

**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 syntactosemantic 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 Hutten.

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 Wyttenbach 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 stinger 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.