rather than imposing a predetermined rational form upon it.¹⁸ In *kata physin* epistemology, then, it is the nature of reality that determines thought. But this leaves the question, what must reality be like if it is to be known in this way?

Torrance's Understanding of Reality

In order for Torrance's *kataphystic* epistemology to be intelligible, Travis Stevick has argued that two suppositions regarding reality must be held: (i) that there is something which exists independently of the knower and (ii) that we have some form of epistemic access to it.¹⁹ While these are very sensible observations, they are too broad, and leave unsaid implicit conditions that need to be drawn out and made explicit. As it stands, Stevick's proposals are open to misinterpretation by any who do not hold such pronounced realist convictions.

First, Stevick's proposal that reality exists independent from the knower should be clarified to include a clear statement of the *intelligibility of reality aside from the rational form imposed upon it from the side of humanity*. It is only in this way that human rationality will be prevented from imposing its own

16 For this reason, Torrance can be favourably compared to the position of Karl Barth in his dispute with Heinrich Scholz over the scientific status of theology. See K. Barth, *Church Dogmatics: Volume One, Part One: The Doctrine of the Word of God*, 8-10; H. Scholz, "Wie ist eine evangelische Theologie als Wissenschaft möglich?" *Zwischen den Zeiten* 9 (1931), 8-53. See also, McGrath, *Scientific Theology*, 2.285-290 & W. Pannenberg, *Philosophy of Science* (London: Darton, Longman and Todd, 1976), 265-275.

17 Torrance, *God and Rationality*, 89. .

18 Torrance, *Theological Science*, 71-72.

19 Stevick, "Kata Physin," xi, 6-9.

rational form upon reality, but rather be orientated to exposing the antecedent coherence in reality itself.²⁰ This is an important clarification, as – in Torrance’s view – to simply hold to the independent existence of reality is not the same thing as maintaining the priority of the intrinsic rationality of reality.²¹ It is essential to Torrance’s epistemology that reality has *both* independent existence and an independent cognizable form aside from correlation to the observer. Aside from this, the problems that Torrance associated with the formal notation of predicate logic may obtain in our conception of reality:

[symbolic logic] appears to restrict relations, and therefore form and order, to the world of the mind, while positing things and existence in the nature of the real world, which not only denies the latter any inherent rationality or knowability but implies that the more we think in terms of relations the more we misrepresent it.²²

Second, Stevick’s supposition that we have some form of epistemic access to reality should be clarified by a clear statement of the correspondence in Torrance’s thought between reality’s independent intelligibility and the way reality appears to the observer,²³ such that reality can be known as it is in itself. If this clarification

20 It is evident that this is Stevick’s ultimate intention. See Stevick, “*Kata Physin*,” 133.

21 It is not sufficient to say that reality exists independent from the knower, as this on its own does not necessitate that the inherent order of reality must determine how we are to think of it. In Torrance’s view, Kant recognized the existence of reality aside from his transcendental deductions, however, sensible intuitions were interpreted through the mental categories such that intelligible form is imposed upon the way things appear from an idealized and *a priori* rational structure. Torrance, *Transformation and Convergence*, 38-422; *Reality and Evangelical Theology*, 39-41. For a similar analysis of Kant, see K.R. Popper, *Conjectures and Refutations: The Growth of Scientific Knowledge*. Fourth Edition (London: Routledge and Kegan Paul, 1978), 179f.

22 Torrance, *Theological Science*, 225.

23 This close correspondence between the intrinsic intelligibility of reality and phenomena is nuanced in Torrance’s thought. There are occasions in which Torrance could be understood as identifying a disconnect between the formal structures of reality and material appearance. Torrance referred to Einstein’s aphorism “God does not wear his heart on his sleeve,” explaining it as meaning that “the real secrets of nature cannot be read off the patterns of the phenomenal surface. That is to say we cannot deduce from appearances the deep structures of reality.” However, it is important to note that Torrance went on to say, “Einstein’s concern was to penetrate into the underlying ontological structure of the ordered regularity of things, to which the phenomenal patterns of that regularity are coordinated, and by which they are controlled.” T.F. Torrance, *The Ground and Grammar of Theology: Consonance between Theology and Science* (Edinburgh: T&T Clark, 2001), 119. How are we to understand this complexity? Torrance’s opposition to ontological dualism (see the discussion below) means that to posit any rupture in the relation between formal structure and material appearance would be to insert a

is not made, epistemic access could be mistaken for naïve empiricism where thought is controlled only by the way things appear considered independently from any connection to reality's internal intelligibility.²⁴ Torrance's antipathy to this is well demonstrated by his resistance to "observationalist" conceptions of science,²⁵ along with the methodological and observationalist conceptions of

damaging inconsistency into Torrance's thought. In my view, Torrance meant that the way things appear cannot be *abstracted* from the ontic structures that gave rise to them, and interpreted only in the shallows of the surface pattern (see Torrance's definition of abstraction, T.F. Torrance, "Notes and Concepts" in T.F. Torrance (ed), *Belief in Science and the Christian Life: The Relevance of Michael Polanyi's Thought for Christian Life and Faith*, 1980, 133. See also Torrance's frequent assertions that Einstein's approach was antithetical to this. Torrance, *Ground and Grammar*, 162; T.F. Torrance, *Divine and Contingent Order*, 15, 80.). Instead, we are to think conjunctively across the levels of the empirical and the theoretical, in which through "intellective penetration or theoretic insight," phenomena are held in intimate connection to the intelligibility of reality that gave rise to them (see Torrance, *Ground and Grammar*, 122). Torrance's caution is with taking phenomenal events and interpreting them in accordance with human rationality, rather than understanding phenomena as inherently significant. Torrance's comments, therefore, do not indicate any disconnect between the way things appear and the intelligible order that controls them (see my discussion on Torrance's stratified understanding of reality below). Instead, Torrance's comments demonstrate that we do not move from phenomena to the intelligible order by logical deduction (T.F. Torrance, *Transformation and Convergence in the Frame of Knowledge*, 114, 76, 78, 81-82, 119; T.F. Torrance, *Theological and Natural Science*, 30) for this is to impose an alien rational framework upon reality (consonant with Torrance's antipathy to object-making modes of thought, see Torrance, *God and Rationality*, 9-10). Torrance's complaint is not with the empirical component of knowledge, but rather with the creation of artificial knowledge by imposing rational form upon phenomena, instead of deep, object-oriented knowledge. So, the movement from phenomena to reality is by intuitive insight, a pre-logical and subsidiary awareness of the ontological state of affairs that control the pattern of phenomena, and *not by logical deduction from experience*. See Torrance's important clarification on this matter, Torrance, *Reality and Scientific Theology*, 83-84. See also the connected identification of Einstein's conception of science, Torrance, *Reality and Scientific Theology*, 160-161. See also, Torrance's associated discussion of a bipolar conceptuality in which the empirical and the theoretical components of knowledge operate together such that we do not impose our own rationality upon phenomena. See T.F. Torrance, "Theological Realism," in eds. B. Hebblethwaite and S. Sutherland, *The Philosophical Frontiers of Christian Theology: Essays Presented to D.M. Mackinnon* (Cambridge: Cambridge University Press, 1982), 169-198 (esp. 183-192). In this connection, Torrance's comment that the scientist has to be "committed to a fundamental attitude to the world, which affects all theory-laden experiment" (Torrance, *Ground and Grammar*, 45), is not evidence of interpreting experience through a pre-established schema, but rather a statement of ultimate beliefs, whereby the Christian theist may interact with phenomena with the ultimate belief that it has a created intelligibility (Torrance, *Ground and Grammar*, 52-61).

24 Torrance, *Transformation and Convergence*, 73.

25 Torrance, *God and Rationality*, 6-7.

objectivity which this engenders.²⁶ Aside from this clarification, epistemic access could be understood as being uniquely concerned with the observable, "bracketing off from its purview [...] any concept of being or substance as refractory to its analytical method."²⁷

When these elements are drawn out, Stevick's two suppositions regarding reality upon which Torrance's epistemology is comprehensible can be expanded to four:

- The independent existence of reality aside from correlation to the consciousness of the observer.
- Reality has its own internal structure which is autonomous from correlation to the cognitive structures of the observer.
- The ontic identity of reality manifests itself through the way it appears such that phenomena are held in intimate conjunction with reality *per se*.
- There is a means of epistemic access to reality whereby the inherent order of phenomena owing to its correlation to the ontic character of reality is imposed upon the human mind.

It may be objected that Torrance's view of reality was not developed in order to meet the criteria of a predetermined epistemological system (such a thing would be contrary to Torrance's entire project). This is not what is being suggested. Instead, the above has reversed from Torrance's *kataphystic* approach to the suppositions regarding reality that make this approach intelligible. This approach on its own, however, is not sufficient. Torrance was primarily a Christian theologian, who sought to think in obedience to God's self-revelation in Jesus Christ. As such, it is to the theological basis of Torrance's conception of reality that the discussion must turn.

Despite this, interpreters of Torrance's thought have attempted to identify the character of Torrance's conception of reality. James Morrison has pointed to the significance of Scottish common sense realism to Torrance's thought.²⁸ Douglas Troom has identified Torrance as holding a form of realist metaphysics on the grounds that Torrance believes in the actuality of reality beyond that which can be observed.²⁹ Similarly, Roland Spjuth sees aspects of metaphysical

²⁶ Torrance, *Transformation and Convergence*, 73.

²⁷ Torrance, *Transformation and Convergence*, 63.

²⁸ Morrison, *Self-Revealing*, 19-20.

²⁹ D. Troom, "Unified Christocentric Field: Toward a Time-Eternity Relativity Model for the Theological Hermeneutics in the Onto-Relational Theology of Thomas F. Torrance," PhD, Drew University (1986), 3-6.

realism in Torrance's position.³⁰ The particular strength of Spjuth's analysis is the emphasis he lays on Torrance's view that the *logical validity in conceptual systems is primarily derived from the antecedent coherence of reality itself*. Consequently, Spjuth sees more clearly than others that conceptual coherence is the formal articulation of the rational form inherent in reality.³¹ Tapio Luoma has argued that the consubstantiality between appearance and reality inherent in the Nicene *homoousion* forms the basis of Torrance's realist metaphysic in which reality compels the observer to think in accordance with it.³² Most recently, Stevick has attempted to establish some correlation between Torrance's position and Roy Bhaskar through the insistence upon mechanisms more ontologically basic than phenomena which determine phenomena.³³ As such, Stevick draws an association between Torrance and transcendental realism.

The inherent danger in these approaches is the temptation to force Torrance into metaphysical categories into which he will not fit. One way to prevent this is to prioritize Torrance's theologically determined conception of reality through his "Christocentric" understanding of creation.³⁴ Torrance understood creation from the controlling principle of God's self-revelation in Jesus Christ. From this basis, Torrance understood creation as that which is made in accordance with the will of the Father through the *Logos* in contrast to the eternal generation of the Son from the being of the Father.³⁵ In this way, Torrance asserted the creation of the world from nothing, tracing its existence to the volition of God.³⁶ From this basis, Torrance was able to stress the freedom of God from creation

30 R. Spjuth, *Creation, Contingence and Divine Presence in the Theologies of Thomas F. Torrance and Eberhard Jüngel* (Lund: Lund University Press, 1995), 94-101.

31 Spjuth, *Creation*, 96ff.

32 T. Luoma, *Incarnation and Physics*, 64ff.

33 Stevick, "Kata Physin", 56. See also, Bhaskar, *A Realist Theory of Science* (Leeds: Leeds Books, 1976), 20; 25; 46-47; 202.

34 Torrance, *The Trinitarian Faith: The Evangelical Theology of the Ancient Catholic Church* (T&T Clark, 1988), 84.

35 T.F. Torrance, *Trinitarian Faith*, 79ff; T.F. Torrance, *The Christian Doctrine of God: One Being Three Persons* (Edinburgh: T&T Clark, 1996), 208ff. An approach Torrance learnt from Fr. G. Florovsky whose concept of "transcendental entelechy" is an important (and often neglected) conceptual parallel to Torrance's notion of contingent intelligibility. See G. Florovsky, "Creation and Creaturehood," in *Creation and Redemption: Volume Three in the Collected Works of Georges Florovsky Emeritus Professor of Eastern Church History* (Belmont: Nordland, 1976), 43-78. See A.J.D. Irving, "Fr. Georges Florovsky and Thomas F. Torrance on the Doctrine of Creation," *St. Vladimir's Theological Quarterly*, forthcoming, 2017.

36 Torrance, *Trinitarian Faith*, 84-89 & 95-98.

and (established within God's freedom) the freedom of creation from God, in terms of its *discrete existence*.³⁷ Moreover, Torrance asserted that both matter and form are alike as created from nothing, drawing the conclusion that one does not have precedence over the other.³⁸ In this connection, Torrance was able to assert the contingent intelligibility of creation; creation is pervaded with one constant order that is endowed upon it through the creative act of God.³⁹ By so doing, Torrance substantiated the connection between creation from nothing and the intelligibility of creation through lengthy expositions of the thought of Athanasius,⁴⁰ Basil of Caesarea⁴¹ and John Philoponus.⁴² Set upon the doctrine of creation Torrance's conception of reality is characterized by the actual existence of creation and creation's rational order, endowed upon it by God on account of which it is intelligible aside from the rational activity of humanity. This brief outline of Torrance's doctrine of creation sets the trajectory for an understanding of reality as *existing aside from humanity*, and composed of an *intelligible order aside from the imposition of rational form from the side of humanity*. Further insight is given into these guiding principles through three characteristically Torrancian ideas: (a) intrinsic intelligibility; (b) the truth of being; (c) a stratified understanding of reality.

(a) By intrinsic intelligibility (and its various synonyms⁴³), Torrance meant that the property of being intelligible is not imposed upon reality from without, but rather is inherent to reality. This intrinsic intelligibility takes the form of an internal coherence which makes reality amenable to our understanding.⁴⁴ The

37 Torrance, *Trinitarian Faith*, 105-109.

38 Torrance, *Trinitarian Faith*, 97-97.

39 T.F. Torrance, *The Ground and Grammar of Theology* (Charlottesville: The University of Virginia Press, 1980), 53; *Trinitarian Faith*, 102-104.

40 Torrance, *Ground and Grammar*, 76-77; *Trinitarian Faith*, 93-104; *Theological and Natural Science*, 36-37 & T.F. Torrance, *Theology in Reconciliation: Essays towards Evangelical and Catholic Unity in the East and West* (London: Geoffrey Chapman, 1975), 217-221.

41 T.F. Torrance, "Revelation, Creation and Law," *Heythrop Journal*, XXXVII, 1996, 272-283; T.F. Torrance, "The Three Hierarchs and the Greek Christian Mind," in *Texts and Studies*, Volume III, 1984; *Trinitarian Faith*, 104.

42 Torrance, *Theological and Natural Science*, 7-12; 63-67; 85-90 & 97-119.

43 Including: inherent intelligibility (T.F. Torrance, *Reality and Scientific Theology* [Edinburgh: Scottish Academic Press, 1985], 7); inner rationality (Torrance, *God and Rationality*, 94), immanent rationality (Torrance, *Ground and Grammar*, 51); and interior logic (*Theological Science*, 205, 212).

44 See Torrance's critique of Kant. T.F. Torrance, *Transformation and Convergence in the Frame of Knowledge: Explorations in the Interrelations of Scientific and Theological*

intrinsic intelligibility of reality is the *order* inherent to reality which is the very structure of reality in accordance with which it is to be understood. This internal order of reality is bound to Torrance's notion of onto-relations, as the being-constituting relations that are the very internal order of reality.⁴⁵ Conceiving of reality as intrinsically intelligible is the distinctive character of what Torrance identified as the "classical mind."⁴⁶ This has two implications. First, the intrinsic intelligibility of reality is the assertion that reality external to humanity is coherent independent of any logical formalization from the side of humanity. Second, on account of this antecedent order, reality is able to be cognized as it is in itself, because human conceptual structures can be determined by the antecedent rational form in reality.⁴⁷ The intrinsic intelligibility of reality is thus the *sine qua non* of all scientific inquiry.⁴⁸ It is important to note that the intelligibility of creation is a *contingent* intelligibility. The rational coherence by which reality may be understood is not self-sufficient, but is rather gifted by God. As such, reality might not have been, or might have been other than it is. It is on this basis of the contingent openness of reality that the emphasis of the intrinsic intelligibility of reality may not lead to determinism.

Antithetical to intrinsic intelligibility is Torrance's understanding of ontological dualism, which Torrance held to be the incompatible or artificial relationship between the intelligible and sensible elements of reality.⁴⁹ For Torrance's account

Enterprise (Grand Rapids: Eerdmans, 1984), 36-46.

45 T.F. Torrance, *Reality and Evangelical Theology* (Philadelphia: Westminster Press, 1982), 43-45. See especially Torrance's analysis of James Clerk Maxwell. Torrance, *Transformation and Convergence*, 223; 227-228. See also, Morrison, *Self-Revealing*, 77-83 & Luoma, *Incarnation*, 108-109.

46 Torrance, *Reality and Scientific Theology*, 1-31.

47 Torrance held that John Philoponus' assertion of the intrinsic intelligibility of reality through his kinetic theory of light was the foundation for an epistemological approach in which reality could be known out from its inherent rational form. Torrance, *Theological and Natural Science*, 35-36. In a similar fashion, Torrance insisted that Einstein's theories demonstrated reality to be inherently intelligible and constituted by an independent order (Torrance, *Transformation and Convergence*, 72-73, 250). Such a conception of reality, led to an epistemological approach in which theories sought to expose that interior order rather than impose a predetermined logical schema upon reality. Torrance, *Transformation and Convergence*, 82; *Ground and Grammar*, 121-122. It is on this account that Torrance argued that modern physics has had to abandon *a priori* Euclidean geometry and adopt other geometries more congenial to the nature of reality. See Torrance, *God and Rationality*, 133-134.

48 Torrance, *Ground and Grammar*, 131; *Theological Science*, xi.

49 See Luoma's analysis of dualism and Torrance's distinctive position within the wider field. Luoma, *Incarnation*, 83-85. My own analysis suggests that Torrance's notion of

of the relation of the intelligible and sensible as *incompatible*, see Torrance's analysis of Plato's *Timaeus* 27D -28A;⁵⁰ for Torrance's account of the *artificial* relation between the intelligible and the sensible, see Torrance's analysis of the absolute-relative distinction in Newtonian physics.⁵¹ Contrary to ontological dualism, Torrance's intrinsic intelligibility is the integration of the intelligible and the sensible.⁵² Reality as it appears to the observer in sensible phenomena is already "interfused" with an intelligible pattern on account of its antecedent order which is inseparable from its manifestation in sensibility.⁵³ Thus through the notion of intrinsic intelligibility, Torrance asserted that reality is inherently coherent, and does not receive its coherence from the imposition of rational form from some absolute framework, be it Newtonian absolute space or any philosophical prolegomena, such as the transcendental deductions of a Kantian ego.⁵⁴ Importantly, this implicit and independent orderliness and coherence of reality is the presupposition of rational knowledge of reality,⁵⁵ in which the conceptual constructions of humanity can be determined by the antecedent and ontic coherence of reality.⁵⁶

(b) The truth of being expresses Torrance's conviction that truth is primarily a property of reality. The truth of being is the actual state of affairs that reality is in. Yet, alongside ontic actuality, the truth of being is also the *manifestation* of reality as it is *per se*. So, the truth of being includes a reference to the consubstantiality between reality as it is in itself and reality as it discloses itself to be.

The truth is that which is what it is and that which discloses what it is as it is. The concept of truth enshrines at once the reality of things and the revelation of things as they are in reality. Truth comes to view in its own majesty, freedom and authority, compelling us by the power of what it is to assent to it and acknowledge it for what it is in itself.⁵⁷

"incompatibility" demonstrates a comparatively broad understanding of dualism as the un-natural relationship between poles. See Torrance, *Belief in Science and the Christian Life*, 136. Torrance views as dualistic a relationship which is artificial, or in some way un-organic such that the integration does not extend to the most basic level of reality.

50 Torrance, *Divine Meaning*, 22-25; 160-162.

51 Torrance, *Transformation and Convergence*, 12-36; 61-105; *Ground and Grammar*, 21-25.

52 Torrance, *Ground and Grammar*, 122.

53 Torrance, *Transformation and Convergence*, 88.

54 Torrance, *God and Rationality*, 9-10.

55 Torrance, *Theological Science*, xi; T.F. Torrance, *Divine and Contingent Order* (Oxford: Oxford University Press, 1981), 26.

56 Torrance, *Ground and Grammar*, 97; 113.

57 Torrance, *Transformation and Convergence*, 303.

Torrance's position is notable in that truth is not primarily identified as the appropriate relation between concept and reality.⁵⁸ Truth for Torrance is primarily a characteristic of reality independent from any correlation to the cognitive operations of humanity. A thing is what it is, and this is its truth.⁵⁹ The second aspect of the truth of being is its self-disclosure of what it is. As such, truth for Torrance embraces both what something is (truth *per se*) and that the disclosure of that thing such as it is in itself (truth *ad alios*). This is demonstrated through Torrance's understanding of *physis*. *Physis*, Torrance argued, has a double significance referring to what something is in itself, and also to the concrete presence of that reality as it gives itself to be known.⁶⁰ Thus *physis* denotes a reality that discloses itself to the observer as it is in itself.⁶¹ As such, Torrance's analysis of *physis* runs in parallel to his understanding of the truth of being.

Tapio Luoma has argued that Torrance's understanding of the *homoousion* should be understood in this connection. Luoma has argued that the *homoousion* is at the heart of Torrance's realism, for through it Torrance insists that the being of God is inseparable from his self-revelation in the person of Jesus Christ.⁶² Luoma argues that this undergirds a conception of reality that recognizes the consubstantiality between reality itself and phenomena. According to Luoma, it is on these grounds that the observer can truly be compelled to think in accordance with the nature of reality. While Luoma's point does bring out very clearly the close conjunction between the truth of being *in se* and the truth of being *ad alios*, Torrance did not present his conception of the correlation between reality and appearance with recourse to the *homoousion*.⁶³ However,

58 For Torrance's stratified approach to truth and his debt to Anselm on this, see Torrance, *Reality and Scientific Theology*, 140-146.

59 Stevick neglects the manifestation of reality as part of the truth of being. T.M. Stevick, "Truth and Language in the Theology of Thomas F. Torrance," *Participatio Supplementary Volume 2* (2013), 67-101. By this oversight, Stevick obscures the supposition of co-ordination between reality and appearance, which undergirds intuition as the means of epistemic access to reality, as discussed above.

60 T.F. Torrance, *Incarnation: The Person and Life of Christ*, ed. R. Walker, (Downers Grove: IVP Academic, 2009), 202-203.

61 Torrance, *Reconciliation*, 244, 247-248. A distinction must be made here between God and created reality. God as both subject and object of revelation discloses himself to humanity. Created reality, however, must be interrogated in order to be known. The language of "discloses itself" is not then intended to communicate passivity on the side of humanity, but rather that reality is known out from its own inherent intelligibility.

62 Luoma, *Incarnation*, 65-70. For the epistemological significance of the *homoousion*, see Torrance, *Reconciliation*, 240-248.

63 Aside from one illustrative reference. See Torrance, *Ground and Grammar*, 162.

Luoma is correct to point out that something very much like the *homooousion* is at work in Torrance's understanding of conjunction between appearance and reality. This feature of Torrance's conception of reality is more appropriately analyzed through Torrance's appropriation of a stratified conceptualization of reality, and the relationship between the intelligible and the sensible elements of reality that it implies.

(c) Torrance conceptualized reality as a stratified structure. Through this device, Torrance claimed that the intelligible order of reality determines the behavior of sensible phenomena, such that phenomena have an implicit coherent character derived from the antecedent order of the intelligibility of reality.⁶⁴ Torrance tended to conceptualize this hierarchical structure with three strata. By taking a cross-section of two strata from Torrance's hierarchy, the mechanisms that drive the stratified structure of reality can be understood. The immediately higher stratum of the pair exercises control over the behavior of the immediately lower stratum, such that the principles and patterns at the higher stratum impose themselves upon the activity at the lower stratum. Borrowing from Michael Polanyi, Torrance explained that the higher stratum exercises "marginal control" over the lower,⁶⁵ such that the activity of the lower stratum is under the determination of patterns at the higher stratum over which it has no control. Adding some flesh to the bones, sensible phenomena are the lowest stratum of Torrance's hierarchy, and the higher strata of reality are the levels of reality's internal intelligibility, with the highest stratum as the ultimate, supra-sensible relations that constitute the ontological character of any given thing. In this way, the order and the pattern that is the intrinsic intelligibility of reality exercises determinative influence over the way things appear. Phenomena are characterized by an implicit pattern owing to their determination by the higher strata of the intelligibility of reality. The logical form of reality is inherent to reality and it manifests itself through phenomena.⁶⁶

A brief comment is required here on the question of epistemic access to reality. Torrance is adamant that the inquirer cannot abstract phenomena from the intelligible structures that govern their behavior and analyse them in isolation as though there is no ontic order that has given rise to the particular pattern

64 Torrance, *Divine and Contingent Order*, 20.

65 Torrance, *Divine and Contingent Order*, 20. See also, R.K., Martin, *The Incarnate Ground of the Christian Faith: Toward a Christian Theological Epistemology for the Educational Ministry of the Church* (Lanham: University Press of America, 1998), 229-234.

66 Torrance, *Transformation and Convergence*, 160.

that is implicit in phenomena.⁶⁷ As phenomena are composed of an inherent rational pattern owing to its determination from the intrinsic intelligibility of reality, there must be a means of access whereby that implicit rational pattern in phenomena can be apprehended with the minimum interference from human rationality. Torrance turned to the notion of *intuition* as the crucial means of epistemic access, through which reality is apprehended in its unity and as a whole.⁶⁸

Intuition is Torrance's way to apprehend reality so that the determination of phenomena by their intrinsic structures are not obscured. As a function of this, intuition is Torrance's alternative to abstractive forms of induction that treat phenomena on their own, abstracting them from their natural network of meaning and formalizing them instead in accordance with an idealized rational schema via logical deduction. By this is not meant that Torrance was indifferent toward the empirical component of knowledge. The empirical component remains essential, but it is not considered in the observable alone (*contra* positivism). Instead, the empirical elements are apprehended as infused with comprehensible form from the very beginning on account of their determination by the intrinsic intelligibility of reality. In this way, through experience, a subsidiary awareness of the intrinsic intelligibility of reality is developed.⁶⁹ The reason that reality can be taken as a whole in this way is that phenomena and the governing intelligibility of reality are themselves integrated.⁷⁰ In such a context, the task of developing concepts is not the *imposition* of logical form upon phenomena, but rather is the *exposition* of logical form that is implicit in phenomena on account of its determination (*kata physin*) by the intelligible order of reality in itself. However, this is not to suggest that Torrance had a simplistic view of the movement from appearance to reality. Torrance operated with a sophisticated critical realism in which human concepts are never a picturing model of reality through isomorphic correspondence. In this way, our knowledge never exhausts reality and reality can never be reduced to our statements about it. Reality is composed of a depth of intelligibility that *always* exceeds human capacity to cognize and explicate it.⁷¹

67 See Torrance's resistance to positivism and also for Torrance's rejection of conventional or pragmatic scientific concepts, unrelated to the internal ontic order of reality. Torrance, *Transformation and Convergence*, 63-64.

68 Torrance, *Theological Science*, 165n3.

69 Torrance, *Transformation and Convergence*, 154.

70 See Torrance's discussion of a unitary basis of knowledge, T.F. Torrance, *Juridical Law and Physical Law* (Edinburgh: Scottish Academic Press, 1982), 23-34 (esp. 25).

71 Torrance, *Reality and Scientific*, 52-53.

Stepping across from Torrance's general conception of reality to theology, Torrance's approach to the doctrine of the Trinity should be understood in connection to the principle of an interior order determining the outward manifestation. On account of the *homoousion*, and the associated implications for the unity of the being and act of God, Torrance insisted upon holding the economic and the ontological Trinity in close co-ordination.⁷² Through this coordination it may be seen that the trinitarian pattern of God's salvific activity in the economy of salvation is determined by the triune being of God in his internal relations.⁷³ The threefold structure of God's self-revelation is not imposed by theological formalization, but rather it is determined by God's internal relations as Father, Son, and Spirit. Torrance writes,

It is, then, in the activity of the economic Trinity alone that we may learn something of the ontological Trinity, for we believe that the pattern of coactivity between the Father, Son and the Holy Spirit in the economic Trinity is through the Communion of the Spirit a real reflection of the pattern of the coactivity of the Father, the Son and the Holy Spirit in the ontological Trinity. It is indeed more than a reflection of it, for it is grounded in it, is altogether inseparable from it, and actually flows from it.⁷⁴

As a function of this commitment to the determination of God's outward relations by his internal relations, Torrance made the characteristic claim that the triune relations of God are the "ground and grammar" of theology.⁷⁵ The triune relations of God determines God's outward relations and so through God's outward relations the very structure of theological formalization.⁷⁶

Torrance articulated a theologically determined conception of reality that has a number of elements. First, reality has an independent existence aside from the observer. Second, this independent reality is not characterless but has its own internal structure which is its intrinsic intelligibility. Third, this reality is able to manifest itself such that the way it appears is determined by the inner order of reality. Fourth, on account of this, humanity have some means of epistemic access reality as it is in itself. It is on these suppositions that Torrance's *kata physin* epistemology has its foundation.

72 Torrance, *Christian Doctrine of God*, 114.

73 Torrance, *Christian Doctrine of God*, 82.

74 Torrance, *Christian Doctrine of God*, 198.

75 Torrance, *Ground and Grammar*, 158-159.

76 Torrance, *Reconciliation*, 260-265.

An Immanent-Realist Reading of Universals in Aristotle's *Categories*⁷⁷

An immanent-realist view of universals is the conviction that the universal is real (it does not only have conceptual existence), but that it only has subsistence when instantiated in a particular.⁷⁸ The particular, though, is mutually dependent on the universal, as the particular which instantiates the universal is also dependent on the universal in order to be something.⁷⁹ Accordingly, the immanent-realist view of the universal affirms a nexus of ideas: the instantiation of the universal in a particular is necessary to its subsistence; the universal really exists aside from human conceptual formation and the instantiation of the universal in the particular is necessary for the ontological classification of the particular.

The immanent-realist reading of universals may be more clearly seen through holding it in relief to the alternative approaches to the relationship between the universal and the particular.⁸⁰ On the one hand, the universal could be thought of as a separate and transcendent entity, the existence of which is separate from instantiation in the particular. This is an *ante rem* view of universals (meaning that

77 By "universal" I mean a nature that is common across all the members of a certain kind of things. Hospers helpfully suggests that the universal is a property that is shared across many particulars of one ontological grouping that are essential to what that thing is. J., Hospers, *An Introduction to Philosophical Analysis* (London: Routledge & Kegan Paul Limited, 1967), 354 & T. Irwin, *A History of Western Philosophy, Volume 1: Classical Thought* (Oxford: Oxford University Press, 1989), 123.

78 C. Erismann, "Non Est Natura Sine Persona. The Issue of uninstantiated universals from late Antiquity to the Early Middle Ages," in *Methods and Methodologies: Aristotelian Logic: East and West 500-1500*, eds. M. Cameron, J. Marenbon, (Leiden: Brill, 2011), 75-91, esp., 75. For the articulation of an immanent-realist view of universals in Christian theology, see C. Erismann, "A World of Hypostases: John of Damascus' Rethinking of Aristotle's Categorical Ontology," *Studia Patristica*, 50 (2011), 269-287 & J. Zachhuber, "Universals in the Greek Church Fathers," in *Universals in Ancient Philosophy*, eds. R. Chiaradonna & G. Galluzzo, (Pisa: Edizioni Della Normale, 2013), 425-470.

79 My view is established on an essentialist position: the universal is essential to the individual aside from which the individual cannot exist. See C. Witt, *Substance and Essence in Aristotle* (Ithaca: Cornell University Press, 1989), 1. See the excellent discussion of the mutual inter-dependence of universals and particulars in immanent-realism C. Erismann, "Immanent-Realism: A Reconstruction of an Early Medieval Solution to the Problem of Universals," *Documenti E Studi Sulla Tradizione Filosofica Medievale* 18 (2007), 211-229, esp. 217ff. See also, C.S. Gilmore, "In Defence of Spatially Related Universals," *Australian Journal of Philosophy*, 81 (2003), 420-428.

80 The best discussion of the pertinent philosophical background remains A.C. Lloyd, "Neoplatonic Logic and Aristotelian Logic: I," *Phronesis* 1 (1955), 58-79, esp., 59-64. For a more recent recapitulation of these categories, see R. Cross, "Gregory of Nyssa on Universals," *Vigiliae Christianae*, 56.4 (2002), 372-410, esp., 374ff.

universals exist *before* particulars). On the other hand, universals could have no real existence at all, and only exist in conceptual form as abstractions from sense data. This is a *post rem* view of universals (meaning that universals exist *after* the particulars). In this light, an immanent-realist understanding of universals is the assertion that universals truly exist (they are not concepts), but they do not exist in transcendent form, but have their subsistence within the particular. This is an *in re* view of universals (universals exist within the particular, and never aside from them).⁸¹ The characterization of *ousia* in Aristotle's *Categories* can justifiably be read as an immanent-realist view of universals.⁸²

Aristotle's *Categories* is an exercise in predication and classification. It is a logical discourse analysing that which can be said of any particular thing. The different manner in which a subject can be predicated (*ousia*, place, time, quality, relation, action, &c.) are the different categories. Through the categories, then, Aristotle attempted to classify and define the things that are through employing different sorts of predications.⁸³ The following is concerned with Aristotle's classification through the category of *ousia*. To predicate a subject with regards to its *ousia* is to identify that which a subject is⁸⁴ (as if answering the question "what is it?").⁸⁵ However, the exact definition that Aristotle ascribes to *ousia* is not easy to ascertain.⁸⁶ Consequently, that which Aristotle meant by *ousia*, is best determined by his application of the category.

In the *Categories*, Aristotle attaches *ousia* as a predicate in two different ways.⁸⁷ As a function of this, Aristotle's conception of *ousia* is internally differentiated into two distinct poles. At one pole of the internal distinction is *ousia* as the individuated – and so subsistent – particular. This is the basic subject of inherent and grammatical predication (it contains all other properties and

81 Erismann, "Immanent Realism," 211-212.

82 Erismann, "*Non est Natura Sine Persona*," 75-78.

83 Aristotle, "Categories," in *The Complete Works of Aristotle: The Revised Oxford Translation: Volume One*, ed. J. Barnes, trans. J.L. Ackrill, (Princeton: Princeton University Press, 1991), 1a1. T. Irwin, *Aristotle's First Principles* (Clarendon Press: Oxford, 1988), 55. See also, A. Code, "Aristotle's Logic and Metaphysics," in *Routledge History of Philosophy, Volume III: From Aristotle to Augustine*, ed. Furley, D., (London: Routledge, 1999), 42.

84 Code, "Aristotle's Logic," 41.

85 Aristotle, "Metaphysics," in *The Complete Works of Aristotle: The Revised Oxford Translation: Volume Two*, ed. Barnes, J., trans. Ross, W.D. (Princeton: Princeton University Press, 1991), 11028b1-3 & 1030a18-20.

86 C. Athanasopoulos, "*Ousia* in Aristotle's *Categories*," *Logique & Analyse*, 53 (2010), 211-243, cited 217.

87 Irwin, *First*, 55.

cannot be predicated of anything else).⁸⁸ In this sense, *ousia* denotes “the idea of independent existence.”⁸⁹ At the other pole is *ousia* as the common nature.⁹⁰ Here, *ousia* denotes *what* any subject is with regards to its ontological kind.⁹¹ So, *ousia* can denote a subsistent particular, or *ousia* can denote the common nature that classifies a subject.⁹² Consistent with the agenda of the *Categories* as a whole, *ousia* is understood as containing an internal dialectic of the individual substance and the common nature. This provides Aristotle with a powerful tool of distinguishing between homonymous subjects. For example, the two distinct men who are rightly described as “man” at the level of common nature can be distinguished as “Richard” and “Jamie” at the level of particular substance, the greatest degree of precision in predication.

In the *Categories*, *ousia* as subsistent particular receives the title “primary substance.” and *ousia* as common nature is called “secondary substance.” The vitally important point is the interdependence between primary substance and secondary substance. This interdependence can be demonstrated through four correlate statements, with two referring to primary substance and two referring to secondary substance. These four correlate statements are displayed in the following table.

	Concerning Primary Substance	Concerning Secondary Substance
Correlate Statement No.1.	(a) Primary substance is a unique particular that will not be predicated of anything other than the individual which it denotes.	(b) Secondary substance is a common nature and can be predicated univocally across particulars of one kind.
Correlate Statement No. 2	(a) Primary substance is independent in its subsistence. It does not require instantiation in anything else, but rather provides concrete extension to secondary substance. Yet, primary substance requires secondary substance for ontological form.	(b) Secondary substance is dependent on instantiation in primary substance in order to have subsistence.

88 J. Zachhuber, “Individuality and the Theological Debate About ‘Hypostasis,’” in *Individuality in Late Antiquity*, eds. A. Torrance & J. Zachhuber, (Farnham: Ashgate, 2014), pp. 91-111, cited 96.

89 Mackinnon, “Substance,” 100.

90 Irwin, *Classical*, 148-149; F. Lewis, *Substance and Predication in Aristotle* (Cambridge: Cambridge University Press, 1991), 4.

91 Irwin, *First*, 56.

92 Stead, *Divine Substance* (Oxford: Clarendon Press, 1977), 69.

The correlate nature of these statements is intended to reflect the profound interdependence of the primary substance and the secondary substance as two complementary poles within Aristotle's conception of *ousia*. As such, these four correlate statements constitute an immanent-realist reading of Aristotle on the status of universals in relation to the particular. The following analysis takes each pair of correlate statements in turn.

The first pair of statements concerns the *distinction* between primary substance as a subsistent particular and secondary substance as a common nature. The secondary substance is a common nature that is shared between distinct particulars of one ontological group. As such, a secondary substance has the capacity to be predicated equally of any number of particulars that are of one kind. On the other hand, a primary substance is an individual, and therefore cannot be predicated of anything other than the individual.

A substance - that which is named "substance" most properly, primarily and most of all - is that which is neither predictable of a subject nor in a subject. For example, the individual human or the individual horse. The species to which the things called primary substances belong, are called *secondary substances*, as also are the genera of these species. For example, the individual man belongs in a species, man, and animal is a genus of the species; so these - both man and animal - are called secondary substances.⁹³

The above distinction indicates that the pole of *ousia* identified as "primary substance" is that which will not be predicated of anything further, whereas "secondary substance" is the pole within *ousia* which can be predicated of multiple particulars.⁹⁴ Secondary substance can be predicated unequivocally of numerous particulars because it denotes a common nature shared by various individuals.⁹⁵ This correlation between unequivocal predication and ontological co-ordination is well described by Johannes Zachhuber: "unequivocal predication is the test to be applied if it is to be determined whether two things are of the same ontological rank."⁹⁶ In other words, when two distinct particulars share a common nature, it is to be indicated by the appropriate common noun being predicated to them univocally.⁹⁷

93 Aristotle, "Categories," 2a 11-18.

94 Lewis, *Predication*, 4.

95 Lewis, *Predication*, 17.

96 Zachhuber, J., "The Problem of Universals in Late Ancient Philosophy and Theology," *Millennium*, 2 (2005), 137-174, cited 147.

97 J., Zachhuber, "Basil and the Three Hypostases Tradition," *ZAC*, 5 (2001), pp. 65-85, cited 84; Kenny, *A New History of Western Philosophy Volume One: Ancient Philosophy* (Oxford: Clarendon Press, 2004), 218-220.

On the other hand, primary substance corresponds directly to the subject in a subject-predicate sentence. It cannot be properly predicated of anything other than the individual. Therefore, to say that a primary substance will not be predicated of any other is to say that a primary substance does not belong to any other subject. In this sense, the primary substance should be understood as the unique individual, an independently subsisting concrete⁹⁸ reality in which properties inhere. So, grammatically the primary substance is the subject of a predicate clause, and metaphysically, it is the bearer of properties.⁹⁹ In this way, Aristotle's scheme both concerns metaphysical nature and also logical predication.

The second pair of statements concerns the status of the subsistence of primary and secondary substance. Secondary substance is dependent upon its instantiation in primary substance in order to have subsistence. Primary substance is an independent subsistence,¹⁰⁰ meaning that it does not require instantiation in any more basic subsistence in order for its actuality.¹⁰¹ Christopher Stead has written of this distinction, "individuals exist in their own right, whereas universals in some sense depend upon them."¹⁰² In a similar fashion, Pamela Hood has identified the difference between secondary and primary substance in Aristotle with respect to its difference to Platonic thought: "For Aristotle, no universal exists uninstantiated; that is universals do not have separate existence the way in which Plato's forms do."¹⁰³

Secondary substance is dependent upon instantiation in the primary substance in order to have subsistence.¹⁰⁴ Primary substance is that apart from which secondary substance would remain in a state of non-subsistence.¹⁰⁵ Therefore, in contradistinction to Platonic theory of forms which operates with an *ante rem* view of the universals existing before the particular,¹⁰⁶ Aristotle presents a

98 H.G. Alexander, *The Language and Logic of Philosophy* (New York: University Press of America, 1988), 107-113.

99 Code, "Logic," 44; Irwin, *First*, 82.

100 Lewis, *Predication*, pp. 10-11.

101 Erismann, "Hypostases," 283.

102 Stead, *Divine Substance*, 61.

103 P. Hood, *Aristotle on the Category of Relation* (New York: University Press of America, 2004), 6. See also Erismann, "Non est Natura Sine Persona," 75-76.

104 Irwin, *First*, 80; P., Corkum, "Aristotle on Ontological Dependence," *Phronesis*, 53 (2008), 65-92, cited 67.

105 Aristotle, "Categories," 2b5-6. See also, Lewis, *Predication*, pp. 63-65; Hood, *Category*, 6.

106 Irwin, *Thought*, 124.

view of universals that is categorically *in re*, that is to say, the universals have subsistence in so much as they are instantiated in the particular.¹⁰⁷

However, Aristotle's insistence upon the subsistence of secondary substance within primary substance should not be understood as advocating a *post rem* view of universals consistent with ontological nominalism (universals as concepts formed via deduction from the aggregate of particulars). Aristotle is clear that secondary substance is something in itself, and it is not constituted by assimilating the commonalities of members of a common group into a gathering concept.¹⁰⁸ The common nature is real, but it is immanent in the particular: it is the immanent universal. Moreover, what the primary substance is with regard to its nature is only determined in relation to the secondary substance. Grammatically, this is through being predicated with regard to secondary substance. Metaphysically, the primary substance is the subsistent particular within which the common nature inheres. In short, primary substance is dependent upon secondary substance in order to be this or that kind of thing. In this way, Aristotle's conception of *ousia* functions on the inter-dependence of secondary substance upon primary substance for subsistence and of primary substance on secondary substance for rational form. Essentially, therefore, the internal dynamics of Aristotelian *ousia* will not permit any bifurcation of matter and form.

Exploring the Connections

Can our understanding of Torrance's conception of reality be advanced by holding it in relation to an immanent-realist understanding of universals found in the inner workings of Aristotelian *ousia*? There are many very good reasons to stop this line of inquiry before it has begun. Torrance himself would hardly have appreciated any suggestion that he was determined in his thought by an *a priori* conception of the nature of being, with the implication that he operated with an implicit rational schema as an unspoken *preambula fidei*! For example, Torrance explicitly stated that Calvin reversed the line of Aristotelian questioning such that abstract inquiry into the essence of the thing (*quid sit*), which came first in Aristotelian inquiry was replaced by *a posteriori* questioning (*quale sit*) which began with the actuality of what is being inquired into.¹⁰⁹ As such, Torrance argued, the orientation of Calvin's questioning was to interrogate reality such

107 See also, Aristotle, *Metaphysics*, 1040b 25-27; 1086a30-35; 997a21-22.

108 See Erismann, "Immanent Realism," 281-282.

109 Torrance, *God and Rationality*, 33.

that our knowledge is determined by reality.¹¹⁰ Might this proposal undercut this transition and force Torrance's conception of reality onto the rocks of *a priori* inquiry into being itself? I think not. Rather, what is being suggested is that the *a posteriori* conception of reality Torrance took from God's self-revelation might be helpfully grasped by those hoping to continue the project of *kataphystic* theology through holding it in relation to a formal discussion of reality that is reached through very different means, but yet retains some interesting points of compatibility.

There remain other issues with the proposed approach. Aside from his frequent insistence that matter and form or structure and substance be held together, Torrance referred to Aristotelian metaphysical terminology very infrequently,¹¹¹ and on the occasions where he did refer to it, he is critical of the deterministic epistemological approaches that he associated with it.¹¹² For example, Torrance is highly critical of Aristotle's understanding of space.¹¹³ This is particularly significant, for Torrance understood Aristotle's attitude to space to have profoundly negative implications for his epistemological approach. Far from facilitating an inquiry into reality in its own inherent order, Torrance understood Aristotelian space to facilitate an understanding of reality built upon the imposition of an absolute framework upon sensory data, organizing it in accordance with an external schema, with deleterious effects on the apprehension of the inherent rationality of reality.¹¹⁴

Despite all of this, a comparative analysis of Torrance's conception of reality and internal dynamics of Aristotelian *ousia* gives us new perspectives which help us understand Torrance's view of reality a little better. There are three areas where our understanding of Torrance's "ontology" can be furthered by this connection. In drawing these out, I will also comment on how I see this facilitating our understanding of Torrance on reality.

First, Torrance's antipathy to ontological dualism as the improper relation of the formal and material aspects of reality may be positively orientated on a

110 Torrance, *God and Rationality*, 33.

111 I am aware of only three occasions in the whole of Torrance's corpus. T.F. Torrance, "Scientific Hermeneutics According to St Thomas Aquinas," *Journal of Theological Studies* 13 (1962), 259-289, cited, 259-260; *Theological Science*, 243-244 and *Divine and Contingent Order*, 30.

112 Torrance, *Divine and Contingent Order*, 30. However, Torrance is nuanced in his analysis of the impact of Aristotelian thought upon medieval hermeneutics. Torrance, "Scientific Hermeneutics According to St. Thomas Aquinas," 260-261.

113 Torrance, *Divine Meaning*, 297-299.

114 Torrance, *Divine Meaning*, 299ff.

spectrum of possible ontologies by holding it in relation to an Aristotelian *in review* of universals. Simply, in my view, Torrance's unitary conception of reality bears some correspondence to the internal dynamics of Aristotle's *ousia*, in that both insist upon the integration of matter and form. Certainly, the mutual resistance to the antecedent or posterior existence of the intelligible in favour of a profound integration of the intelligible and the sensible does suggest some *prima facie* compatibility. It is my view that in positively establishing Torrance's resistance to dualism, interpreters of Torrance's thought may appeal to immanent-realism as a viable conceptual parallel.

For example, in a section in his article "Scientific Hermeneutics According to St. Thomas Aquinas" (1962), Torrance outlined an understanding of the relationship between the common nature and the particular in Aristotle, which demonstrates an immanent-realist reading of the Greek philosopher.¹¹⁵ Torrance understood Aristotle's formal discussion of primary and secondary substance to have been an *in re* account of universals.¹¹⁶ Intriguingly, Torrance presented the relationship of the common and the particular in *a manner that bears significant correspondence to his own unitary conception of reality*.¹¹⁷ That is to say, in his re-presentation of Aristotle's *ousia* some unmistakably Torrancian themes emerge. Torrance transferred the discussion from the language of universals onto terminology more compatible with his own concerns regarding the relationship of the intelligible and the sensible, stating that "Aristotelian philosophy refused to separate matter and form."¹¹⁸ Moreover, there is an unmistakable ring of Torrance-like thought in his discussion of the organization of matter by the inherent rational form: "Thus a particular object is a matter as it is determined according to some organic pattern or form and the form is the determinate structure according to which the object is organized."¹¹⁹ Torrance described the unity of matter and form in Aristotle in such a way that mirrors his concept of the determination of phenomena under the marginal control of the "interior structure" of the intelligibility of reality. As such, Torrance's *presentation* of Aristotle's thought corresponds to his own convictions regarding reality.

115 Torrance, "Scientific Hermeneutics According to St. Thomas Aquinas," 259. See also Torrance, *DCO*, 30.

116 Torrance, "Scientific Hermeneutics According to St. Thomas Aquinas," 259.

117 Torrance, "Scientific Hermeneutics According to St. Thomas Aquinas," 259.

118 Torrance, "Scientific Hermeneutics According to St. Thomas Aquinas," 260. This is startling for its similarity to David Armstrong's assertion "there is no separation of particulars and universals." D. Armstrong *Nominalism and Realism: Universals and Scientific Realism: Volume 1* (Cambridge: Cambridge University Press, 1978), 113.

119 Torrance, "Scientific Hermeneutics According to St. Thomas Aquinas," 260.

Second, our comprehension of the means by which Torrance upheld the view that rational form is not imposed upon reality by an idealized *a priori* framework is aided through comparing it to Aristotle's ontology. It is a rarely discussed fact that Torrance used a device that bears strong correspondence to an immanent realist view of universals in his own philosophy of theology. In the fifth chapter of *Theological Science* in which Torrance sought to provide an account of the relationship between the logic inherent in reality the logical forms of human conceptual representations (which he calls the problem of *ontologic*), Torrance turned to the notion of the "concrete universal."¹²⁰ The name of the concept itself certainly bears resemblance to an immanent-realist view of universals. What is more, Torrance contrasted the concrete universal to an abstract universal, meaning a *post rem* view of the universal as something not real, but rather developed as a concept via deduction from experience.¹²¹ Torrance's concrete universal is an assertion of the *reality* of that which is intelligible as opposed to a merely conceptual existence. As will be seen this is crucial to Torrance's argumentation for by this principle he asserted that *the orderly relation between particular events is not the product of the imposition of the rational form of humanity, but is the actual state of affairs*. Moreover, this intelligible order of things is not transcendent, but is rather inseparable from the concrete world of sensible particulars.

Torrance used the concrete universal at a crucial point in his response to the problem of *ontologic*. The concrete universal is the locus at which existence statements¹²² and coherence statements¹²³ overlap. Coherence statements are coherent not on account of any epistemic adequacy from the side of the knower, but because that which is referred to by existence statements is inherently coherent. The coherence of a logical system – to Torrance – is on account of the rationality of reality. At the crux of this relationship is the concrete universal. Through the concrete universal, the empirical level of intuitive contact with reality is pregnant with an implicit coherence. On account of this, existence statements are characterized by an implicit rational pattern, which is brought to explicit articulation through coherence statements. It is certainly noteworthy

120 Torrance, *Theological Science*, 243-244. So far as I am aware, this is Torrance's only use of this notion.

121 Torrance, *Theological Science*, 243.

122 Statements that refer beyond themselves to reality. See also, T.F. Torrance, *Theology in Reconstruction* (London: SCM Press, 1965), 52ff.

123 Statements that refer to other statements in the development of conceptual structures characterized by valid inference. Torrance, *Reconstruction*, 52ff.

that at a point of pivotal importance to Torrance's epistemology, the point at which the inherent rational form of reality impresses itself upon the rational form of human concepts, Torrance appealed to a concept that so resembles an immanent-realist view of universals.

Third, our understanding of Torrance's commitment to the priority of the rationality of reality may be understood a little better through establishing its lineage through Karl Barth's interpretation of Anselm's immanent-realist view of universals. This proposal must be immediately qualified. Although Anselm was a major influence on Torrance's conception of reality,¹²⁴ the text in which Anselm unequivocally associated himself with such a view of universals (*Monologion*) is not given attention by Torrance. However, the ontological implications of Anselm's immanent-realism are brought to Torrance through Barth's important analysis of Anselm's *Proslogion*.

Turning first to Anselm's immanent-realism. Anselm articulated an understanding of substance which carries an internal distinction, reminiscent of Aristotle: "every substance is classified either as a universal, which is essentially common to many substances (as to-be-a-man is common to individual men), or else as a particular (*individual*)."¹²⁵ Christophe Erismann has demonstrated that Anselm's recapitulation of this Aristotelian treatment of substance is distinctive in that he is not concerned with logical predication, but rather with a realist understanding of the universal as a common nature that is instantiated in particulars.¹²⁶ While Torrance does not engage with Anselm's *Monologion*, the theme of ontological realism does come through to him both in his analysis of *De Veritate* and also through his assertion of the significance of Anselm's ontology to Karl Barth's transition from dialectical to dogmatic theology. This leaves the matter as to whether Anselm's immanent realism had any influence over Torrance unclear. However, the evidence suggests that something at least partly compatible with immanent-realism was at play in Torrance's thought through Barth.

The crucial factor is Barth's treatment of *ratio* in Anselm's *Proslogion*. Famously, Barth argued that the ontic *ratio* takes precedence over the noetic *ratio*.¹²⁷ Particularly significant is Barth's assertion that "the *ratio* is the rationality of the object in so far as it makes it intelligible to a being who can understand"

124 Torrance, *Reality and Scientific*, 88-89, 141-147; T.F. Torrance, "The Ethical Implications of Anselm's *De Veritate*" in *Theologie Zeitschrift* 24 (1968), 309-319.

125 Anselm, *Monologion*, XXVII, p.45, II. 6-8. Cited from Erismann, "Immanent Realism," 216.

126 Erismann, "Immanent-Realism," 216-217.

127 Barth, *Anselm*, 44-59.

such that "ontic rationality precedes noetic."¹²⁸ According to this observation, it follows that accurate knowledge is that which is in accordance to the object's ontic *ratio*.¹²⁹ Reality has ontological status independent from the observer. In Torrance's view, Barth's study of Anselm is the "decisive turning point in [Barth's] thinking,"¹³⁰ in the transfer from dialectical to dogmatic theology,¹³¹ for it placed the emphasis upon the *ratio veritatis* of the antecedent reality of God in his self-revelation determining all subsequent theological thought.¹³² This point is emphasized in Torrance's important analysis of the priority of ontic *ratio* as that to which noetic *ratio* must correspond.¹³³

Stephen Wigley has demonstrated that Torrance's own understanding of the priority of ontic rationality over human understanding has robust roots in Barth's treatment of Anselm.¹³⁴ This impression is confirmed by Torrance's own analysis of Anselm's *De Veritate*, which he claimed was characterized by 'the stratification of truth':

the truths of statement and signification presuppose the *truth of being*, or what Anselm calls "the truth of the essence (or existence) of things" (*veritas essentiae rerum*). The truth of a thing or of a being is its reality, what it actually is.¹³⁵

This bears striking resemblance to Barth's analysis of Anselm's *Proslogion* above in that priority is laid on reality being that which it is, in relation to which

128 Barth, *Anselm*, 50.

129 S. Wigley, "Karl Barth on Anselm: The Influence of Anselm's 'Theological Scheme' on T.F. Torrance and Eberhard Jüngel," *Scottish Journal of Theology* 46.1 (1993), 79-97, esp. 82-83.

130 T.F. Torrance, *Karl Barth: an Introduction to his Early Theology, 1910-1931*, (Edinburgh: T&T Clark, 1962), 182.

131 This view has been challenged by Bruce McCormack. However, while McCormack questions the transition Barth's thought underwent on these grounds (arguing that similar positions can be found in Barth's earlier thought), McCormack upholds Torrance's interpretation of the ontic *ratio*'s priority over noetic. B. McCormack, *Karl Barth's Critically Realistic Dialectical Theology*, 438. For other treatments of the significance of ontic *ratio* in Barth's thought, see E. Jüngel, "Einführung in Leben und Werk Karl Barths" in E. Jüngel *Barth-Studien* (Zurich: Gütersloh, 1982), 48 and I. Spieckermann, *Gotteserkenntnis: Ein Beitrag zur Grundfrage der neuen Theologie Karl Barths* (Munich: Chr. Kaiser Verlag, 1985), 228-229.

132 T.F. Torrance, *Karl Barth: Biblical and Evangelical Theologian* (Edinburgh: T&T Clark, 1990), 150-152.

133 Torrance, *Karl Barth: Introduction*, 186-189.

134 Wigley, "Karl Barth on Anselm," 85.

135 Torrance, *Reality and Scientific*, 145.

humanity's noetic constructs are determined. While it would be to overstate the case to claim a direct line from Aristotle to Anselm's immanent-realism through Barth's ontological realism and finally ending at Torrance's analysis of *De Veritate*, there is certainly a cluster of ideas that are compatible with one another held together through this connection.

Conclusion

A comparative analysis of Torrance and Aristotle is counter-intuitive for a whole host of reasons. Despite this, our comprehension of Torrance's conception of reality is improved through such an analysis. First, the comparison allows Torrance's theologically determined conception of reality as antithetical to ontological dualism to be orientated in relation to a formal ontology. Second, the comparison enables a way to approach the important notion of the concrete universal, which is the locus of the overlap between coherence and existence statements. Third, the character of Torrance's commitment to the priority of the rationality of reality may be further understood through this connection.

NATURAL THEOLOGY AS THE INTRA-STRUCTURE OF THEOLOGICAL SCIENCE:

T. F. Torrance's Proposals for Natural Theology in the Context of the Synthesis of Rational Structure and Material Content

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Abstract: *Torrance's proposals for natural theology have not been as well understood as have other aspects of his theology. This essay offers some clarification of this important aspect of Torrance's theology by holding it in relation to Torrance's synthesis of rational structure and material content in knowledge. It is argued that Torrance's proposals for natural theology are only understandable when viewed in this connection. The reason for this is that Torrance's natural theology fulfils a similar role in theology to the function of his logic of systematic form in his reconfiguration of formal logic. Both natural theology and the logic of systematic form function as a rational structure that is determined by the material content of knowledge. Properly considered as the rational intra-structure of theology in necessary conjunction with God's self-revelation, natural theology is found to be the rational structure of Torrance's project of theological science. Theological science is therefore found to be constituted by a synthetic structure in which natural theology and revealed theology combine to the end of theological knowledge that is determined by God's self-revelation.*

Introduction

T. F. Torrance's proposals for natural theology are complex.¹ Part of the reason for this complexity is that Torrance's vision of a positive future for natural

¹ As acknowledged by Elmer Colyer, *How to Read T. F. Torrance: Understanding his Trinitarian and Scientific Theology* (Downers Grove: InterVarsity Press, 2001), 201.

theology is wedded to his broader synthesis between the rational structure of knowledge and its material content, encapsulated in the synthesis between the logic of empirical form and the logic of systematic form. Consequently, to grapple properly with Torrance's version of natural theology, one has to first get to grips with the synthesis of the rational structure and material content of knowledge. This essay is a contribution to that end.

It is well known that Torrance rejected formulations of natural theology that operate as an autonomous prolegomenon to positive theology. Torrance's purpose, however, was not primarily destructive, but *reconstructive*. Having thoroughly demolished the autonomous formulations of natural theology that he associated with medieval and enlightenment dualisms, Torrance proposed a "radical reconstruction" of natural theology.² The kernel of Torrance's "reconstructed" natural theology is in its relationship to God's self-revelation in Jesus. Far from a natural theology that acts independently from the material content of theology (which is our knowledge of God by encountering God in his self-revelation), Torrance proposed that natural theology be relocated *within* the positive content of theology, where it is determined by God's self-revelation.

In most treatments, Torrance's natural theology is held to be significant in its *outward* extension as a theology of nature whereby the traditional loci of natural theology (i.e. the ontological argument and the cosmological argument) can be overhauled with significant implications for inter-disciplinary dialogue with the natural sciences. While this is an important way of understanding Torrance's proposal, it is a mistake to reduce the significance of Torrance's natural theology to this theme. Torrance's reformulations of the traditional arguments of natural theology on the basis of the priority of God's self-revelation have significance for exploring the connections with the natural sciences — and they may even be of interest to philosophical theologians — but *they are not the substantive methodological issue at stake*.

Rather what is in view is a total inversion of natural theology at the level of theological method, away from the imposition of an idealized, antecedent rational system onto the positive content of theology, and toward the determination of human conceptual representation by God's self-revelation in Jesus. In other words, Torrance proposed that natural theology be taken from its position as the rational *extra*-structure of theology and instead be understood as the rational *intra*-structure of theology. Crucially, this element of Torrance's natural theology is only comprehensible in the light of his synthesis between the logic of empirical form

² T. F. Torrance, *Reality and Scientific Theology* (Edinburgh: Scottish Academic Press, 1985), 39.

and the logic of systematic form (as will be demonstrated through the following extended interaction with Paul Molnar's insightful but ultimately flawed analysis).

In other words, the significance of Torrance's reconstruction of natural theology does not only extend outwards, but *downwards* into issues of theological method. In my view, this is where the most substantive connections between Torrance's theology and the whole question of a "scientific" approach to theology may be observed. That is to say, *the synthesis of revealed theology and natural theology constitutes the composite structure of theological science*. As Torrance explained, taking natural theology from a *preambula fidei* indicates

a transition from a dualist to a unitary way of thinking, which calls for the integration of natural and positive theology within one bipolar structure of knowledge. The bringing of these two together in this way, the knitting together of epistemological structure and material content, yields what we are bound to call 'theological science.'³

This essay is an examination of this downward extension of Torrance's reconstruction of natural theology, understanding it in correlation to the synthesis of the logic of empirical form and the logic of systematic form. It is my view that understanding Torrance's natural theology from this perspective will uncover what is meant by his suggestion that natural theology is the necessary but insufficient condition of theology.

Outlining the Connection between Natural Theology and the Logic of Systematic Form

As this is unfamiliar territory in how Torrance's reconstruction of natural theology has been understood,⁴ a brief outline of the major premise of this essay will help identify the important points.

Torrance's natural theology is the rational intra-structure of theology which is determined by God's self-revelation. The synthesis of natural theology as

³ Torrance, *Reality and Scientific Theology*, 66-67.

⁴ However, it is not without precedent in the secondary literature. J. D. Morrison, "Thomas Torrance's Reformulation of Karl Barth's Christological Rejection of Natural Theology," *Evangelical Quarterly* 73.1 (2001), 59-75, esp., 60-61, 69-70; D. F. Ford, "Review of *Reality and Scientific Theology*," *Scottish Journal of Theology* 41, no. 2 (1988): 273-280; S. Murtha-Smith, "The Advancement of New Theology Using Science: The Three Key Concepts of Thomas Torrance," *The Journal of Faith and Science Exchange* 1 (1997): 65-71, 69; C. Weightman, *Theology in a Polanyian Universe: The Theology of Thomas Torrance* (New York: Peter Lang, 1994), 144-145; 163, 218-219; R. Newell, *Participatory Knowledge: Theology as Art and Science in C. S. Lewis And T. F. Torrance* (PhD dissertation, University of Aberdeen, 1983), 121-127.

rational structure and revealed theology as the material content of theology constitutes theological science. This is best understood through a demonstration of the complementarity between the synthesis of natural theology and revealed theology and the synthesis of the logic of empirical form and the logic of systematic form.

The principal mechanism through which Torrance delineates the synthesis of the logic of empirical form and the logic of systematic form is the integration of coherence statements and existence statements. On account of the fact that existence statements are determined by the antecedent and ontological connections in reality itself, a cluster of existence statements is characterised by an implicit pattern. It is the task of coherence statements to make this implicit coherence explicit through establishing valid inferential relations in the conceptual substructure. In this connection, the logic of systematic form (as represented by coherence statements) does not *impose* rational form upon what it observes, but rather is the means through which implicit rational form is *exposed*. In this connection, the logic of systematic form is the *necessary but insufficient condition* for knowledge.

Torrance's natural theology corresponds to the logic of systematic form as rational structure and is only comprehensible in this connection. Torrance identified natural theology as the rational intra-structure of theology which, far from being autonomous from the material content of God's self-revelation, is determined by it.

The importance of understanding natural theology — in its function as the rational intra-structure in connection to the synthesis of the logic of empirical form and the logic of systematic form — can be demonstrated by offering a response to the analysis of Paul Molnar.

A Response to Paul Molnar

Paul Molnar is one of the major contributors to the scholarly discussion of Torrance's theology. Across a very wide range of issues, Molnar has helpfully expounded and evaluated Torrance's thought. One important aspect of Molnar's reception of Torrance is his analysis of Torrance's natural theology.⁵ In his sophisticated reading, Molnar isolates the substantive point at stake, but he *misinterprets* it because he has not appreciated the relation between this and the synthesis of the logic of systematic form and the logic of empirical form. Therefore, through an extended interaction with Molnar's counter-reading, the

5 P. Molnar, "Natural Theology Revisited: A Comparison of T.F. Torrance and Karl Barth," *Zeitschrift für Dialektische Theologie* 21, no. 1 (2005): 53-83.

importance of holding Torrance's proposals for natural theology with his syntacto-semantic approach are demonstrated.

Molnar contends that Torrance's proposals for natural theology have elements that are consistent with an autonomous natural theology. Given his clear appreciation of the priority of God's grace in Torrance's theological epistemology, Molnar views Torrance's natural theology as fundamentally incompatible with Torrance's broader theological approach.⁶ In what follows, I suggest that Molnar's criticisms are understandable, but ultimately misplaced.

In his recapitulation of Torrance's reconstruction of natural theology, Molnar stresses the importance of the restoration of ontology on account of which reality is understood to possess its own intrinsic intelligibility. However, created reality does not have a sufficient reason in itself for being the way it is, but rather depends on the uncreated intelligibility of God through the *Logos*.⁷ Molnar is clear that Torrance does not postulate an independent natural theology predicated on the openness of created reality to its Creator by an analysis of created reality *per se*. Instead, Molnar contends that Torrance intended the openness of creation in its contingent intelligibility to its transcendent ground in the will of God *known only through revelation*.⁸ If this is all Torrance attempted, Molnar asks, would it not have been simpler to call it a theology of nature?⁹

However, Molnar recognizes that *Torrance is doing more than constructing a theology of nature*.¹⁰ This is both the significant insight of Molnar's reading and the beginning of his misunderstanding. Molnar is right to note that Torrance's natural theology does not simply involve a perspective on the universe that is determined by revelation. Torrance, Molnar argues, is concerned with natural

6 P. D. Molnar, *Faith, Freedom and the Spirit: The Economic Trinity in Barth, Torrance and Contemporary Theology* (Downers Grove: IVP Academic, 2015) 82-128.

7 Molnar, "Revisited," 54-55. See also, A. J. D. Irving, "Fr. Georges Florovsky and T. F. Torrance on the Doctrine of Creation," Forthcoming, *St Vladimir's Theological Quarterly*, 2017.

8 Molnar, "Revisited," 58.

9 Ibid., 70, 71. For a discussion on a theology of nature as an understanding of creation mediated through God's revelation in Jesus Christ by the Spirit, see C. E. Gunton, *A Brief Theology of Revelation: The 1993 Warfield Lectures* (Edinburgh: T&T Clark, 1995), 59-60.

10 Molnar, *Theologian*, 95. Molnar's reading is an improvement on the interpreters who see T. F. as simply doing a theology of nature. See E. Colyer, *How to Read T.F. Torrance: Understanding his Trinitarian and Scientific Theology* (Downers Grove: InterVarsity Press, 2001), 194-207 (esp. 194, n. 187); T. McMaken, "The Impossibility of Natural Knowledge of God in T. F. Torrance's Reformulated Natural Theology," *International Journal of Systematic Theology* 12, no. 3 (2010): 319-340, esp. 323-328; T. Chung, *Thomas Torrance's Mediations and Revelation* (Farnham: Ashgate, 2011), 178-182.

theology as the rational intra-structure of the actual knowledge of God from revelation.

However, Molnar misunderstands this crucial element of Torrance's thought. According to Molnar, one influential interlocutor for aspects of Torrance's natural theology was the French Jesuit theologian Henri Bouillard. Of particular importance to Molnar's assessment is Torrance's appropriation of the view that natural theology is the *necessary but insufficient condition* of theology.¹¹ Molnar argues that by so doing, Torrance compromises the conviction that the grace of God in his self-revelation is the sole criterion of theology.¹²

In my view, Molnar has put his finger on the crucial aspect of Torrance's reconstruction of natural theology but has not rightly assessed its meaning. Moreover, I suggest that Molnar's misreading can be corrected by understanding Torrance's reconstruction of natural theology in relation to the synthesis of the logic of empirical form and the logic of systematic form. This is demonstrated by responding critically to Molnar on two points of his analysis.

First, Molnar argues that by appropriating Bouillard's statement that natural theology is the necessary but insufficient condition for theology, Torrance has contravened the priority of grace and placed autonomous thought as the partner of revealed theology.¹³ Certainly, what Bouillard meant by this phrase is totally ill-suited to Torrance's theological commitments. Bouillard intended this phrase to communicate a natural capacity innate to humanity that is the necessary correlate to the knowledge of God by revelation.¹⁴

However, Torrance did not appropriate this phrase without altering its meaning. Torrance criticized Bouillard's natural theology as a conceptual structure that is not determined by the being of God and is detached from the material content of theology.¹⁵ It would be most out of character for Torrance to surrender his well-established methodological antipathy to idealized rational structures, particularly on an issue that would drive him to such a point of inconsistency with his own theological method.

This is demonstrated by Torrance's appropriation and modification of another of Bouillard's statements, describing natural theology as the "rational

11 Molnar, "Revisited," 73.

12 Ibid., 74-75; *Theologian*, 94.

13 Molnar, "Revisited," 73. Molnar cites Torrance, *Reality*, 41.

14 H. Bouillard, *The Knowledge of God*, trans. S. D. Femanio (London: Burns and Oates, 1968), 39.

15 T. F. Torrance, *Karl Barth: Biblical and Evangelical Theologian* (Edinburgh: T&T Clark, 1990), 158.

intra-structure" of theology.¹⁶ For his version of this phrase, Torrance re-translated the English edition of Bouillard's text, which renders Bouillard's term as "*infrastructure*."¹⁷ Natural theology as *infrastructure* infers an organizational structure inherent in the operation of human reason that is the necessary correlate to theological knowledge. In my view, this is precisely what Bouillard meant.¹⁸ Bouillard conceived of natural theology as the inherent organizational capacity of the human mind which is the necessary, subjective condition for theological knowledge. However, this is *not* what Torrance intended to communicate. In re-translating the term as "intra-structure," Torrance sought to demonstrate that he had in view a rational structure that had been transposed into the material content of theology.

In light of this, the precedent of Henri Bouillard is not satisfactory to fully grasp what Torrance meant when he made use of Bouillard's language. Assuming Torrance is consistent with his own method, a different solution to the problem of what Torrance meant by natural theology as the necessary but insufficient condition of theology must be found. The substantial meaning of Torrance's use of this phrase must be understood in connection with Morris Cohen and Ernest Hutton.

In his *Preface to Logic* — a text which had considerable influence upon Torrance's synthesis between the logic of empirical form and the logic of systematic form — Cohen described deductive reason in relation to the empirical component of knowledge as the *necessary but insufficient* condition of knowledge.¹⁹ By this, Cohen meant that valid inference between propositions is necessary to knowledge but is not sufficient in and of itself, and therefore must always retain its connection to the empirical component of knowledge. This must be held in connection to one other important influence on Torrance, Ernest Hutten. Hutten argued that the rational structure of our conceptual representations is derived from the ontic order of reality.²⁰ Therefore, the rational structure of our knowledge is not the free creation of humanity, but is rather a feature of thinking in accordance with the state of affairs that exists independent of any correlation to the human mind.

Understood in this way, Torrance's description of natural theology as the necessary but insufficient condition of theology takes on a radically different

16 See Torrance, *Reality*, 41, n. 5. Torrance cites Bouillard, *Knowledge*, 62.

17 See Torrance, *Reality*, 41, n. 5.

18 Bouillard, *Knowledge*, 39-40, 61-62.

19 M. R. Cohen, *A Preface to Logic* (London: Routledge, 1946), 55.

20 E. H. Hutten, *The Origins of Science: An Inquiry into the Foundations of Western Thought* (London: George Allen and Unwin, 1962), 123-125, 166-170.

meaning to Molnar's interpretation. If Cohen and Hutten are considered important antecedents, it would mean that natural theology is removed from its position as an idealized rational structure independent from the material content of theology. Instead, natural theology acts as the rational structure of our theological systems under the determination of the actual self-revelation of God. This has the significant advantage over Molnar's reading of not inserting a radical inconsistency into Torrance's thought, and also of making full use of the range of influences with which Torrance worked. So, in my view, Torrance appropriated but re-interpreted Bouillard's phrase in relation to natural theology.

Second, Molnar expresses his concern with Torrance's comment that natural theology may be temporarily and artificially bracketed off from revealed theology for the purposes of clarification.²¹ In Molnar's view, this "creates a major strain in Torrance's own thinking" because such an approach is inconsistent with his scientific theology.²²

However, Molnar has misinterpreted Torrance's meaning as he has not appreciated the degree to which Torrance's proposals for natural theology reach back into the synthesis of the logic of empirical form and the logic of systematic form. The logic of empirical form has a nascent coherence owing to its determination by the material content of reality which is itself characterized by an intelligible structure. In this context, the valid inference at the level of systematic form is determined by the rationality of reality. As a result of confidence in the intrinsic rationality of reality, thought that is truly in accordance with reality will be characterized by valid connections between its propositions. In this way, valid inference (at any stage of formal abstraction) maintains the impress of empirical factors. Therefore, Torrance envisaged a situation in which chains of propositions might be momentarily separated from their empirical content so as to test the validity of the inference between said propositions and verify that they are properly determined by a coherent reality.

When viewed in this connection, Torrance's suggestion that natural theology may be artificially bracketed off from revealed theology is not quite the specter that Molnar takes it to be. Torrance immediately qualified this statement commenting that natural theology "still retains the imprint of its empirical origins and foundations," meaning that it is never properly abstracted from revealed theology.²³ It is precisely because Torrance's natural theology is determined by revealed theology that it is a rational intra-structure characterized by valid

21 Torrance, *Reality*, 42. Molnar, *Theologian*, 95.

22 Molnar, "Revisited," 76.

23 Torrance, *Reality*, 42-43.

connections between its propositions which are evaluated by artificially separating revealed and natural theology.²⁴ The artificial and temporary separation of natural theology provides the context for formal analysis of a logical system to test its coherency and verify the connection between natural theology and revelation.

To understand Torrance's natural theology as the rational substructure of theology, his proposals must be understood in conjunction with his broader conception of authentic knowledge as the proper synthesis of the empirical and theoretical components of knowledge. For Torrance, theology is a synthesis of natural theology as rational structure and the material content of our knowledge of God's self-revelation. This synthesis resembles Torrance's understanding of true knowledge as involving the cooperation of empirical and theoretical components.

Torrance's Empirico-Theoretical Conception of Objectivity

Torrance's empirico-theoretical approach to objectivity establishes the basic contours of Torrance's organic synthesis between material content and rational structure. Formally speaking, Torrance's conception of objectivity is characterized by the proper synthesis of the empirical and theoretical components of knowledge. It is upon the natural co-operation of these two components that thought may be truly determined by reality.

This understanding of objectivity is bound intimately to Torrance's understanding of reality as composed of a fundamental complementarity between the way things are in their intrinsic intelligibility and the way that they appear such that phenomena are determined by the internal order and structures of reality. On account of this, phenomena are characterized by an implicit pattern, as a result of which the empirical component has an inchoate coherence. In such a context, the theoretical activity of the human mind does not impose cognizable form upon phenomena in a constructivist sense, or develop instrumental theoretical fictions to the side of experience. Instead, the theoretical activity of the mind is in conjunction with experience and seeks to clarify and make explicit the antecedent coherence in sensible intuition.

Torrance described objectivity as "knowledge devoted to and bound up with its object."²⁵ This fairly bland object-orientated conception of objectivity is developed through Torrance's comment that

24 Ibid., 43.

25 T. F. Torrance, *Theological Science* (London: Oxford University Press, 1969), 34.

objective thinking lays itself open to the nature and reality of the object in order to take its shape from the structure of the object and not to impose upon it a structure of its own prescription.²⁶

To Torrance, *to know objectively is to allow the structure of the object to determine the structure of human thought*. Humanity's conceptual representations, and how these concepts relate to one another, are not constructed by humanity in isolation from the state of affairs in reality itself, but are rather determined by the antecedent cognizable structure within reality.

Antithetical to the *natural* synthesis of the empirical and theoretical components of knowledge is the *artificial* synthesis of the same in Torrance's notion of object-making thought. To think in an object-making way is to actively impose rational structure upon phenomena from the side of humanity:

object-making thought, however, is the antithesis of [objectivity], for in it "we make and mould" our object of knowledge out of the stuff of our consciousness. It is the activity in which a thing is "known" only as it is coercively grasped and projected as an "object" through an inflexible conceptual structure which, whether in its Newtonian or Kantian form, is regarded as conditioning the thing and establishing it as a knowable reality.²⁷

Object-making thought does not take its rational structure from the ontic order of reality, but rather imposes cognizable form upon phenomena. In this way, the way things appear are coerced into an artificial coherence via the imposition of a rigid rational framework. In this connection, Torrance understood Kant's transcendental idealism to be an artificial synthesis between the theoretical and the empirical components of knowledge in which sensible intuition is abstracted from its natural connections, and is instead interpreted in accordance with connections imposed upon it by the human mind.²⁸ It is important to note that Torrance did not criticize Kant for holding in conjunction the theoretical and empirical components of knowledge. Torrance's criticism is that Kant attempted this in an artificial manner.

In Torrance's view, thought is truly objective when the theoretical elements of human knowledge emerge organically out of the empirical, clarifying the inchoate coherence of our experiential knowledge on account of the intrinsic

26 T. F. Torrance, *God and Rationality* (London: Oxford University Press, 1971), 9.

27 Torrance, *God and Rationality*, 9-10, 116, 188.

28 T. F. Torrance, *Transformation and Convergence in the Frame of Knowledge. Explorations in the Interrelations of Scientific and Theological Enterprise* (Grand Rapids: Eerdmans, 1984), 36-46, 271; T. F. Torrance, *The Ground and Grammar of Theology* (Charlottesville: The University of Virginia Press, 1980), 25-26; *Reality*, 16, 74.

intelligibility of the reality encountered. To see this most clearly, discussion turns to Torrance's synthesis between the logic of empirical form and the logic of systematic form.

The Synthesis of the Logic of Empirical Form and the Logic of Systematic Form

Torrance's synthesis between the logic of empirical form and the logic of systematic form is best observed through some introductory comments on logic. Traditional logic is concerned with valid connections between propositions through drawing inferences that are deductively valid.²⁹ Formal logic of the nineteenth and early twentieth centuries is also concerned with valid inference, but operates with a formalized notation — an artificial, symbolic language with no ontic correlate — in which to express deductive arguments.³⁰ The great strength of this formalized notation is that it allows "deductions to be carried out independently of the meaning or content of the propositions involved," thus enabling greater inferential precision.³¹

Torrance's distinctive attitude to knowledge is characterized by his nuanced evaluation of formal logic. While Torrance recognized the strength of symbolic logic to develop precise and valid chains of logical inference uninterrupted by semantic denotation,³² he was also deeply critical of symbolic logic because these great chains of inferential reasoning had nothing to do with reality.³³ The strength of formal logic, Torrance held, was its capacity to establish the systematic connections between propositions through using a stylized notation with no ontic correlate, thereby paving the way for clear and precise inferential

29 P. Smith, *An Introduction to Formal Logic* (Cambridge: Cambridge University Press, 2003), 1-7; M. Friend, *Introducing Philosophy of Mathematics* (London: Routledge, 2014), 36; Hoyningen-Heune, *Formal Logic: A Philosophical Approach* (Pittsburgh: University of Pittsburgh Press, 2004), 1-3.

30 Smith, *Formal Logic*, 53. See Einstein's description of the axiomatic method in mathematics. A. Einstein, "Geometry and Experience," in *Ideas and Opinions*, trans. S. Bargmann, (London: Alvin Redman, 1954), 232-249, esp. 233.

31 L. Schumacher, *Rationality as Virtue Toward a Theological Philosophy* (Farnham: Ashgate, 2015), 8. See Lemmon's distinction between the assumption of tradition logic that no terms are empty and the predicate calculus of formal logic which uses empty terms. E. J. Lemmon, *Beginning Logic* (London: Nelson, 1971), 175-177. See also Heinrich Scholz's endorsement of symbolic logic. H. Scholz, *Concise History of Logic*, trans. K. F. Leidecker, (New York: Philosophical Library, 1961), 50-74.

32 Torrance, *Theological Science*, 225.

33 Ibid., 225, 250-251.

structures, uninterrupted by semantic associations.³⁴ An important example of this is Whitehead and Russell's *Principia Mathematica*, which was understood by Torrance as the attempt to reduce mathematics to an axiomatic deductive system without any ontological reference, but where the criteria for the truth of a proposition are consistently relative to the deductive system.³⁵ Such a mode of reasoning, Torrance argued, gave a powerful account of the need for valid inference, but failed to provide conceptual systems under the determination of reality.

In a similar fashion, from early in his career, Torrance rejected the validity of autonomous reason in Christian theology.³⁶ Christian thought, Torrance argued, is not a law unto itself but is obedient to the laws of another: "in the place of autonomous reason Christianity puts the *heteronomous reason*."³⁷ Christian thought is not free-thinking, but thinking that is determined by its specific object.³⁸ Of principal importance is Torrance's proposal that discursive reason and intuitive reason be held together.³⁹ In so doing, Torrance appealed for cooperation between the faculty of drawing inferences whereby propositions may be connected by logically valid reasoning (discursive reason) and the acquisition of knowledge aside from logical inference (intuitive reason).

This fundamental orientation in Torrance's thought reaches its highest articulation in the chapter entitled "Problems of Logic" in his 1969 text *Theological Science*. Here Torrance approached the problem of how human logic may be positively related to the intrinsic intelligibility (or inner logic) of reality, which he called the problem of *ontologic*.⁴⁰ To this problem, Torrance's answer is unequivocal: *the logic of humanity is not autonomous from the ontological coherence of reality, but is rather determined by it*.⁴¹ Every science, Torrance contended, has to face the

34 Torrance, *Theological Science*, 224.

35 Torrance, *Transformation*, 137. See also E. Nagel and J. Newman, *Gödel's Proof* (London: Routledge and Kegan Paul, 1968), 43; M. Kline, *Mathematical Thought from Ancient to Modern Times: Volume 3* (Oxford: Oxford University Press, 1972), 1192-1197.

36 T. F. Torrance, "The Place and Function of Reason in Christian Theology," *Evangelical Quarterly* 14, no. 1 (1942): 22-41, esp. 23-24.

37 Ibid., 29.

38 Ibid.

39 Ibid., 34.

40 Torrance, *Theological Science*, 205.

41 For a fuller discussion of Torrance's epistemological approach that can be offered here (but is substantially similar to my own analysis), see T. Stevick, "Openness and Formal Logic in Natural and Theological Science According to T. F. Torrance," *Participatio Supplemental Volume 2* (2013): 37-66.

problem of *ontologic*, which is how to relate the logic of human conceptuality to the antecedent connections within the reality that is inquired into.⁴²

To Torrance, then, knowledge is all about connections. To know is to recognize connections and to distinguish between different forms of connection. Torrance's writings on logic are concerned with three different types of connection.

- The *external* connections of objective reality. The connections in reality are the "external relations in the world."⁴³ The external connections are the actual relations that constitute the coherent structure of reality and determine the empirical and systematic connections.
- The *empirical* connection of human thought to the objective relations in the real world. This gives rise to an empirical form which is derived from the external relations of reality.
- The *systematic* connections in the combination of our thought into logically valid sequences.⁴⁴

These three forms of connection are the major factors in Torrance's synthesis between the logic of empirical form (connection ii) and the logic of systematic form (connection iii) in the service of disclosing the actual connections in reality (connection i). As Torrance argued, knowing each of these different forms of connection has an important part to play.

In view of this, the problem with symbolic logic is that the systematic connections of formal logic could obscure or even replace the empirical connection to reality and also the actual connections in reality itself through the reduction of coherent connection to the activity of the human mind:

[symbolic logic] appears to restrict relations, and therefore form and order, to the world of the mind, while positing things and existence in the nature of the real world, which not only denies the latter any inherent rationality or knowability but implies that the more we think in terms of relations the more we misrepresent it.⁴⁵

The problem with symbolic logic is that it suggests that connections in reality do not matter (or maybe even that they do not exist). The only thing that is of substantial importance is the connections posited by the inferential chain.⁴⁶ Torrance explained why he considered this to be so dangerous: "when our thought

42 Torrance, *Theological Science*, 205.

43 Ibid., 222.

44 Ibid., 222-223.

45 Ibid., 225.

46 Lying beneath Torrance's thought is the analysis of Cohen. See Cohen, *Preface to Logic*, 8ff., 38-44, 48, 51-52, 85, 192-196 (esp. 43-44).

becomes detached from being it develops imperious and legislative habits in seeking to impose nomistic structures upon being."⁴⁷ In Torrance's assessment, formal logic — if left unchecked in its symbolic self-reference — inevitably leads to the schematic rational structures of thought that are subsequently imposed upon and distort the material content of knowledge.

So, while Torrance held that the logic of systematic form could not be a *sufficient* condition for knowledge, he did recognize that it is a *necessary* condition for knowledge. Torrance recognized that symbolic logic provided logicians with a "cognitive apparatus which vastly increases the range and power of inferential thought."⁴⁸ It is important to be cognizant of this nuance; Torrance was not opposed to the deployment of logical inference in the development of coherent forms of thought.⁴⁹ Undergirding Torrance's thought here is the analysis of Morris Cohen.⁵⁰ Torrance's position can be equated very closely to Cohen's suggestion that "logical implication is thus a necessary though not a sufficient condition of physical meaning."⁵¹

Respecting both the empirical connection and the systematic connection without prioritizing one over the other is integral to Torrance's attempt to think under the determination of the actual connections in reality. Consequently, Torrance posited two subdivisions in human logic: the logic of empirical form and the logic of systematic form. The logic of empirical form is the implicit coherence at the empirical level. The logic of empirical form is determined directly by the actual connections in reality itself. The logic of systematic form is the "combination of our thoughts in consistent sequences."⁵² Torrance held these two different forms of logic in intimate relation:⁵³

We must keep steadily in front of us the distinction between the logic of empirical reference which is directed to material relations in objective reality, and the logic of systematic correlation which has to do with formal relations in our theoretic demonstrations, and at the same time see how they are coordinated with each other.⁵⁴

47 Torrance, *Theological Science*, 252.

48 Ibid., 249-250.

49 See also T. Luoma, *Incarnation and Physics: Natural Science in the Theology of Thomas F. Torrance* (Oxford: Oxford University Press, 2002), 71.

50 Torrance, *Theological Science*, 250. See also Cohen, *Preface*, 5, 8-13, 38-44, 48, 51-52 (esp. 43-44).

51 Cohen, *Preface*, 55.

52 Torrance, *Theological Science*, 223.

53 Ibid., 225.

54 Ibid.

The logic of empirical form yields observations that are characterized by an implicit rational pattern on account of the intelligibility of that which is experienced ("the material relations in objective reality"). The function of the logic of systematic form is to clarify that inherent coherence and articulate it in conceptual representations.⁵⁵ In the coordination between these two forms of logic, the formal logic of valid inference is retained, but only in relation with the empirical logic of the inchoate coherence of what is experienced of reality.⁵⁶

The best example of the coordination of the logic of empirical form and the logic of systematic form is the inter-relation of coherence statements and existence statements. Existence statements belong to the logic of empirical form, and they are statements that intend beyond themselves to reality, taking meaning from the reality to which they point.⁵⁷ This explicit semantic function means that existence statements have an implicit connection to one another. On account of the fact that existence statements refer to a reality that is internally coherent, a cluster of existence statements that refer to one reality is characterized by an implicit pattern. For this reason, Torrance explained that existence statements come in "clusters or groups and manifest patterns of signification through their correspondence with each other."⁵⁸ These implicit connections between existence statements are a function of the actual connections in reality itself.

Coherence statements belong to the logic of systematic form and concern valid inference between propositions. The primary intention of coherence statements is to other statements, and as such is *syntactical*. The task of coherence statements is to give formal logical expression to the coherence that is implicit in a cluster of existence statements. By so doing, the inchoate coherence between existence statements is brought to explicit articulation through coherence statements.

55 Torrance's procedure bears some correspondence to the approach outlined by Northrop whereby formal logic is used to expose unobservable entities and relations. F. S. C. Northrop, *The Logic of the Sciences and the Humanities* (New York: Macmillan, 1947), 60-61. See also Northrop's corresponding analysis of the scientific method of Einstein, which Torrance found so stimulating. See F. S. C. Northrop, "Einstein's Conception of Science," in P. A. Schlipp, *Albert Einstein: Philosopher-Scientist* (New York: Tudor, 1951), 387-408 (esp. 391-392, 406-408).

56 For a comparative syntactic-semantic approach to logic, see M. Strauss, *Modern Physics and its Philosophy: Selected Papers in the Logic, History and Philosophy of Science* (Dordrecht: D. Reidel, 1972), 97-99. See also Strauss's discussion of the relation between mathematics and physics which overcomes the alienation of mathematics from physics, and the suggestion that mathematics be considered the logical syntax of physics. Strauss, *Modern Physics*, 63-70, 71-76.

57 Torrance, *Theological Science*, 230. See also, *Reconstruction*, 49-50; *Ground and Grammar*, 32-37; *God and Rationality*, 34-38.

58 Torrance, *Theological Science*, 227.

In other words, owing to the ontic coherence of what is experienced, the explication of valid inference between existence statements through coherence statements is the exposition of the intelligibility of reality.

These are the points where coordination takes place between the logic of existence-statements and the logic of coherence-statements, on the one side through empirical operations to determine relations within the real world, and on the other side through the employment of logical calculus to combine the significant relations of our thought into an integrated Concept which enables us to grasp the sequence of the demonstration as a whole and which thus enables us to see more clearly the objective relations in the real world, but in so far as it engages in a compound semantic act it often opens up for us the Door to new knowledge⁵⁹

Torrance's vision of knowledge is a composite structure of semantic reference and consequent syntactic coherence.

The conceptual representations formed by this cooperation of coherence and existence statements are not models that picture reality. Instead they facilitate the disclosure of the inherent order of reality.⁶⁰ The logically valid connections between propositions that are determined by the order in reality itself and clarified in our understanding through coherence statements are not exhaustively grasped. Instead, the conceptual framework which is a compound of existence and coherence statements facilitates the increased apprehension of the vast intelligibility in the real world that both determines and outstrips our thought.

Corresponding to the problem of *ontologic* is the problem of *theologic*. The problem of *theologic* is the problem of how to relate the rational structures of human logic to the truth of God.⁶¹ What is the appropriate procedure of logical formalization in theology? Theology, Torrance argued, cannot do without "logical machinery,"⁶² but it must have a synthetic structure of the logical operations and empirical data.⁶³ Torrance identified theology's systematic language as a sort of theological calculus, a formalized theological language through which "to unfold the *inner logic* of his subject-matter."⁶⁴ The purpose of this theological notation is to "lay bare the essential structure of theological knowledge in its dogmatic integration."⁶⁵

59 Ibid., 256.

60 Torrance, *Ground and Grammar*, 124-125, 161-162; *Transformation and Convergence*, 255, 274-275; *Theological Science*, 318. See Luoma's excellent discussion of disclosure models, Luoma, *Incarnation*, 39-40. See also, Wong, "Appraisal," 142-150.

61 Torrance, *Theological Science*, 205.

62 Ibid., 263.

63 Ibid.

64 Ibid., 269.

65 Ibid.

Torrance proposed the development of a distinctive logic of systematic connection for the purpose of expounding the inner structure of the distinctive subject-matter of theology. However, this “theological calculus” is meaningful only in its relation to the actuality of God’s self-revelation.⁶⁶ Theology’s own “*formal mode of speech*” is in necessary conjunction with its own “*material mode of speech*.”⁶⁷ In my view, it is in relation to the problem of *theologic* that Torrance wrestled back natural theology from its Babylonian captivity in an autonomous rational *extra*-structure as a *preambula fidei*.⁶⁸

The Rejection of Autonomous Natural Theology

Torrance rejected natural theology when it was employed in autonomy from God’s self-revelation in Jesus Christ. Particularly in his later years, Torrance rejected autonomy in natural theology for reasons that correspond to his criticisms of object-making thought. In Torrance’s view one of the problems of autonomous natural theology is that it constitutes an antecedent rational framework that is imposed upon God’s self-revelation in just the same way that object-making modes of thought impose a rational schema upon the material content of knowledge.

One key source for understanding Torrance on natural theology is his interpretation of Karl Barth’s rejection of natural theology. In Torrance’s view, Barth considered natural theology to be an enterprise of human autonomy which would seek to actualize the knowledge of God as one of the possibilities within humanity, aside from God’s gracious self-revelation in Jesus.⁶⁹ Torrance argued

66 Torrance, *Theological Science*, 273.

67 Ibid., 270.

68 In doing so, Torrance was not simply boxing the air. Within Reformed theology, centering on the rationalistic systems of natural theology in sixteenth and seventeenth century Geneva, natural theology was conceived as a rationalistic prolegomenon upon which the superstructure of revealed theology could be established. See M. I. Klauber, *Between Reformed Scholasticism and Pan-Protestantism: Jean-Alphonse Turretin (1671-1737) and Enlightened Orthodoxy at the Academy of Geneva* (Selinsgrove: Susquehanna University Press, 1994); M. I. Klauber, “Jean-Alphonse Turretin (1671-1737) on Natural Theology: The Triumph of Reason Over Revelation at the Academy of Geneva,” *Scottish Journal of Theology* 47 (1994): 301-332. See also, the rationalistic natural theology of Daniel Wytttenbach under the influence of Christian Wolff. R.A. Muller, *Post-Reformation Reformed Dogmatics: The Rise and Development of Reformed Orthodoxy ca. 1520 - ca. 1725. Volume One: Prolegomena to Theology*. 2nd Edition (Grand Rapids: Baker Academic, 2003), 303-308.

69 R. S. Anderson, “Barth and a New Direction for Natural Theology” in *Theology Beyond Christendom: Essays on the Centenary of the Birth of Karl Barth May 10, 1886*, ed. J. Thompson (Eugene: Wipf and Stock, 1986), 241-266, esp. 243.

that Barth rejected natural theology on account of the priority of the grace of God in the knowledge of God;⁷⁰ and also on account of the scientific requirement that the positive content of theology (God's actual self-revelation in Jesus) should determine the knowledge of God.⁷¹

The most relevant element to the current inquiry is Torrance's emphasis that Barth rejected natural theology on the grounds that it is not scientifically legitimate to employ a rational system apart from revelation as an *a priori* logical framework.⁷² For this reason, Torrance claimed that Barth's "struggle with the problem of natural theology is also a struggle for rigorous scientific method in theology."⁷³

Important to this is Barth's dispute with Heinrich Scholz over the terms on which theology could be identified as a science. Crucially, Barth resisted Scholz's postulates for scientific adequacy. In Barth's view theology is not scientific through its adherence to a universal scientific method, but rather through thinking in a manner that is appropriate to the object under inquiry.⁷⁴ In this connection, Torrance suggested that Barth rejected autonomous natural theology as it operates after the manner of all *a priori* rational structures: they impose an artificial coherence upon experience, giving rise to a rational structure that is not determined by reality.⁷⁵

Turning to Torrance's own rejection of natural theology, some common themes emerge. In the Auburn Lectures (1938-1939), Torrance rejected natural theology on the basis of the exclusivity of God's self-revelation in Jesus

70 T. F. Torrance, *Karl Barth: Biblical and Evangelical Theologian* (Edinburgh: T&T Clark, 1990), 144.

71 Torrance, *Transformation and Convergence*, viii-x.

72 Torrance, *Karl Barth*, 142-143.

73 Ibid., 145.

74 See K. Barth, *Church Dogmatics: Volume One: The Doctrine of the Word of God, Part One*, trans. G.W. Bromiley (Edinburgh: T&T Clark, 1970) 8-10; H. Scholz, "Wie ist eine evangelische Theologie als Wissenschaft möglich?" *Zwischen den Zeiten*, 9 (1931): 8-53, esp. 49ff. For fuller discussion, see W. Pannenberg, *Theology and the Philosophy of Science* (London: Darton, Longman and Todd, 1976), 265-275; A. McGrath, *T. F. Torrance: An Intellectual Biography* (Edinburgh: T&T Clark, 1999), 206-207. For Torrance's resistance to a universal scientific method in general terms, see Torrance, *Theological Science*, 106-140. For Torrance's estimation of the importance of Heinrich Scholz in the application of a universal method to theology, see T. F. Torrance, "Review of *Mathesis Universalis. Abhandlungen zur Philosophie als starrer Wissenschaft*," *Scottish Journal of Theology* 16 (1963): 212-214. Torrance thus rejected the validity of engaging in theological study from a predetermined methodological schema.

75 T. F. Torrance, *Space, Time and Resurrection* (Edinburgh: T&T Clark, 1976), ix-x.

Christ,⁷⁶ which implies the rejection of the knowledge of God established on any other grounds.⁷⁷ In this connection, Torrance associated autonomous theological systems with the doctrine of sin as the expression of humanity's desire for independence.⁷⁸ However, as the Word became flesh, revelation is actualized within humanity.⁷⁹ Accordingly, there remains a need for appropriate human response to revelation.⁸⁰ Autonomous natural theology is excluded, but revelation-dependent natural theology remained an open possibility.

Torrance also rejected natural theology on the basis of theological anthropology. In the 1949 monograph *Calvin's Doctrine of Man*, Torrance stressed the effect of sin on human reason. However, Torrance's analysis does not focus on the limitation of human reason through the deleterious effects of sin. The important thing about sin is not that it makes natural theology *impossible*; rather sin makes natural theology *impermissible*. The groundwork of this is set by Torrance's analysis of the meaning of the image of God. The image of God is grounded upon the freedom of God. Existence is not intrinsic to humanity, but is rather dependent upon the gracious will of God.⁸¹ Humanity as the image of God in a particular sense refers to humanity's capacity to be conscious of its dependence upon God,⁸² so as to reflect the glory of God in their grateful obedience. Sin is the utter perversion of the image of God within humanity.⁸³ Therefore, the essence of sin is ingratitude and self-assertion.⁸⁴ Torrance applied this theological anthropology directly to theological epistemology, placing emphasis on the "sin of the mind," which is the self-sufficiency of human reason in opposition to grace.⁸⁵ In this connection, Torrance rejected autonomous natural theology as the very expression of the sinful orientation of the human mind.⁸⁶

76 T. F. Torrance, *The Doctrine of Jesus Christ: Auburn Lectures, 1938-39* (Eugene: Wipf and Stock, 2002), 96, 118.

77 Torrance, *Doctrine of Christ*, 82. See also McGrath, *Thomas F. Torrance*, 188.

78 Torrance, *Doctrine of Christ*, 159.

79 Ibid., 131-139.

80 Ibid., 19.

81 T. F. Torrance, *Theology in Reconstruction* (London: SCM Press, 1965), 105; T. F. Torrance, *Calvin's Doctrine of Man* (London: Lutterworth Press, 1949), 65-68.

82 Ibid., 35-51, 59.

83 Torrance, *Reconstruction*, 108.

84 Ibid.

85 Torrance, *Doctrine of Man*, 116-127. See also Torrance, "Place and Function of Reason," 24-29.

86 Torrance, *Doctrine of Man*, 167-168.

Torrance's later rejection of natural theology also emphasized the rejection of autonomy in theology, but was elaborated in connection with his growing epistemological sophistication. Torrance rejected autonomous natural theology because he considered it to be an artificial rational schema that is imposed upon and distorts God's self-revelation.⁸⁷

Torrance identified autonomous forms of natural theology to be established upon dualistic interpretations of the relationship between God and creation, where natural theology was used as an independent conceptual system that could reach knowledge of God aside from any interaction between God and creation.⁸⁸ Such natural theologies, Torrance argued, are operational through the imposition of a rational schema from the side of humanity whereby creaturely reality is understood as giving some limited knowledge of God.⁸⁹

The problem of natural theology as an antecedent rational structure is that it obscures the actual structure and pattern of God's self-revelation.⁹⁰ Torrance equated this to the *a priori* application of geometry to physics, which is the development of a rational structure separately from the positive content of knowledge and the subsequent imposition of the former upon the latter.

We have had a similar problem with what is called "natural theology", which in medieval times (in sharp contrast to patristic thought) was abstracted on its own as an antecedent science or as a *preambula fidei*, and as such supplied the general frame of reference in which "revealed theology" was interpreted. The same thing happened in Protestantism with the rise of deism when a new natural theology was developed in the modern style and which also became the frame of reference within which positive theology was given its interpretation. But that must not be allowed to continue, for the rational structure of knowledge of God cannot be scientifically studied except on the ground of actual knowledge where "natural" theology is *natural* to the material content of that knowledge and developed in accordance with the nature of God as He revealed Himself in His Word and Acts.⁹¹

By *preambula fidei* Torrance meant a preliminary discussion that operates as a philosophical framework which determines how the positive content of God's self-revelation is understood.⁹² This antecedent and independent philosophical

87 See particularly, T. F. Torrance, "Scientific Hermeneutics According to St. Thomas Aquinas," *Journal of Theological Studies*, 13, no. 2 (1962): 259-289.

88 Torrance, *Reality and Scientific*, 38.

89 Ibid., 65.

90 Torrance, *God and Rationality*, 133.

91 Ibid., 133-134.

92 Torrance, *Reality and Scientific*, 38, 65.

framework is imposed upon God's self-revelation, obscuring its natural coherence and cognizing it instead in accordance with an artificial conceptual structure.

As with the synthesis of the logic of systematic form and the logic of empirical form above, natural theology must not be developed in an *a priori* manner as a rational substructure upon which the superstructure of revealed theology may be established. Instead, natural theology must be developed under the determination of reality as it is encountered. It is with this in mind that discussion turns to Torrance's positive proposal for natural theology as the rational intra-structure of theology.

Natural Theology as the Rational Intra-Structure of Theology

Torrance's natural theology is the rational intra-structure of theology. As part of this, Torrance has had to separate natural theology from its use as a preliminary foundation for positive theology. It is in this connection that Torrance began his positive reconstruction of natural theology.

All this must not be taken to mean the end of natural theology, however, but rather its need for a radical reconstruction through a profounder way of coordinating our thought with being.⁹³

Torrance set the trajectory of a positive future for natural theology upon the issue of appropriate knowledge that is determined by reality. In this connection, Torrance's natural theology is the turn away from the use of natural theology as an *a priori* schema, and toward the determination of human thought by the self-revelation of God. This is in progressive continuity with Barth's rejection of natural theology. The development comes in that Torrance criticized Barth for not demonstrating how human rationality could be positively determined by God's self-revelation, leaving human reason "hanging in the air."⁹⁴ Torrance's proposal for natural theology is his attempt to build on the ground that Barth had cleared and demonstrate how human rationality can function as an integral part of theological knowledge and yet be wholly determined by God's self-revelation.

This relocation of natural theology within the content of the positive knowledge of God in his self-revelation is explained through Torrance's analogy of the relationship between practical geometry and physics. It is in this connection that Torrance's proposals for natural theology are seen to emerge from the deep waters of his (theologically determined) epistemological commitments. Torrance argued that natural theology relates to the positive knowledge of God's

93 Ibid., 39.

94 Torrance, *Karl Barth*, 156.

self-revelation in the same way that practical geometry relates to physics. This proposal follows the structure of a proportional analogy.⁹⁵

Torrance did not argue that physics is like revealed theology *per se*.⁹⁶ Such a misconception could lead to the view that Torrance proposed a radically autonomous natural theology. Instead, the analogy functions by proportional correspondence in the structure of the relationship between the distinct poles. This analogy is intended to demonstrate that human logical structures (practical geometry and natural theology) are not *a priori* rational schemas that can be applied irrespective of reality, but rather they are rational schemas that are determined by reality.

Through this analogy Torrance insisted upon two fundamental points.

- Natural theology must be *relocated* from its position of autonomy and placed within the positive content of theology.
- On account of this relocation, natural theology undergoes a *reconstruction* from an *a priori* rational structure that is imposed upon reality to an *a posteriori* rational structure that is determined by reality.

Torrance's understanding of the relocation and the reconstruction of geometry in relation to Einsteinian physics is integral to this analogy. In Torrance's view, Einsteinian physics necessitated an epistemological reversal in which *a priori* Euclidean geometry was found to be invalid on the grounds that it was incapable of producing conceptual representations of the four-dimensional space-time continuum.⁹⁷ As such, Torrance claimed that new, non-Euclidean geometries needed to be employed as practical geometries determined by the new material content of physics.⁹⁸ In this way, geometry is re-located within physics, where it serves as the rational intra-structure of physical knowledge, where far from *imposing* rational form, the inherent intelligibility of reality may be increasingly *exposed*.

The accuracy of Torrance's re-presentation of the development of non-Euclidean geometry in relation to relativistic physics is questionable.⁹⁹ The

95 Torrance, *Reality and Scientific*, 39; *Ground and Grammar*, 91-93.

96 *Contra* the misunderstanding of R. Holder, *The Heavens Declare: Natural Theology and the Legacy of Karl Barth* (West Conshohocken: Templeton Press, 2012), 150-153.

97 See W. H. Wong, "An Appraisal of the Interpretation of Einsteinian Physics in T. F. Torrance's Scientific Theology," (PhD Dissertation: University of Aberdeen, 1994), 148-155, 175-177.

98 Torrance, *Space, Time and Incarnation*, 69-70.

99 Norris has criticized Torrance's analogy for making theology subservient to physics. F. Norris, "Mathematics, Physics and Religion: A Need for Candour and Rigour," *Scottish Journal of Theology* 37, no. 4 (1984): 457-470, esp. 465-466.

geometries employed to give conceptual representation to the geometrical structure of space and the interlocking relation of space and time were developed prior to Einstein's discoveries. As such, the "*a posteriori*" geometries developed in order to give conceptual articulation to the intrinsic rational structures were themselves developed prior to physical evidence.¹⁰⁰

However, it is important to not be too exacting on applying the criterion of precise accuracy to the complexities of twentieth century science. Instead, we who are interested in theological method should accept Torrance's idiosyncratic reading as illustrative of the general principle at stake. In Torrance's economy, the rejection of Euclidean geometry and the use of non-Euclidean geometry are indicative of an epistemological reversal in which universal scientific methods and *a priori* rational schemas are rejected in favour of an *a posteriori* approach to knowledge, characterized by the proper synthesis of material content and rational structure.

Seen in this light, Torrance's proposals for natural theology become increasingly comprehensible. Like *a priori* Euclidean geometry, natural theology is rejected as an independent conceptual schema that is ill-suited to draw out the intrinsic coherence of God's self-revelation. As such, natural theology is to be relocated, taken from its place as a *preambula fidei*, and used instead in an *a posteriori* manner. In this way, natural theology is determined by the material content of God's self-revelation.

Euclidean geometry is pursued and developed *a priori*, as an independent science on its own, antecedent to physics, but is then found to be finally irrelevant to the actual structure of the universe of space and time. Everything changes, however, *when geometry is introduced into the material content of physics* as a four-dimensional physical geometry, for it then becomes what Einstein called "a natural science" in indissoluble unity with physics. So it is with natural theology: brought within the embrace of positive [revealed] theology and developed as a complex of rational structures arising in our actual knowledge of God it becomes "natural" in a new way, natural to its proper object, God in self-revealing interaction with us in space and time. Natural Theology then constitutes the epistemological "geometry," as it were, within the fabric of "positive theology" as it is apprehended and articulated within the objectivities and intelligibilities of the space-time medium through which God has made himself known to us. As such, however, natural theology has

100 N. Coates, "Some Implications of Michael Polanyi's Concept of Personal Knowledge for Theological Method" (M.A. Thesis: University of Wales, 1983), 81. See also, M. Kline, *Mathematics in Western Culture* (London: The Scientific Book Guild, 1954), 417, 419, 429.

no independent status but is the pliant conceptual instrument which Christian theology uses in *unfolding and expressing the content of real knowledge of God*, through modes of human thought and speech that are made rigorously appropriate to his self-revelation to mankind.¹⁰¹

Torrance's proposal is that natural theology is developed within positive theology as its internal rational structure (or "geometry"). In this way, natural theology changes its state. It is no longer an extrinsic rational structure imposed upon God's self-revelation; rather, it is natural in that it is a rational structure that is in *accordance with the nature* of God's self-revelation. As a function of this, natural theology becomes the instrument of Christian theology to articulate and clarify in human modes of knowing the positive knowledge of God through his self-revelation.

On several occasions, Torrance identified the form of natural theology he proposed as the conceptual structure of theology that is under the determination of God's self-revelation.¹⁰² For reasons of space, only one of them is considered here.

[N]atural theology cannot be pursued in its traditional abstractive form, as a prior conceptual system on its own, but must be brought within the body of positive theology and be pursued in indissoluble unity with it. No longer extrinsic but intrinsic to the actual knowledge of God, it will function as the necessary intra-structure of theological science, in which we are concerned to unfold and express the rational forms of our understanding as they arise under the compulsion of the intelligible reality of God's self-revelation.¹⁰³

In calling natural theology the "intra-structure" of theology, Torrance completed the reversal of natural theology from an antecedent rational structure to a conceptual structure that is developed under the determination of God's self-revelation, which takes its coherence not through the imposition of logical form from the side of humanity, but rather through the trinitarian structure and coherence implicit in God's self-revelation. In other words, to speak of natural theology as an *intra*-structure is to identify that it is no longer an *extra*-structure imposed upon the material content from outside, but rather is positively determined by the material content. In this way, Torrance reconstructed natural theology to give formal expression to the interior coherence of the positive content of Christian theology.

101 Torrance, *Reality and Scientific*, 39.

102 Torrance, *God and Rationality*, 133-134; *Space, Time and Incarnation*, 70; *Karl Barth*, 148-149.

103 Torrance, *Reality and Scientific*, 40.

However, natural theology as intra-structure is necessary since it is through natural theology that the inherent coherence of God's self-revelation is brought to explicit formal articulation in human logical structures. However, the premium Torrance put on clarity need not give the indication of a propositionalist conception of God. The apophatic elements of Torrance's theology are not negation, but are rather the proper epistemological reserve in theology. God always exceeds our thought and will not be pictured in our concepts.¹⁰⁴ Instead, theological concepts function in a similar way to disclosure models considered above.

Natural Theology and the Logic of Systematic Form

Torrance's proposals for the relation of natural theology and revealed theology mirror his synthesis between the logic of empirical form and the logic of systematic form. In this connection, Torrance's natural theology and the logic of systematic form accomplish the same role in their discrete spheres of influence. Both are the conceptual structure determined by the positive content of knowledge through which the inherent coherence of reality is increasingly disclosed and clarified in our understanding.

Natural theology has no independent status but is the pliant conceptual instrument which Christian theology uses in unfolding and expressing the content of real knowledge of God through modes of thought and speech that are made rigorously appropriate to his self-revelation to mankind. It is the coordination of the empirical and theoretical components in that knowledge that is important, in a mutual relation in which they are neither confused with each other nor separated from each other, but in which the theoretical components serve the disclosure and understanding of the empirical.¹⁰⁵

Like Torrance's synthesis of the logic of empirical form and the logic of systematic form, Torrance conceived of theology as a composite structure of natural theology and the material content of God's self-revelation. Natural theology and revealed theology operate in conjunction as do the logic of systematic form and the logic of empirical form.

In the above citation, Torrance explicitly connected his proposal for natural theology with the "coordination of the empirical and theoretical components in knowledge," whereby natural theology as the theoretical component serves revealed theology as the empirical component by drawing out its implicit coherence (that is, its trinitarian structure) and clarifying it and facilitating its

104 T. F. Torrance, *The Christian Doctrine of God: One Being Three Persons* (Edinburgh: T&T Clark, 1996), 73.

105 Torrance, *Reality and Scientific*, 39-40.

increased disclosure through a corresponding conceptual structure in human understanding. In this, we see the flowering of Torrance's early commitment to the proper co-operation of intuitive and discursive reason in his refined theological method.

Natural Theology and Theological Science

Torrance's proposals for natural theology are integral to his project of theological science. Torrance considered theology to be a special science, consistent with the general principle of scientific thought to be determined in accordance with the nature of the object, yet shaped in accordance with the demands of its unique object.¹⁰⁶ As such, Torrance resisted the application of a universal scientific method to theology, for such a demand would be to impose an extrinsic rational schema upon theology that would inhibit the knowledge of God's self-revelation in accordance with its own internal coherence.¹⁰⁷ Torrance claimed that his proposals for natural theology were integral to his project of theological science.¹⁰⁸

Torrance argued that the "knitting together of epistemological structure and material content" is synonymous with the integration of natural theology and revealed theology. In doing so, Torrance established the synthesis of natural theology as rational structure and revealed theology as material content as the synthesis that constitutes theological science. The heart of theological science is the requirement that theology must not operate through the imposition of rational form upon revelation,¹⁰⁹ but rather to allow the rational structure of human thought to be determined by God's self-revelation in space and time.¹¹⁰

This is the substantive methodological issue at stake in Torrance's reconstruction of natural theology. However, to date, this has not been appreciated by the major interpreters of Torrance's thought. As a consequence, the significant implications of Torrance's natural theology for theological method, particularly regarding the role and integrity of human reason in theology and the resulting connections between Christology and logical formalization, remain unexplored. There is much work to do.

106 Torrance, *Reality and Scientific*, xiv.

107 Torrance, *Theological Science*, 106-140; "Review of *Mathesis Universalis*," 212-214.

108 Torrance, *Reality and Scientific*, 65-66.

109 Ibid., 81.

110 Ibid., 83.

REVIEW ESSAY

Paul D. Molnar, *Faith, Freedom and the Spirit: The Economic Trinity in Barth, Torrance and Contemporary Theology*

Downers Grove, IL: IVP Academic, 2015, 448 pp.

Paul D. Molnar, *Divine Freedom and the Doctrine of the Immanent Trinity: In Dialogue with Karl Barth and Contemporary Theology*

2nd edition (London and New York: Bloomsbury T. & T. Clark, 2017), xxi + 591 pp.

The first edition of Paul Molnar's *Divine Freedom and the Doctrine of the Immanent Trinity*, published by T. & T. Clark in 2002, was one of the most important books in a generation in trinitarian theology. Its essential case, set forth with clarity and passion, was simple. The doctrine of the immanent Trinity, Molnar argued, is not some flight of theological speculation, the *recherché* projection of those who presume to know too much about divinity: it is fundamental to the dogmatic exposition of the gospel. If theology's starting point lies, as it must, with God's willingness to be known, at the heart of its confession lies the claim that God is – primordially, eternally, on the 'inside', as it were – the one he shows himself to be: Father, Son and Holy Spirit. God is encountered as Father, Son and Holy Spirit in the economy of his self-disclosure in time, his 'outward' works of creation and redemption. But what occurs in the economy is unveiling of eternal mystery: the God who reveals himself is *already* Father, Son and Holy Spirit before the foundation of the world. The temporal acts which effect his will for fellowship with creatures derive from the fathomless, eternally communicated richness of his life in himself.

Crucially, Molnar insisted, the God who makes himself known is eternally *free* – entirely self-existent and self-sufficient as the God he ever is, unconditioned in his being by anything external to him. The self-revealing God is wholly realized in the relations in which his triune life eternally consists; he stands in need of

no history with us in order to be who he is. The God who turns himself towards us does not become triune in or for that turn, nor can his essential triunity be collapsed into its dramatic manifestation, as though the high eternal One were only Father, Son and Holy Spirit in or with his creatures' temporal story. And precisely this is gospel: it is *because* God is utterly blessed and complete in his own relational life that his dealings with us are so wondrous. The antecedent freedom of the triune One's essential being is no abstract transcendence: it is the ground of all our blessing.

Central to Molnar's reasoning in his 2002 book was the contention that modern theology has – to put it mildly – not done a great job of expressing this matter. In some cases, the results of that failure have just been glaring. There have been theologies in which some species of generic theism has assumed priority over the evangel's (far more radical) identification of the character of the God who creates and saves; theologies in which religious experience has been taken to mean that all doctrinal claims are but exercises in imaginative construction, some fluid technology of the symbol regulated only by our personal journeys; theologies in which the evident limitations – the dangers – of such poetics have generated frank agnosticism as to who or what (or if) God really is independently of our concepts. Enough said. In other cases, the instincts at least have seemed much better. Revelation has mattered. Speech about God, it has been recognized, is not virtuoso speculation, with all its perils: the God of Christian confession is indeed spoken of in faith on the basis of his self-identification; that self-identification requires us to say that God actually is triune. And yet, Molnar contended, there has, all too often, been a serious and pervasive problem just the same. Economic trinitarianism, at least as it has been in fashion in the last couple of generations or so, has eclipsed – or refused – something crucial.

It is indeed the case, gloriously, that God is found to be God 'for us', the One who goes to unfathomable lengths to bless us, and who in so doing reveals that he is triune. But the revelatory drama of God's actions in time only is what it is for creatures *as* the action of the God who is triune eternally. While the economy has epistemic priority for us as we encounter God's self-disclosure, *ontological* or material primacy lies in the truth that triunity is the manner in which God's immanent life essentially subsists. God does not *become* triune, or somehow *realize* his being *as* triune, in or for his dealings with us: he *already is* triune, irreducibly and to the depths of his being; just as such, his resolve to have a history with creatures is so momentous, in its design and in its effects. There would be no God 'for us' if there were not already 'God in himself'.

In far too much modern trinitarianism, Molnar suggested, the spectre of Hegel has lurked unchecked: it has seemed as if God somehow 'needs' the world in order to be the triune God he declares himself to be. In the deployment of Rahner's famous *Grundaxiom* – 'the economic Trinity is the immanent Trinity' – much hinges on the force of the copula; the matter is not helped by Rahner's own supplement to his statement: 'and vice versa'. Taken at its most radical, that logic seems to suggest that God is not triune apart from history, or that immanent relations are one and the same as economic relations, such that the former may be collapsed into the latter without remainder. Categorically: not so. The economic movement is suspended from, reiterative of, God's immanent being, and genuinely makes his immanent being known: it shows us no other God than the God there eternally is. But God's immanent being is not dissolved into his economic being, nor is his immanent being in some way or other constituted in or for the purposes of its economic turn. The economic occurrence is charged with the boundless energy of a life that is relationally complete in itself regardless of any world. It is utterly gracious.

For Molnar, no one in modern theology saw the importance of this truth more clearly than Barth – and Barth himself held onto its implications a great deal more consistently than some of his readers have thought. Much of Molnar's argument in 2002 was developed in firmly polemical form, setting its face against an assortment of serious errors committed by theologians who failed to discern as Barth did why the immanent Trinity matters so much. Barth's Christology affords a major resource. Ebionite and Docetic Christologies are alike to be repudiated, as Barth saw. Theology must begin with Jesus Christ as presented to us in Scripture; failure to recognize his deity, his antecedent divine reality as the only-begotten Son of the Father, is failure to recognize God as he really is for us; the humanity of Jesus in itself does not reveal God, who is veiled in the manner of his revelation, and is made known only in the miracle of the resurrection; the recognition of the deity of Jesus is an analytic, not a synthetic matter, and his uniqueness as God enfleshed is in no way dependent upon the believing community's evaluation of him. In various ways, these Christological points, vital for theology's confession, had all been dismally compromised in modern economic trinitarianism. For all the talk of Christ and revelation, in reality the understanding of what it means to say that God is 'for us' had been established somewhere *other* than in the actual divine-human Jesus Christ of the gospel, whose unique person and work declare how sheerly gracious and miraculous a gift the knowledge of God is for creatures. To acknowledge that this Jesus Christ is the only possible starting point for properly Christian speech about God is to

see that a clear distinction is needed between the immanent and the economic Trinity.

Barth got it; an alarming number of others have not. Molnar's targets were wide-ranging: theologies of experience as variously articulated by Gordon Kaufman, Catherine LaCugna, Sallie McFague and Elizabeth Johnson; the faulty Christologies (if so they can be called) of Paul Knitter and John Hick; the transcendental method of Rahner; Moltmann's ecological doctrine of creation; Pannenberg's reckoning of the relationship between freedom and history; and a fair few other things besides. Theologians who had (wittingly or otherwise) misapplied or compromised Barth were also in the cross-hairs: those whose accounts of revelation had effectively collapsed essence into economy, or rejected any place whatever in Christology for a *Logos asarkos*; those whose presentations of the mediation of the enfleshed Word implied that his humanity as such was revelatory; those whose treatments of 'relationality' risked the elevation of an amorphous external concept over the particularity of divine action.

One close corollary of Molnar's argument about what it means – and does *not* mean – to speak of God's triune presence in history is the nature of *faith* in the knowledge of God. In particular, it is important to consider the role of the *Holy Spirit* as divine enabler of faith's knowledge, the sovereign agent of our apprehension that God has elected to reveal himself supremely in the person of Jesus Christ, his incarnate Word. More obtuse critics of Molnar's case in 2002 supposed that he undervalued history, or afforded little importance to the reality that the immanent Trinity may be spoken of at all only on the basis of God's self-communication in the temporal missions of his Word and Spirit. On the contrary, Molnar's position was framed a good deal more precisely: revelation only takes the particular shape it does in history – it only *is* 'revelation' as distinct from projection on our part – as the act of the God who is not in any way constituted at the level of his being in the process. Nevertheless, Molnar was aware that his argument for the doctrine of the immanent Trinity might be read, as more appreciative assessment discerned, as a sort of 'ground-clearing' exercise: as an attempt to sweep away what was *wrong* with contemporary economic Trinitarianism as much as a sustained attempt to elaborate a more coherent account of the nature of the knowledge that is shared with creatures in time. More needed to be said about the place of human experience in particular, and about what it means to affirm that the triune God is indeed known and confessed in faith.

In his 2015 study, *Faith, Freedom and the Spirit*, Molnar has turned his attention to this matter in more detail, to ask how a doctrine of the economic

Trinity ought to be expressed so as to speak appropriately of these themes. The key issue is not whether experience has a place, but what kind of place it has, and how it is defined. Too often, modern theology has begun by focusing on our experience of faith when it ought to have begun with the God experienced in faith. The result has been a pervasive confusion of nature and grace, reason and revelation. Molnar's corrective finds its major inspiration, once again, in Barth, but T. F. Torrance also plays a significant part, yet more extensive than in the first edition of *Divine Freedom*. Over the years since that book's appearance, Molnar had worked a great deal more on Torrance, in 2009 publishing a major study, *Thomas F. Torrance: Theologian of the Trinity* (Ashgate). In *Faith, Freedom and the Spirit*, Barth and Torrance are both seen as offering crucial insights into a number of closely related themes. These include: the dangers of attempting to speak of God other than on the basis of God's free and gracious actions in history, made known in the Spirit's power; the work of the Spirit as necessary agent of that knowledge (only through God can God be known), and as the One who renders it actual in the personal, concrete particulars of creaturely lives; the distinction between classical Christology's confession of the eternal Word made flesh and modern attempts to 'historicize' the being of God as such in light of the incarnation; the relationship between the obedience of the eternal Son in history and the Son's essential relation to the Father (here Torrance emerges as preferable to Barth); the role of the Spirit as the One who unites us to Christ through faith and empowers the existence and direction of Christian life before God in the world.

At all points, Molnar continues to insist that firm distinctions need to be drawn along the lines he had set out earlier: between revelation and faith on the one hand, natural reason and creaturely history *simpliciter*, as locus of reliable knowledge, on the other. At the same time, he argues passionately that God is revealed in history as God truly is, and that Spirit-enabled faith on the part of creaturely knowers is not some insecure or uncertain thing, but the basis for genuine, wondering assurance of God's love – and thus for our true freedom as creatures. But only by proper identification of the person and work of the Holy Spirit can theology spell out how all this works. The Holy Spirit must be clearly differentiated from the human spirit if the human spirit itself is to be viewed aright: liberated by God's Spirit from the perceived obligation to secure itself (sin's self-deception), the human spirit in fact enters into a freedom freely given in the knowledge of God, and begins in turn to enact the entailments of that relation in creaturely forms. Divine freedom establishes the nature and dignity of creaturely freedom. Just as God is not locked up in his own aseity, but moves

on the basis of his own completeness to bless us as he alone is able to do, so too the blessing he affords us constitutes our true fulfilment: a summons into the pattern of creatureliness – Spirit-enabled as it must be – for which we were made. When the Spirit's person and work are presented as they should be, human experience of life before God has content indeed. Properly glossed in the language of God's free grace in action, the distinction of the immanent and the economic does not inhibit moral theology for creatures: it funds it in the right currency.

A great deal of the energy of *Faith, Freedom and the Spirit* continues to lie in Molnar's critique of false conceptions of divine freedom, and in the demolition of a range of their exemplars, Protestant and Catholic, in contemporary theology. In much of this he is responding to critics of his earlier work. One example is found in the writing of Ben Myers, whose arguments about the eternal deity of God as unthinkable in any detachment from the human history of Jesus Molnar sees as a serious misreading of Barth, and a major misconstrual of Molnar's earlier reasoning on the point of continuing to affirm a *Logos asarkos* while also affirming (with Barth) that the revealed form of God is that which is found in the enfleshed person of the mediator. As Barth did not stop realizing, God assuredly has his eternal being, in its essential relational form, irrespective of the human history of Jesus. God's election of humanity is his gloriously positive exercise of his own freedom, his determination not to be God without us, but that determination is no ontological necessity for God, nor is it constitutive of God's triune deity. Contrary to a perverse claim: Jesus does not make God to be God.

Molnar continues to disagree sharply with Bruce McCormack in particular, whose programmatic moves to rethink the relationship of election and Trinity after Barth had begun to receive his critical attention in the first edition of *Divine Freedom*. McCormack's arguments have been developed much more fully over the years since then, and Molnar has played a prominent role in attacking them. A core aspect of McCormack's case – that God eternally 'assigns himself his being' in the eternal act in which he determines to be God-with-us, and thus, logically albeit not chronologically, election has primacy over Trinity – is here subjected to very fierce critique. It categorically will not do, Molnar insists, to claim that God's determination to be for us in Jesus Christ is in any sense the *ground* of his eternal being, the act of God in which constitutes himself as triune. That kind of 'historicizing' of the divine essence on Christological grounds is theologically disastrous – not because it is wrong to treat the history of the mediator as vital, but because as it presents itself the approach treats the

mediator's history as directly constitutive of God's deity. Molnar engages other readings of Barth's 'actualism' which he considers a little more nuanced (Kevin Hector, Paul Dafydd Jones, Paul Nimmo), but argues that these too continue to press Barth's later exposition of the fleshly history of the mediator in reductionist directions. With George Hunsinger and others, Molnar is convinced that the later Barth did not ever intend us to infer that God's Godness as such is constituted in or by dint of his election of humanity, or that God determines himself to be triune with a view to his fellowship with us. Barth's language could be adventurous, possibly misleading or inconsistent, but it surely did not invite us to go where such revisionist Christologies have chosen to go under its putative inspiration. Whatever qualifications are entered about the nature of God's eternal decision, the claim that God's being *in se* is so determined (even logically or prospectively) by or for God's actions *ad extra* remains a fatal dissolution of divine aseity; it posits a God who in fact cannot act decisively for us in history in the way revelation declares he does, since the nature of his own eternal deity is in one way or another, at its very depths, dependent upon that same history.

For a yet more extreme example of the mistake, Molnar looks at Robert Jenson's account of the identity of the Son as eschatologically (rather than protologically) established in consequence of Jesus' human interaction with his Father, and so as flowing directly from his resurrection. If McCormack does his 'Hegeling' via election, Jenson did his via eschatology. Both approaches, Molnar argues, trade on quite the wrong understanding of what it should mean that God makes known his being in his outward works; they produce Christologies quite other than the confession of classical faith, according to which the divine Son through whom God created all things is eternally and essentially divine already, the only-begotten of the Father, his identity as such in no wise dependent upon his temporal story. The person of the Son himself, and in turn the nature of God as triune, is not established by the historical existence of the man Jesus, nor does the resurrection determine the incarnate One's filial identity; it declares in power who he already is: the eternal Son who took flesh.

For Molnar, this is, once again, a position which the later Barth never abandoned, and which Torrance also for his part saw with intense clarity. Indeed, Torrance may have recognized its force with even greater precision and consistency than Barth, for unlike the later Barth Torrance refused to read the economic obedience of the Son back into the immanent Trinity. For Torrance, the vicarious human actions of the obedient Son are indeed actions of the divine Son enfleshed, and as such a mediatorial work wrought in accordance with both of his natures, but they do not, *pace* Barth in *CD* IV/1, bespeak an essential super- and

sub-ordination within the inner life of God. Barth himself was not always careful enough to differentiate the immanent and the economic consistently. In the end, Torrance's Christology offers a more nuanced account of the vital matter of God's essential loving freedom, and of the condescension of the Son as a movement of sheer grace. Torrance's depictions of church, ministry, sacraments and ethics are all the richer for his precision.

The argument elaborated in the first edition of *Divine Freedom* remains clearly determinative in all of this, and Molnar firmly engages those who have failed to appreciate the issues. *Faith, Freedom and the Spirit* can certainly be read as a response to those who have continued to resist Molnar's path – an attempt to spell out yet more fully, in vigorous contradistinction to other positions, exactly what its author does and does not intend us to hear in his invocation of Barth's wisdom on essence and economy, and in particular to engage the debate about Trinity and election, which has become a great deal larger since 2002. The new edition of *Divine Freedom*, issued this year, is not merely a reprint. It offers quite an extensive revision of the original, addressing criticisms of the initial version and tackling in detail some of the tide of literature on Trinity, election and Christology that has flowed since then. There is a fresh preface, a new chapter (ch. 4) on divine freedom, extensive updating of material on Jenson, Moltmann, Pannenberg, Jüngel, and interaction with recent work on Barth's critique of Schleiermacher. 357 pages have become 591. The upshot is a still more thorough treatment of an array of substantial themes in modern theology. The debate about Trinity and election is fundamental, and Molnar builds upon his robust contributions to that.

As *Faith, Freedom and the Spirit* also serves to illustrate in its own ways, that debate has taken a variety of turns, reflecting diverse enthusiasm for Barth interpretation *simpliciter* (in what ways, if any, did Barth change his views between *CD I* and *CD IV*?), and for constructive theology as a separate matter (does the mature Barth point us towards the overthrow of classical metaphysics, the 'correction' of a logic on God and election from which, admittedly, Barth may himself have struggled to break free?). Either way, the attempt to argue that the doctrine of election, appraised as it must be Christologically, requires us to rethink God's triune essence and the nature of God's freedom to be the God he declares himself to be, has proved extremely controversial. The new edition of *Divine Freedom* remains as determined as ever to insist that the issue far transcends our reading of Barth, and that, so far from being constructive, the notion that election requires us to reconceive eternal triune freedom is in fact theologically catastrophic.

As has often been remarked, the sharpness of the controversy within Barth scholarship has been heightened because it is on the face of it a debate among fellow-enthusiasts: the powerful appeal of Barth's high doctrine of revelation and its essential connection with the doctrine of the triune God is not in dispute. As such, the debate is not, at least in principle, an argument between those who confess that the doctrine of the essential Trinity is vital and those who find reasons to propose that it is not, nor for that matter is it a confrontation between those who derive their accounts of history or creaturely freedom squarely from the creature's relation to the creator and those who want to start in some other place. It is, rather, an argument in which it is the *nature* of God's freedom to be God without us, and the *nature* of his freedom in love and mercy to choose to be God with and for us, that is at stake. What is it, exactly, that revelation tells us about divine freedom? Does God's revealed freedom mean that he is eternally, triunely free in himself, and that it is *in* this essential, irreducibly triune freedom that he acts in time, reiterating his eternally triune being wondrously with and for his creatures; or does it mean that God's eternal freedom can be meaningfully spoken of – theologized – only *as* the freedom we encounter in the incarnation, such that we are obliged radically to reconsider what it means for God 'freely' to determine himself so as to have triune fellowship with us?

As Molnar acknowledges (*Divine Freedom*, 2017, xii), the dispute is increasingly not so much about whether the doctrine of the immanent Trinity is important, but about its character and shape, and about the function it plays in our theology. This at least has become clearer since 2002. For Molnar, the fundamental concerns have not remotely been allayed; the drastic implications of false approaches have only become more obvious. As he sees it, a revisionist construal of Barth – the attempt to invoke the mature Barth's representation of the incarnation and history to undergird an argument that election logically precedes Trinity – is not only a misreading of Barth: it is, much more seriously, an undermining of one of the most vital functions of a doctrine of the immanent Trinity, which is precisely to *rule out* speculation about God's inner nature in detachment from God's self-disclosure. Here, of course, lies the crux: revisionist Barthians insist that it is precisely the force of revelation that *requires* their rereading of Trinity and election. For Molnar, what they are in fact doing is reverting to a form of speculation that Barth himself could never have proposed to license, and effecting a basic collapse of the essential Trinity into the economic. A logical determination on God's part eternally to *be* a certain way – to *be* triune – is projected in a manner that renders the essence of eternal being itself dependent

on what is purposed for its temporal enactment. In that, revelation is simply *not* our guide, and the kind of freedom attributed to the revealing God comes from some other place. Overturning of classical metaphysics it may be; *pace* its advocates' most basic claims, it is not what the incarnation declares.

Molnar's ways of framing things in the new edition of *Divine Freedom* interact with diverse refinements and defences of the revisionist position, but only find the compromises of the tradition more alarming than ever. The endeavours to warn against their implications are entirely serious (though, as anyone who knows the author will not be surprised to find, they are also advanced with verve and humour). The new edition remains full of energy, deeply suffused by the concern to repudiate a 'dependent deity' (*Divine Freedom*, xvi); to set out by contrast a right rendition of Trinity, election, freedom and history; to address inept allegations that a doctrine of the immanent Trinity displaces historical occurrence, or creaturely dignity, or revelation in time, or the wonder of knowing God incarnate by the Spirit. Barth remained right on most if not all of the essential themes; we ignore or misuse his instruction at our peril. A faithful Christology, a right appreciation of divine action in history, of the creature's space, and of the miracle of grace – all are intimately bound up with the doctrine of the immanent Trinity, and the manner of their interconnections requires precision at each point. For Molnar, even a theologian such as Colin Gunton – who, next to Torrance, recognized as clearly as anyone else after Barth the importance of the doctrine of the immanent Trinity – could fail to see that the later Barth's way of doing his Christology remained more careful than it seemed: so far from failing to give place to the humanity of the Saviour, Barth was simply resolved to give that humanity its proper grounding in the person of the divine Word, and in setting forth this reality to avoid any separation of the mediation wrought by the Word from the mediating work of the Spirit.

For me, the burden of Molnar's case in these books is simply compelling. Some will find them a demanding read: the arguments are pursued in thorough and expansive style, their polemical dimensions seldom far from the surface. The advocacy is passionate, and there are very firm judgements about approaches that get things wrong. But there is, in the directness, undeniable clarity: the writing is invariably lucid and orderly, with judicious signposts and summaries to introduce and connect up arguments (parts of *Faith, Freedom and the Spirit* in particular began life as major essays rather than as chapters of a monograph). The referencing is extensive, and there are some substantial footnotes. Both volumes evince very impressive breadth and depth of learning in modern theology, and a strong sense also of the classical tradition.

Some of Molnar's targets, as he well knows, deserve his fire more than others; it may in some ways be unfortunate that the controversies of Barth scholarship, serious as they are, have become so closely entangled with other, more egregious errors of modern method from which most or all of the participants in the Barth debate might also wish to distance themselves. It may be also that in his detailed interactions with his critics in *Faith, Freedom and the Spirit* Molnar finds himself focusing on the further elaboration of the doctrine of the immanent Trinity, particularly its connection with a faithful Christology, almost as much as on an account of divine action within creation. Yet inasmuch as Molnar continues to identify a *tendency* within modern theology, a 'trend' (*Divine Freedom*, 529) toward rendering God dependent on history, he is, I believe, right; and he is right to warn that along that road lie all manner of dark consequences. Behind the trend, as he shows, lies a variety of forces, and the problems themselves take many forms, some subtler or more sophisticated than others. But Molnar warns us there is a general issue to confront. Radically experiential or symbolic theologies may in fact exist on a continuum with ill-framed accounts of revelation. Even theologies in Barth's shadow, he says, get things badly wrong where they qualify Barth's perduring insistence on the completeness of God in himself, or where they see Barth as starting to trade this away (or inviting us to do so) in pursuit of some deeper insight about the being of the One who acts in history.

There are of course dangers in lumping so many positions together as erroneous, not least the risk of flattening out their various intellectual contexts, inheritances and aims. Rahner and Jenson, say, have very different lineages; it is admitted, again, that Pannenberg does not get things quite as badly wrong as Moltmann (never mind LaCugna); and it is fair to surmise that many of Molnar's Roman Catholic interlocutors never were inclined to read Barth one quarter as carefully as he has (though that in part is Molnar's concern: like Torrance, he wants Barth's powerful significance as theologian for the *whole* church to be appreciated). Such a boldly diagnostic argument as Molnar's can no doubt be quibbled with in some of its details, and at times one might wish to tease out the intellectual bases of the individual patients' symptoms – the differing grounds of their respective pathologies – a little more. But the comparative work is certainly here, and Molnar has sought carefully to engage the secondary literature in the nuancing of his prescriptions. It is not wrong to caution that similar kinds of mistakes get made from very different starting points.

For some, Molnar's reading of Barth will undoubtedly remain static or restricted, inattentive to the development in Barth's thought, unprepared to recognize where Barth's bolder thinking may ultimately inspire us to go. As

such, it will also remain far too much in the shadow of Torrance's ways of reading Barth, not least the framing of revelation and experience, theology's 'centre in God' versus some 'centre in ourselves', as a persistent binary. Yet, as Molnar shows, that binary need not be crude, nor need it in any sense be taken to entail a dismissal of either creaturely faith or creaturely works; all that is entailed is the due ordering of the creator-creature relation, and a serious account of the activity of the divine Spirit within the creature's realm. But even if we think the heuristic categories a little rigid, the reading of Barth at times a little begrudging of *any* significant evolution, the repudiation of 'post-metaphysical' ventures decidedly fierce – the constructive point is surely right. If we do not grant due place to the antecedent freedom of God's triune relations, we shortchange all manner of things, not only in the doctrine of God, but also for creatures.

It is hardly the case, as Molnar shows, that the economic Trinity does not matter, or that theology does not also have major work to do in expounding the history of the covenant, or the nature, calling and ends of created beings as appointed, reconciled and redeemed. It is simply that in our generation especially, trinitarian theologians have particular reason to call attention to the importance of the doctrine of God *in se* if they are to be faithful to the proportions of the gospel's story. Whatever the idiom, far too much economic trinitarianism has been woefully inadequate in its handling of these proportions, treating creaturely time as the only sphere of which theological intelligence may usefully speak when it talks of God's way of being God. Molnar may seem to exaggerate when he suggests that thoroughgoing pantheism – the wholesale failure to differentiate God from our experiences of the world we inhabit – is the inevitable danger, but radical projectionism is certainly a present concern; and with it, as ever, reversion to idolatry. That way, as Barth well knew, lies theology's implosion – ultimately into nihilism.

There are, perhaps, three things that Molnar might ponder a little more; I offer these only by way of suggestions, not as criticism of the main arguments. One is the degree to which the themes which dominate the case are so heavily redolent of modernity. The renaissance of trinitarianism in the twentieth century hardly amounted to the recovery of an entirely forgotten doctrine, as has far too often been claimed, but its interests were profoundly affected by their cultural setting and the theological challenges that situation had been taken to pose. It is basic to the reasoning of many of the positions which Molnar attacks that these are attempts to do trinitarian thinking precisely under the conditions of modernity, and we can scarcely do justice to Barth himself without reckoning with his acute sense of his intellectual context. To frame one's approach to the doctrine of the

immanent Trinity and its functions predominantly in the categories of *freedom*, divine and creaturely, is certainly a distinctly modern way of treating things; so too is a particular emphasis on the *epistemological* significance of maintaining the correct sequence of divine prevenience and creaturely limitation.

Now, it is immediately obvious that Molnar gives profoundly counter-cultural appraisals of these themes. Our knowledge of God, he insists, is *not* dependent upon our own resources, enquiries or ideas, but secured entirely in God's gracious, sovereign and effective willingness to be known by us. Divine freedom, again, is not some apotheosis of a modernist dream of autonomy or power, God's (merely) absolute freedom *from* dependence, but God's capacity for his positive determination of himself as the One who relates to us: his loving freedom *for* creatures and their history, ultimately in the humility of incarnation, cross and grave. Still, if this point is pursued at all, the kind of freedom that belongs to God is very specific. Since it is not merely independence or isolation, as Molnar rightly says, but rather the loving freedom of the God who is already eternally relational in himself in his triune life, the primary characterization of God's immanent way of being God is not reducible to 'freedom' *simpliciter*: it is, more expansively, God's relational perfection, the incomprehensibly rich plenitude of his life in himself. The way in which God's perfection eternally is certainly includes his freedom from external determination or internal need, but it is, we might say, a great deal larger than that: it is the freedom of the Father for the Son, the Son for the Father, in or through or by the Spirit who binds – frees – them. For God to be free is for God to be free within himself in and for the essential relations in which the sheer abundance of his perfect life consists.

Pre-modern trinitarian theology often had an acute sense of this: essential trinitarian relations constitute God's eternal fulfilment and blessedness, and it is as the One who is relationally complete that God acts *ad extra*, in sheer generosity. On that reckoning, freedom as such may have a restricted reach, for it is rather in the unique immensity and richness of the eternal God's relational vitality, in all its boundless abundance, that he creates and saves. The triune God is free in the sense that he is utterly sufficient in his own perfect life, and categories such as aseity and simplicity are only given the specificity they deserve if glossed that way. This is what God's economic self-manifestation shows: not merely that God is not dependent upon creation or our history in any way, and so must never be confused with them, but also that God is *able* to reach out beyond his own being and give life and being to creation and creatures *because* he is in himself eternally relationally replete. So: I wonder if a little less emphasis on freedom as such, and more on divine perfection, vitality or

abundance as overarching theme of God's essential triunity, would enrich the treatment. It might make even clearer the distance of the approach from various modern assumptions, and also help to point the way towards a larger account of creaturely history in general as viewed in light of God's goodness – a potentially more connected theology of election, creation, providence, reconciliation and perfection. That would hardly be foreign to Barth's own aspirations. To put things very crudely: the immanent Trinity, seen not only as God's eternal transcendence or independence of creation but also as his relational fullness *in* and *for* himself, *and so* in turn for us in his outward acts, takes us everywhere that systematic theology needs to go.

This leads to a second observation. We might well say that modern economic trinitarianism goes wrong again and again, not by disagreeing with (or despoiling) Barth, or even by forgetting (or repudiating) Athanasius, but by failing to read Scripture attentively, or by treating scriptural authority as malleable to its own creative purposes. The errors are expressive of just the false sorts of experientialism (moral, philosophical or historicist) that Molnar rightly debunks; but their correction may involve a larger place for the demonstration that an account of the perfection of God-in-himself is a necessary conceptual gloss on Scripture's testimony. To some of those for whom Molnar's case is a challenge, that point is strangely elusive: the Bible, they say, does not make nearly so much of God *in se* as writers such as Molnar (or Barth) suggest. If that judgement is wrong, and surely it is, the case deserves to be made, at least in outline. Some such demonstration was, of course, a repeated patristic reading strategy, at least in its maturest forms – the aim to trace inner-divine relations in the Bible's claims about the God who creates and reconciles involved the case that God is logically intelligible as the God who is triune in himself prior to his dealings with us. This God is no other than the triune One who makes himself known; but he is the triune God already. In their own ways, both Barth and Torrance went to some lengths to develop the same points. Yet scholars such as the late lamented Robert Jenson make much of the claim that Scripture simply does *not* give us what some of those arguments proposed – a God whose essence is of interest or meaning independently of the drama of its temporal occurrence. If such scholars are mistaken, it is worth showing a little more from Scripture why that is so. One problem with the debate on Trinity and election not least (as with too many other themes in contemporary analytic appraisal) is that surprisingly scant effort is often made to refer the arguments to the biblical picture. An account of the purpose of the doctrine of the immanent Trinity can undoubtedly be presented against a backcloth of modern theology's ways of operating; it

would be advanced even more powerfully on a larger canvas, or with at least an introductory sketch of the doctrine's scriptural roots.

In somewhat similar vein, it would be interesting also to look at some of the ways in which classical theology has resourced its accounts of divine perfection or plenitude by comparison with modern ones – even where the motivations have been quite similar. The differences between Barth and Thomas, say, on the relationship between God's essential actuality and God's external movement towards creation need not be pictured only in terms of differences to do with the analogy of being, or nature and grace, or revelation and dialectics: they also have to do with different ways of expressing a shared investment in the primacy of God's being in himself. In highly simplistic terms: for Thomas, God's external acts or missions correspond to the internal processions of God's being; for Barth, external acts correspond to internal acts. Even with the revisionists' Barth firmly set aside, this may suggest somewhat different kinds of account of the structure of God's self-correspondence in his outward turn. And vastly more could of course be said, in patristic as well as medieval terms. The observation is merely obvious: if modern reductionism is to be shunned, the tradition itself has a range of ways to help us in the articulation of Scripture's witness.

Third, if the immanent Trinity is, as Scripture attests, the bedrock of creaturely dignity, of the right kind of account of history and indeed of our experience of it, then the argument for its primacy takes us naturally into a range of positive claims about creation and ethics, and about the nature of salvation. The crass reduction of trinitarian theology to ethics or politics is, of course, one of the many late-modern errors from which Molnar's arguments rightly seek to deliver us. Yet among the lessons he sets before us is the point that the doctrine of the immanent Trinity is, in reality, the basis of Christian soteriology, and highly practical in its implications, in so far as it involves a summation of all that the gospel is about in moral, spiritual and existential terms. In their insistence on the wondrous adequacy and generosity of God *in se*, Molnar's books adduce a powerful case against anthropocentrism, with all its moralizing of the evangel, and against the despair to which false strategies of creaturely busyness inevitably tend.

As *Faith, Freedom and the Spirit* begins to chart in its final chapter, living 'in and from' the Holy Spirit who eternally unites the Father and the Son means embracing an anthropology very different from those technologies of the self in which the modern world has professed such specialism. It would be good to hear even more about how this pattern takes shape as the enactment of creaturely fellowship with God in the world. If the eternally triune One takes us

into intimacy with himself now as well as eschatologically, we are recipients, even now, of the privileges of the Son's relation to his Father in the Spirit, and it is that which determines our identity and our tasks (vast yet also delimited) right now. Brought near to know and enjoy in Jesus Christ by the Spirit the presence of the God who has made us for this end, we are invited into a fellowship which means our proper fulfilment as creaturely agents. Fellowship means neither extrinsicism nor absorption, but covenant correspondence, and the wonder of filial status. In this privilege lies the dignity and responsibility of a life of attestation – not the implicit substitution of our work for God's, nor the intolerable burden of mediating divine presence to the world by dint of our ecclesial endeavours (our efforts, say, to *imitate* divine relations socially), but genuine moral space, and the pursuit, by the Spirit's power, of our highest end.

The message about God's freedom, if so we are to pitch things, is actually much better news for ours than many modern trinitarian theologies seem to suggest. Ironically, economic trinitarianism gives us a weaker picture than its classical alternative, inasmuch as it typically misrepresents the creature's moral ontology before its creator. The soteriological and ethical moves made in Molnar's depiction of the life of grace are fine indeed; it is just tempting to seek their expansion, not least on their significance as alternative to some fashionable reductions of the dogmatics of reconciliation and perfection to categories of personal or ecclesial activism.

But I must not criticize a dear friend for failing to write a different kind of treatment, or suggest that he ought to have written longer books. The argument in these ones is powerful as it is, and I sense that its author is well aware of where it could have been taken much further (or made more polemical still!). Molnar has not aspired to adduce a comprehensive biblical and historical account of trinitarian theology as a whole, far less an entire systematics, but to offer a focused case for a theme which contemporary theology in particular badly needs to hear. Ordered by the evangel, lucid, perceptive and practically rich in their implications, these weighty volumes have a great deal to teach us all. If you haven't looked at the first edition of *Divine Freedom* for far too long, or want to know how Molnar has refined and extended his case in response to its critics, go and read these volumes. If you've read them both already, read them again.

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BOOK REVIEW

E. Jerome Van Keiken, *Christ's Humanity in Current and Ancient Controversy: Fallen or Not?*

Bloomsbury T&T Clark: London and New York, 2017, 220 pp.

The doctrine of the vicarious humanity of Christ was a key one for T. F. Torrance. In one of his earlier publications, *The School of Faith*, he writes in his Introduction to the catechisms of the Reformed Church of "the sanctification of human nature through union in Christ with his divine nature." He explains: "That concerns the reconciling and sanctifying work carried on throughout the whole course of his human and historical life, but it also concerns the union wrought in the assumption of our fallen and estranged humanity which he sanctified in the very act of assuming it."¹ Surprisingly in the light of this very clear statement, Torrance has been attacked for compromising the sinlessness of Christ by teaching that he assumed our fallen humanity. This is part of a wider dispute which has persisted for decades.

This new work by E. Jerome Van Kuiken, based on his doctoral thesis at the University of Manchester, will therefore be welcomed by readers of *Participatio*. Van Kuiken addresses the question posed in his title and provides the most comprehensive and judicious examination of this lengthy debate which has been published. Was the humanity of Christ 'fallen' human nature, or not? This comprehensive scholarly work puts Torrance's contribution in perspective and clarifies the issues. It is perhaps too hopeful to say that it will end the dispute, but if those criticizing T. F. Torrance read this carefully, it really ought to!

Van Kuiken examines five theologians from the modern era whom he identifies as advocates of the "fallenness" of Christ's human nature: Edward Irving, Karl Barth, Thomas F. Torrance, Colin Gunton, and Thomas Weinandy. He then examines five who advocate the view that Christ's humanity was "unfallen": Marcus Dods (the elder), A.B. Bruce, H.R. Mackintosh, Philip E. Hughes, and Donald Macleod. He notes the strong Scottish flavour in this debate. In the first

1 T.F. Torrance, *The School of Faith* (London: James Clarke, 1959), lxxxv.

group, Irving and Torrance were Scots, and even more strongly in the second group, all except Philip E. Hughes were Scottish. Is there a particularly Scottish context to this debate, and if so, what is it?

Van Kuiken then turns to the Fathers to adjudicate the dispute and, interestingly, studies not only five Greek Fathers (to whom Torrance was wont to appeal), but also five Latin Fathers. The Greek five are Irenaeus, Athanasius, Gregory Nazianzen, Gregory Nyssen, and Cyril of Alexandria. The five Latin fathers are Tertullian, Hilary of Poitiers, Ambrose, Augustine, and Leo the Great. With the exception of Hilary, those were not usually championed by Torrance and indeed came under suspicion of losing the 'vicarious humanity' of Christ. The final chapter of the book tries to adjudicate the dispute with judicious fairness to both sides, drawing on the Fathers in order to come to some conclusion on whether the 'fallenness' or 'unfallenness' theologians were right.

To this reviewer, one of the clearest conclusions coming out of this work of first-class scholarship is that the perpetuation of this dispute is largely due to the distorting effect of the Christology of Edward Irving. The 'blinded eagle' as Harry Whitley called him,² was assistant to the great Thomas Chalmers, leader of the Evangelicals in the Church of Scotland, before his eloquence took him to fame as the minister of the Caledonian Church in London. His meteoric career ran into opposition when he advocated the view that the gifts of tongues and prophecy had not ceased but should be exercised today, and published views on Christology which led to his dismissal for heresy from the ministry of the Church of Scotland. Van Kuiken gives a clear exposition of Irving's sometimes confusing Christology (14-19). According to Irving, Christ remained sinless in his divine Person, but his assumption of human flesh meant that the human nature he assumed *remained* sinful, being sanctified, *not* by union with the divine Son, but throughout his earthly life by the Spirit. Van Kuiken identifies Irving's 'three kinds of sin': *original sin*, which the Son did not assume, *constitutional sin*, the sinful substance of human nature, which he did assume, but which did not result in *actual* sin because of the ongoing work of the Holy Spirit. His conclusion is that Irving's teaching that Christ's humanity bears constitutional sin, including concupiscence, has no patristic grounding. Irving gathered patristic proof texts, but according to Van Kuiken, he "interpreted these texts under the belief that the attributes of fallenness are indivisible and infirmities imply sinful concupiscence even in Christ's case" (156). In other words, Irving assumed that when the Fathers allude to the fallen humanity of Christ, this not only implied that he took mortal, decaying flesh with all its infirmities, but that he took flesh that was actually sinful and remained sinful.

2 H.C. Whitley, *Blinded Eagle* (London: SCM, 1955).

The second conclusion which comes from Van Kuiken's work is that the strong Scottish reaction against Irving explains why four of the five 'unfallenness' theologians he selects are Scottish. The strong tradition of Scottish Calvinism rejected altogether the notion that Christ assumed our fallen, sinful humanity since they assumed that his compromised his sinlessness. Thomas Chalmers led the Evangelicals out of the Kirk in 1843 in the great Disruption to form the Free Church of Scotland, and Marcus Dods and A.B. Bruce were part of that Evangelical, Calvinist Free Church tradition. H. R. Mackintosh (who was of course, T. F. Torrance's beloved teacher) stood in that Free Church tradition too, although he was not a traditional Calvinist. Donald Macleod represents that tradition today, still embodied in the continuing Free Church of Scotland which took no part in the reunions of 1900 and 1929 forming the present united Church of Scotland. The Christology of that whole Calvinist tradition is marked by the reaction against Irving. What Van Kuiken's analysis makes clear is that it was from one point of agreement that their disagreement stemmed. They shared with Irving the assumption that "fallenness" was identical with "sinfulness" and that therefore, assuming our 'fallen humanity' must mean that the human nature of Christ must remain "sinful" throughout his life. If that assumption were true, then in order to safeguard the sinlessness of Christ, one would have to assume that Christ did not assume fallen humanity. But what Van Kuiken's analysis makes clear that it is precisely that assumed equation which has to be questioned. The whole point is that by taking that fallen humanity, the Son of God sanctified it from conception. While the humanity of Christ remained "fallen" in the sense that it was mortal – ontologically fallen – until raised immortal in the resurrection body, it was not sinful. From conception and by the work of the Holy Spirit throughout his life, he sanctified in such a way that he was without sin.

The third conclusion which is clear in Van Kuiken's scholarly examination is that the fathers, east and west, had a different doctrine from Irving. At the level of terminology, the five Greek fathers may not always appear to be entirely consistent in their occasional use of terms such as 'fallen' or 'sinful'. But at the conceptual level, Van Kuiken argues that the conclusion is clear: "The fathers view the Logos as taking a human nature which otherwise exists in a state of captivity to sin and mortality. In the virginal conception, he heals and hallows it so that it is freed from domination by Satan and death, from sinful passions, and, for those fathers who believe in it, from original guilt" (126). Similarly, while the five Latin Fathers never use the explicit terminology to say that the Son assumed a "fallen" or "sinful" humanity, they agree that "in salvific solidarity

with guilty humanity, he suffers from various effects of the Fall, including bodily torment and death." And at the conceptual level, they teach like the Greeks, "that in the virginal conception, God's Son breaks the hold of sin upon human nature so that his own humanity, like unfallen Adam's, is unblemished by sin, uncontrolled by Satan, and under no debt to die" (154).

In his final chapter, Van Kuiken examines the language and logic of the dispute. He notes that in addition to Irving's misinterpretation of the fathers, Barth criticizes them for the opposite reason, namely that they fail to teach that Christ assumed fallen humanity! Barth cites Irving with approval, but doesn't realize that he differs from him. Torrance and Gunton are more accurate on the teaching of the fathers, although only Torrance documents that extensively. And even then, he tends to accuse the Latin fathers of producing the "Latin heresy" of an unfallen humanity, when, according to Van Kuiken, they were actually in accord with the Greeks. Weinandy is more accurate on the consensus between east and west.

Van Kuiken then examines the categories used in the dispute and agrees with those who do not think that the fallenness-versus-unfallenness taxonomy is adequate. He examines a more sophisticated but still inadequate taxonomy suggested by Stephen Sykes and after modifying it, he comes to the conclusion that actually the twenty theologians covered in his study are largely in agreement! Firstly, they agree that "prior to Christ's conception, the human nature which he was to assume existed in Mary in a state of original sin, broadly defined, and of subjection to all the effects of the Fall" (165). Weinandy differs from the fathers and the Protestants because he holds the modern Roman Catholic doctrine of the Immaculate Conception of Mary. Secondly, they agree that "at the time of Christ's conception, his humanity was transformed," and use either the language of purification or new creation to talk about that (165). Weinandy is again an exception for the same reason, but Irving is also an exception here, since in his view there was no transformation at conception. Thirdly, all agree that "throughout Christ's earthly life, his humanity suffered the Fall's amoral weaknesses but not its moral corruption," but once again, the exception is Irving (166). Finally, all agree that "Christ's humanity was free from original sin and guilty propensities from at least the moment of his conception (or from the moment of his mother's conception in Weinandy's case)" (166). Once again, the exception is Irving who "deviates radically from the consensus."

Van Kuiken's conclusion is clear: "The association of [Irving's] name with other fallenness theologians, whether done by themselves or their opponents, serves as a red herring regarding the fundamental differences between him and

them." He concludes by examining the terminology of "assumption", "fallen" and "unfallen". To say that Christ "assumed" sinful flesh is misleading unless it is made clear that it ceased to be "sinful" upon assumption. The terms "fallen" and "unfallen" are potentially misleading since they can refer to both the ontological state and whether the humanity was sinful, or they may refer only to the first of these. The result is what Donald Baillie called a terminological fog. The book concludes by looking briefly at the implications for all this for hamartiology and for our understanding of sanctification. The final word is an apposite quotation from what has been called 'the metrical theology' of Charles Wesley.

Returning to Van Kuiken's particular treatment of T. F. Torrance, it seems unbelievable in view of the evidence he produces that some commentators have identified Torrance's views with those of Irving and accused him of compromising the sinlessness of Christ. In his early Auburn Seminary lectures, he certainly uses "the lush language of fallenness" (33), but he clearly distinguishes his view from Irving's and embraces H. R. Mackintosh's distinction between "corruptible" (subject to physical death) and "corrupt" (morally depraved). In his later New College lectures, published as *Incarnation*, Van Kuiken judges that he is crystal clear that the Son assumed fallen, sinful flesh, yet in so doing fully sanctified it. Perhaps we may add that there are passages in Torrance where he does not sufficiently take account of the danger of misinterpretation and does not fully make clear that assuming fallen humanity does not mean that his humanity was sinful. Perhaps he did not always guard against that misunderstanding. But Van Kuiken also quotes Torrance's clearest statement of his doctrine in a letter to the editor of *The Monthly Record of the Free Church of Scotland* (Donald Macleod), provoked by his bracketing of Irving and Barth together. The problem lay in Macleod's question, "Did Christ HAVE a fallen human nature?" That static way of thinking must give way to a dynamic account that "in the very act of taking our fallen Adamic nature the Son of God redeemed, renewed and sanctified it AT THE SAME TIME . . . The only nature which our Lord HAD, therefore, was utterly pure and sinless" (37).

Jerome Van Kuiken has provided us with what must be the definitive study of this question. His meticulous scholarship is evident in the thick and exhaustive footnotes. His clear analysis of the logic of the dispute clears away the "terminological fog." This is a book which is not only essential reading for Torrance scholars, but a fair-minded and eirenic settlement of the question which brings the two sides together. There is surely no longer any excuse for perpetuating this dispute further.

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