

“The Transformation of Natural Theology”: Reading *GGT* as Gifford Lectures

Kerry Magruder, for Marty Folsom’s Reading Group. January 25, 2024

Thomas F. Torrance, “The Transformation of Natural Theology,” in *The Ground and Grammar of Theology* (Charlottesville, Virginia: The University of Virginia Press; Belfast: Christian Journals, 1980), ch. 4, pp. 75-109; [#1980-369e](#).¹

Prologue: Theology and natural science are interrelated (pp. 75-76)

- Theology deals not with God and humanity, but with God/humanity/world relations (75).
- Natural science deals not with an independent “nature,” insulated from theology, but with a “creation” which we have come to know and to understand in a manner already shaped by profound theological reflection – which means, for Christians, on the Incarnation (75).
- The relations between theology and natural science we are looking for must be “natural” (*kata physin*) to both; that is, not derived from one and imposed on the other (76). A new, transformed “natural theology” as Torrance defines it will focus on this overlap of shared ideas and perspectives, which are held in common by both theology and natural science.

1. Traditional Natural Theology (pp. 76-87)

Traditional Natural Theology flourishes in tandem with dualism (76).

Integration = resolution of dualisms.

Examples: Athanasius (76-78); Anselm (80)

Integrated theological understanding of creation and incarnation, of God and the world.

No distinction between natural and supernatural knowledge.

Theology is not isolated from other sciences in this one universe.

When our way of knowing is appropriate to the nature of the thing to be known (*kata physin*).

Traditional Natural Theology:

An argument from reason or nature to God.

Projection of creaturely characteristics: a form of Mythology vs. Theology.

An attempted logical bridge to span a chasm created by dualism.

Cosmological dualism:

God vs. World

When our cosmology, as a conception of reality, cuts it off from our knowing.

Aristotelian/Medieval heavens/earth or Newtonian Absolute space and time

Epistemological dualism:

Thought vs. Being. When our way of knowing is inappropriate to the nature of the thing to be known.

¹ For background see Thomas F. Torrance, “Natural Theology in the Thought of Karl Barth,” in *Karl Barth: Biblical and Evangelical Theologian* (Edinburgh: T&T Clark, 1990), 136-159; [#1990-517f](#); also Paul D. Molnar, *Freedom, Necessity, and the Knowledge of God in Conversation with Karl Barth and Thomas F. Torrance* (T&T Clark, 2022), ch. 3: “Karl Barth, Thomas F. Torrance, and the ‘New’ Natural Theology” ([#2022-PDM-1](#)), and the 2023 annual meeting videos, [#2023-TFTF-1](#). Slide screenshots in this handout from my “Love and the Cosmos” project, [kerrysloft.com](#) (search for “Perspectives”). See especially the following: “Natural Theology,” “Dualism,” “Interdisciplinary Relations,” and “The Trinity and Geoscience.”

Love and the Cosmos / Week 12 - Perspective: Dualism 19

Newton as Dualistic Theologian 4. Natural Theology

Traditional Natural theology Trinitarian theology

Patristic Scholastic Reformation Newtonian 20th century

Trinitarian theology vs. Traditional Natural Theology

Love and the Cosmos / Week 12 - Perspective: Dualism 21

Dualism - Overview Dualism - Intro: Integration

Rembrandt van Rijn
Christ and St. Mary Magdalen at the Tomb, 1638
Royal Collection, UK

Integration

- Grace
- "Grace restores, sustains Nature"
- Nature

Integration (no dualism)

Love and the Cosmos / Week 12 - Perspective: Dualism 19

Dualism - Overview Reduction upwards: Grace supersedes Nature

Lorenzo Monaco
Madonna, Monte Oliveto-Altar (c. 1410)
Palazzo Davanzati, Florence

Integration

- Grace
- Nature

"Grace supersedes Nature"

Dualism: Reduction upwards

Love and the Cosmos / Week 12 - Perspective: Dualism 20

Dualism - Overview Reduction downwards: Nature devours Grace

Édouard Manet
Le Déjeuner sur l'herbe (The Luncheon on the Grass), 1863
Musée d'Orsay, Paris

Integration

- Grace
- Nature

"Nature devours Grace"

Dualism: Reduction downwards

Love and the Cosmos / Week 12 - Perspective: Dualism 27

Dualism - Overview Cosmological Dualism

Aristotelian cosmos

Integration

- Heavens
- Earth, Sublunar

Cosmological dualism: Aristotelian

Love and the Cosmos / Week 12 - Perspective: Dualism 28

Dualism - Overview Cosmological Dualism

John Philoponos, 6th cent

Integration

- Heavens
- "unitary rationality"
- Earth, Sublunar

Cosmological integration: Philoponos

Love and the Cosmos / Week 12 - Perspective: Dualism 29

Dualism - Overview Cosmological Dualism

Newton, Absolute Space and Time

Integration

- Absolute space & time
- Experienced space & time

Cosmological dualism: Newtonian

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Dualism - Overview Cosmological Dualism

Einstein, Relativity Theory

Integration

- Geometry of space and time
- Physics

Cosmological Integration: Einstein

Three phases of Traditional Natural Theology		
Phase	Examples	pp.
Neoplatonic-Byzantine	John of Damascus	78-79
Augustinian-Aristotelian	1. Anselm: "Ontological argument" ¹ 2. Thomas Aquinas: "Cosmological argument" ²	79-80, 82-83
Augustinian-Newtonian	Isaac Newton: Absolute time and space ³ (The Boyle Lectures) (Bridgewater Treatises)	81-85

Medieval: reduction upwards (82-83)

Eternal and universal

Final causes (immanent teleology)

Universe objectively rational and sacramental (cf. Lewis, *The Discarded Image*)

Thus it had a stronger impact than its logic warranted.

Even Thomas conceded that his arguments depended upon baptized reason.

Modern: reduction downwards (83-85)

Empirical, contingent phenomena. Mechanistic and materialist.

Natural theology now based on the natural sciences more than on philosophy.

The Reformation emphasis on *creatio ex nihilo* should have broken the hold of natural theology, with all necessitarian thinking and static forms, and provided an impetus to empirical investigations, but a dualism was reasserted between empirical and theoretical, between phenomena and concepts.

Strengths:

Unitary rationality of the universe (84)

Contingency of the universe (84)

No god of the gaps; God not included in the chain of efficient causes.

The object of knowledge of the natural sciences is not God.

Weaknesses:

Susceptible to the cosmological argument.

Secularization of culture.

"Widespread loss of meaning in any semantic reference beyond the world"

"Deistic breach between God and the world"

"the weakness of Protestant natural theology lay in the increasing secularization of culture, grounded, paradoxically, in the doctrine of creation out of nothing..." (85)



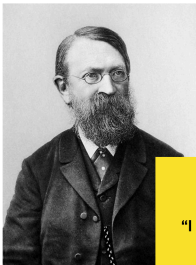

¹ Recast apart from Anselm's original prayerful reflection.

² The more powerful of the two, because it did acknowledge the contingency of the universe. However, it also equated the rational with the necessary, which undermined it.

³ See the section "Newton as Dualistic Theologian" in my presentation on dualism previously noted.

Collapse of these forms of natural theology: (85-87)

Humean skepticism; Kantian critique; the Positivism of the Vienna Circle.

Love and the Cosmos / Week 12 - Perspective: Dualism		Love and the Cosmos / Week 12 - Perspective: Dualism	
Dualism after Newton	Dualism in Philosophy	Dualism after Newton	Dualism in science: Positivism
<h3>Immanuel Kant, 1724-1804</h3>  <p>No knowledge of reality in itself We impose patterns upon sensory experience <i>a priori</i>, based on pre-existing categories Construction of reality</p> <p>Integration (circled in red with a diagonal line through it)</p> <ul style="list-style-type: none"> Sensory appearances (phenomenal) Categories of the mind (noumenal, synthetic <i>a priori</i>) 		<h3>August Comte</h3>  <p>1. Theological stage 2. Metaphysical stage 3. Positive stage "Religion of Humanity"</p> <p>Integration (circled in red with a diagonal line through it)</p> <ul style="list-style-type: none"> Theology Metaphysics Physics Observation 	
<h3>Ernst Mach, 1838-1916</h3>  <p>$F = ma$ "I don't believe that atoms exist!" - 1897</p> <p>Integration (circled in red with a diagonal line through it)</p> <ul style="list-style-type: none"> Reality Observations Sensory phenomena 		<h3>Gotthold Lessing, 1729-1781</h3>  <p>Accidents of history "ugly big ditch" Necessary truths of reason</p> <p>Integration (circled in red with a diagonal line through it)</p>	

Natural theology then took on the quality of a moral or even existentialist argument instead of a logical argument. But these were still subject to the cosmological and epistemological dualisms as before. (86) Most Gifford Lectures are typical of these ongoing efforts. (86-87).

But in his Gifford Lectures on *The Openness of Being*, E. L. Mascall was moving to overcome dualism. Other Gifford Lecturers cannot be categorized as affirming Traditional Natural Theology either, but rather as offering general discussions of faith and reason, or of belief in a world of science. These include Alisdair McIntyre (*After Virtue*), Charles Taylor (*A Secular Age*), John Macmurray (*The Self as Agent, Persons in Relation*), Owen Chadwick (*The Secularization of the European Mind*), Marilyn McCord Adams (*Christ and Horrors: The Coherence of Christology*), Eleanor Stump (*Wandering in Darkness: Narrative and the Problem of Suffering*), Stanley Hauerwas (*With the Grain of the Universe*), Michael Polanyi (*Personal Knowledge*), and Karl Barth himself (*The Knowledge of God and Service of God*) who was invited to provide a counterpoint to Etienne Gilson (*The Spirit of Mediaeval Philosophy*).

GGT can be read as a running critique of and dialogue with the Gifford Lectures.

2. Karl Barth's Critique of Traditional Natural Theology (pp. 87-93)

Critics of Barth misunderstood Barth's objections to natural theology (e.g., among the Gifford Lecturers, James Barr and Brand Blanshard). Not fideism, not dualism that made God have no relation to the world, etc. Rather, the critics themselves were trapped in dualisms that prevented them from recognizing how Barth had overcome those dualisms. (87)

Reformation emphasis on *creatio ex nihilo* —> contingency of the creation.

Therefore no logical bridge; traditional natural theology is rendered invalid from the start.

Nature is set free from hidden divinization (*deus sive natura*; "god as nature," Spinoza).

Barth's targets:

Erich Przywara's analogies of being, or ladder of being.

German Romanticism divinized the national spirit (German Church, Nazi's).

Emil Brunner did not discern the underlying issues at stake. (88-89)

"Barth's real objection to traditional natural theology rested on **theological** and **scientific** grounds. It is the **actual content of our knowledge of God**, together with **the scientific method that inheres in it**, that excludes any movement of thought that arises on some other, independent ground as ultimately irrelevant and as an **inevitable source of confusion** when it is adduced as a second or coordinate basis for positive theology." (p. 89, emphasis added)

Theological objections (89):

The actual content of our knowledge of God is that God is Triune. Traditional natural theology does not lead to the Triune God, but to an unreal abstraction of God. Our knowledge of his being and act cannot be separated. Traditional natural theology imposes deism upon theology, separating the being of God from his act, relegating his Trinitarian activity to the side. To truly know God through his saving activity is to know him as Triune, in himself as he really is. This knowledge of God is only by grace; *sola gratia*: via the uniqueness and exclusiveness of Jesus Christ.

"We are unable to achieve through our own natural powers and capacities the cognitive union with God which true knowledge of him requires." (143)

"Just as when we are justified by the grace of God in the Lord Jesus Christ all our natural goodness is set aside, for we are saved by grace and not by our own works of righteousness, without there being any denial of the existence of natural goodness, so here, in the **epistemological relevance of justification by grace**, our natural knowledge is set aside, for we know God through his own grace and not by the efforts of our own reason, without there being any denial of the existence of natural theology." (144)

"The fact that God himself had to become man in order to break a way through our estrangement and darkness, and work out a way of bringing us back to himself... invalidates them all." (144)

Scientific objections (89-90):

Traditional Natural Theology violates the *kata physin* nature of theology as a science. A domain of knowledge is scientific if and only if it achieves a *kata physin* methodology (*kata* = according to; *physis* = nature), in which the method is appropriate the nature of the object being known. Epistemology follows ontology *a posteriori*. We can only know something in light of its actual nature as it becomes progressively disclosed to us. Every scientific domain refines its own methodology accordingly. *Kata physin* protects the integrity of any science. No scientific domain can simply import the methodology of another; that would be *scientism*, not *scientific*. Knowledge is by grace alone: as the object reveals itself to us, we set aside every independent source. Traditional natural theology, in contrast, is an independent and autonomous effort from the active self-disclosure of the Triune God, working with abstractions.

Athanasius


FATHER	CREATOR
Son	Works
Intrinsic relations	Extrinsic relations
<i>kata physin</i>	Not scientific

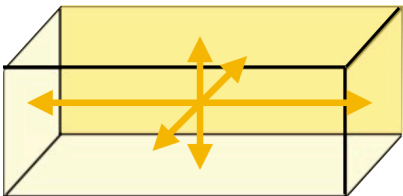
“It would be more godly [devout] and true [accurate] to signify God from the Son and call him Father, than to name God from his works alone and call him Unoriginate [Creator].”

– Athanasius, *Against the Arians*, I.34; cf. *The Trinitarian Faith*, p. 49.

God as Creator is scientifically known in light of God as Father, not vice versa.

The Unity of a Science





Theological science

First prong:
Kata physin knowing

Box model of a science: *kata physin* knowing establishes the domain and unity of a science.
 Arrows = first principles that define the box = principles (or infrastructure) of the science.
 Surfaces of the box = conclusions of the science, which must be in alignment with the first principles.

If we are talking about a rational structure in our knowledge of God, included within revealed theology, grounded in the Triune character of God, then it would not be traditional natural theology but the infrastructure of theology proper (91).¹

Torrance then explains Barth's position with an often discussed but profoundly obscure analogy between mathematics and physics, based on Einstein's essay "Geometry and Experience" (91-93). It is important not to over-interpret this analogy, for we might impose any manner of our own ideas on it and miss the point that Torrance is making.

Torrance cautions that the unity of a science is undermined when it is inappropriately subjected to another science (or even to the infrastructure of another science). Torrance concludes that "surely no genuinely

¹ "Barth can say that *theologia naturalis* is included and brought to light within *theologia revelata*, for in the reality of divine grace there is included the truth of the divine creation..." T. F. Torrance, "Natural Theology in the Thought of Karl Barth."

scientific inquiry can let itself be controlled by an independent logical structure...” (93). That is the point Torrance wishes to establish with this analogy.

Vertical Relations	Case studies	Outcomes
Inappropriate subordination	Physics within Euclidean geometry (Newton)	distorted, abstract, static, extrinsic
	Theology within Natural Theology	
Appropriate subordination	Geometry within Physics (Einstein)	transformed, dynamic, completed beyond itself, integrated with actual knowledge
	Natural Theology within Theology (Barth)	

“As natural geometry is the space-time structure embedded in a dynamic and realist physics, so natural theology is the space-time structure embedded in a dynamic and realist theology.” (93)

Torrance argues that Barth rejected the dualism of natural theology in much the same way as Einstein rejected the dualism in Newtonian physics of an independent and abstracted form of Euclidean mathematics accepted as prescriptive for physics and cosmology. Barth and Einstein made parallel moves, both rejecting dualism with its abstracted rationality and unscientific methodology, whether in theology or physics.

Torrance concludes: “On its own terms and on its own ground” Barth’s critique of traditional natural theology is “basically consistent with the positions we adopt today in natural science” (93-94).

3. Toward a Transformed Natural Theology (pp. 94-109)

“But if Barth’s position is to be accepted, as I believe it is, then I also believe that there must be a deeper connection between the basic concepts of theological science and natural science than he seemed to allow....” (94)

On the top of p. 94, Torrance attempts to move beyond Barth to sketch what a “Transformed Natural Theology” might look like, in a manner he believes is consistent with Barth’s critique. This section has given rise to much debate and misunderstanding. Scholars differ over what Torrance means by “natural theology,” and by what he envisioned as a “Transformed” version of it. This is not the place to review the debate or provide a guide to it, but based on just this crucial section we can ask: *Is it possible to read Torrance as proposing views that were consistent with Barth, even while adding something new to the discussion?*

3.1: Natural Theology

What does “natural theology” mean?

This phrase should be written on a red flag to be shaken in front of a charging bull. It has caused much consternation and confusion, as various readers have tried to read Torrance while importing their own definition of it along the lines of the “traditional natural theology” described above. Let’s try to read this chapter as if what Torrance meant by “Transformed Natural Theology” is not natural theology at all in that sense. This will require from us the discipline of fully reflecting upon and assimilating Barth’s critique, to make the foundation sure before going on to the next steps of building the walls, rooms, and halls. (Read/watch Paul Molnar, footnote #1.)

Ever since Aristotle, questions about the *unity of a science* (single box, Barth) have been accompanied by questions of the *relations between sciences* (multiple boxes, Torrance). Such scholastic discussions also usually considered whether and how theology is a science. Torrance was familiar with this intellectual

history.¹

We can read Torrance consistently if we read him as proposing, in his new Transformed Natural Theology, a *dialogue exploring the unity and relations of the different sciences* as a non-dualist alternative to Traditional Natural Theology. This will require retraining our minds to accept a new definition of “natural theology.”

The Contested Tradition of Natural Theology Manifested in the Gifford Lectures

Two considerations help us understand Torrance’s usage of “natural theology” in light of his Scottish context: first, the **Gifford Lectures**; and second, the persistence in Scotland of the discipline of **natural philosophy**, traditionally recognized as the chief integrating endeavor among the natural sciences.

“Natural theology” if taken as a description of the scope of the Gifford Lectures has considerable flexibility, for it encompasses a broad range of arguments about the nature of faith and reason and belief and science:

“A more modern view of natural theology suggests that reason does **not so much seek to supply a proof** for the existence of God as to provide a coherent form drawn from the insights of religion to pull together the best of human knowledge from all areas of human activity. In this understanding natural theology attempts to relate science, history, morality and the arts in an **integrating vision** of the place of humanity in the universe. This vision, an integrating activity of reason, is religious to the extent it refers to an encompassing reality that is transcendent in power and value. **Natural theology is thus not a prelude to faith** but a general worldview within which faith can have an intelligible place.”²

Compare this Gifford description of natural theology as an “integrating vision” with TFT’s statement in this chapter that he was seeking an “integrated theological understanding of creation and incarnation.” Not a proof of God, not a prelude to faith, but the more modest but still significant goal of an integrated vision of faith and science. Did Torrance’s usage of “natural theology” refer to a discourse or tradition like the Gifford Lectures that loosely had to do with the relations between faith and reason, or belief and science, in which he sought to participate by articulating an integrated, non-dualistic approach?

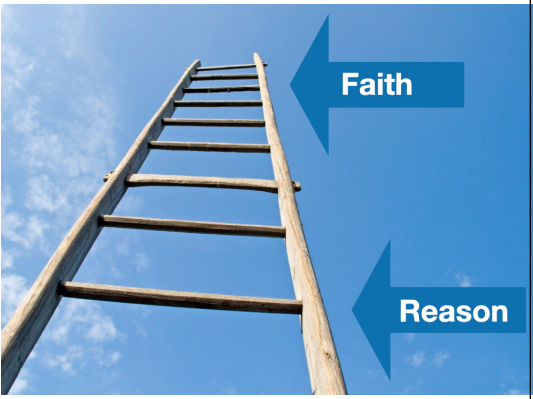
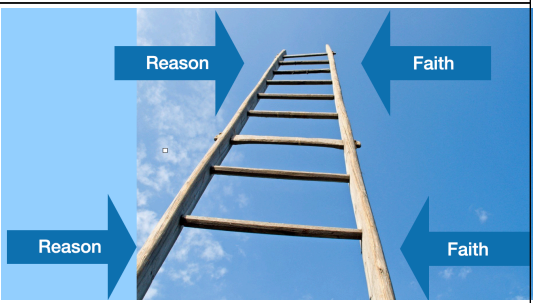

What if *GGT* is read as Torrance’s Gifford Lectures?

Which Natural Theology? Two Kinds

It is essential when using the term “natural theology” to indicate which sense is meant; the “Traditional” (Foundationalist) version, or this looser discussion of faith and reason’s interplay within every science in which Torrance sought to articulate a non-dualistic approach. I will refer to them as “Traditional” or “Relational.”

¹ Aristotle addressed relations between the sciences in the *Posterior Analytics*, particularly in Book II, chapters 7, 13, and 28. Torrance alluded to these discussions on the unity and relations of the sciences; e.g., in an early piece on Kierkegaard he referred to the error of “metabasis.” Aristotle critiqued Plato for the logical fallacy of metabasis, which refers to any attempt to establish the basis for a conclusion in a different science than the one that is appropriate to it.

² Gifford website: <https://www.giffordlectures.org/overview/natural-theology>, accessed May 2020. Emphasis added.

<p>Traditional (Foundationalist) Natural Theology</p>	<p>A ladder of rational ascent to faith.</p> <p>To ascend the ladder, we start with Reason or Science alone. We start climbing and see how far we can go before we have to resort to faith to complete the ascent to the top.</p>	
<p>Relational (Transformed) Natural Theology</p>	<p>Faith and reason are the two rails of the ladder, which work together at every rung.</p> <p>The ladder is no longer an ascent to God, but a metaphor for the unity and relations of the sciences.</p> <ul style="list-style-type: none"> • Unity of a science: Rungs = different sciences. • Relations of the sciences: The sciences may be related either horizontally or vertically. The ladder represents vertical relations. <p>Between the rungs or within each rung, even at the first rung of the ladder, there is no reasoning without radical commitments and monstrous presuppositions. And yet we believe in order to understand. Faith and reason each facilitate and promote the other in critical dialogue. Faith and reason are both needed to take the very first steps at the bottom, and both are necessary even at the very top.</p>	  <p>Another metaphor is that faith and reason are the two wings by which we fly in any science.</p>

These two natural theologies move in opposite directions:

- In Traditional Natural Theology, the goal or movement is from reason to faith, or from nature to God. It is a classical, foundationalist form of apologetics.
- In Relational Natural Theology, the goal or movement is from faith to reason, or from God to nature. It is an integrating endeavor, not classical foundationalist apologetics, but a subset of the general problem of interdisciplinary relations.

Traditional Natural Theology is a rival to theology as they both seek knowledge of God.

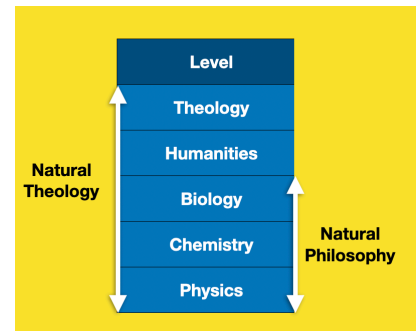
Relational Natural Theology is not seeking knowledge of God, but rather knowledge of the relations between the sciences, including theological science. Knowledge of God is assumed to come *kata physin* from theological science.

The Parallel of Natural Theology with Natural Philosophy

Was Torrance drawing a parallel with natural philosophy, traditionally an integrating endeavor seeking to place all the sciences in relation?

Was he seeking to use “natural theology” to represent an integrating natural philosophy that would explicitly take theology into account?

Stratified sciences (right), from *Space, Time, and Resurrection* (pp. 21-22), in which context Torrance discusses how the Resurrection sets all the sciences upon a new basis.

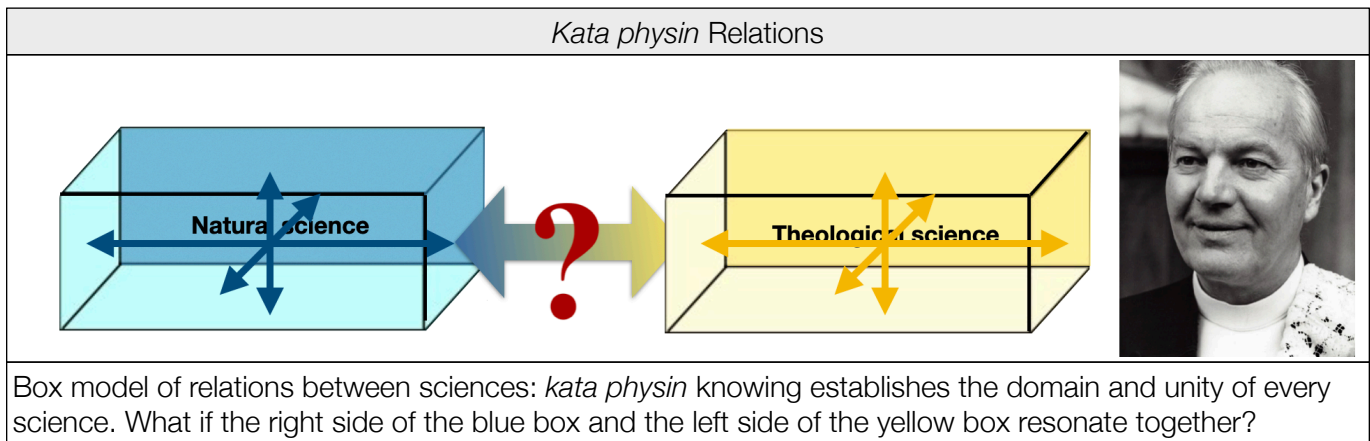


Integrating discipline	Unity of a Science	Relations of the Sciences
Natural Philosophy	What is the interplay between science and philosophy in every science?	How do the different sciences coordinate together, including philosophy?
Relational Natural Theology	What is the interplay between faith and reason in every discipline?	How do different disciplines coordinate together, including theology?

We can read Torrance as self-consistent if we see him as attempting to correct and redirect the Gifford Lectures tradition of natural theology discourse toward a revived and renovated exploration of the *unity and relations* of the sciences, while simultaneously seeking to expand the scope of natural philosophy to engage theology as well in an integrating endeavor.

3.2: Relations between the Sciences

Let's consider further *kata physin* implications for interdisciplinary relations. If we go back to the beginning of this chapter, Torrance said he would be drawing out implications of the fact that theology deals not with God and humanity, but with God/humanity/world relations. To adopt the box model for the sciences used above, we do not live in a one-box universe. There are many boxes, one for each of the sciences. Torrance is going beyond Barth in that Barth talked only of the one box, while Torrance will focus on the problem of how multiple boxes in the universe might coordinate or relate together. For this reason, we may call his view "Relational Natural Theology."



Earlier in GGT, Torrance wrote:

"... it is this **deepening coordination** in understanding between natural science and theological science that I have tried to serve..." (8)

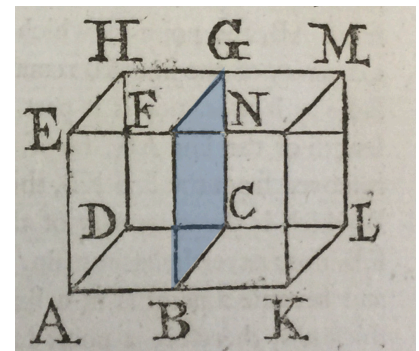
"In each field of inquiry, then, we must be faithful to the reality we seek to know and must act and think always in a relation of relentless fidelity to that reality. This is why we cannot oppose natural science and theological science to each other as though they could or had to contradict one another, but must, rather, regard them as applying the one basic way of knowing faithfully to their respective fields **and must seek to coordinate the knowledge they yield** through the appropriate modes of inquiry and thought they develop..." (10)

Consider the diagram on the right, taken from Robert Simson, *Euclid* (Glasgow, 1781), an influential Scottish introduction to geometry. The question young Scots then and ever since were asked is: Given two boxes, left and right, to which one does the blue side belong?

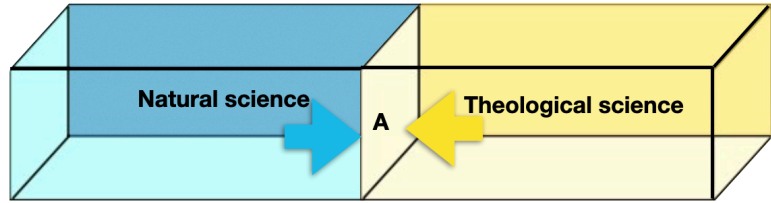
Does the blue side belong to the right box?
Or does the blue side belong to the left box?

If the blue side arises *kata physin* from the left box and from the right box, then it belongs to them both, by definition.

Apply this problem of the boxes to the relations between the sciences. Let the blue side be referred to as "connecting surface A."



In the diagram right, the connecting surface “A” belongs *kata physin* to theological science, and *kata physin* to natural science. It is properly the domain of both sciences, produced in each science according to *kata physin* methods independent of the other. Either science would be incomplete without this surface. Yet this surface is shared in common and provides a place of conversation in which theology may have something to say to natural science, or natural science to theology. So in Torrance’s view, the astonishing unitary rationality of the universe means that it turns out that there are common surfaces between sciences, or at least resonating surfaces. That this is so may be surprising, and can only be established after the fact, *a posteriori*, historically or empirically.



Torrance writes (94; bracketed comments added):

“But if Barth’s position is to be accepted, as I believe it is, then I also believe that there must be a deeper connection between the basic concepts of theological science and natural science than he seemed to allow: or, otherwise expressed, there is a **natural [*kata physin*] connection** between theological and natural science [**e.g., surface “A”**]. If that is the case, then a proper natural theology should be natural [*kata physin*] both to theological science [yellow arrow] and to natural science [blue arrow].”

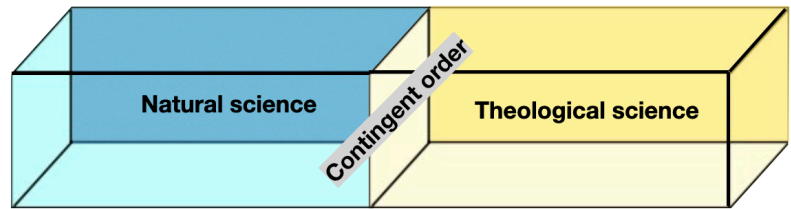
“A natural theology in this full sense will have its proper place in the **dialogue between** theological science and natural science within their **common sharing** of the rational structures of space and time [**A**] conferred on the universe by God in his creating of it, and within their **common sharing** in the basic conceptions of the unitary rationality [**A**] of the universe, its contingent intelligibility [**A**] and contingent freedom [**A**] – which derive, as we have seen, from a Christian understanding of the relation of God to the universe.”

Torrance here identifies at least the following perspectives as topics for dialogue, comprising the blue side, the **connecting surface A**, the common perspectives which resonate across different sciences:

1. Rational structures of space and time (31-32; e.g., non-dualistic cosmology of Maxwell & Einstein)
2. Unitary rationality of the universe (52-53; e.g., that these connecting surfaces even exist; the confidence that they scale across the universe; a rejection of dualisms)
3. Contingent intelligibility of creation (53-57; e.g., the importance of empirical investigation instead of a priori theorizing based on supposedly necessary logic or causes)
4. Contingent freedom of creation (57-60; e.g., how creation through its contingent history surprises our *a priori* conceptions, as it remains open to higher levels of order rather than subject to deterministic laws)

These four perspectives are some of the motifs which theology offers in *kata physin* connections with other sciences, and some of the motifs which the natural sciences offer to theology. When these four perspectives of theology resonate with a natural science, a space for constructive dialogue is created. These connections are not traditional, foundationalist apologetics, but resonances between natural and theological sciences that respect the integrity of each domain.

Discussion of these perspectives and others like them (e.g., contingent order), and how they actually may be discovered to resonate between theological science and the other sciences, is Torrance's vision of a transformed or relational natural theology.



But can the natural sciences produce resonating perspectives like these as a *kata physin* result of their own investigations? or do they need theology's help in some way? They can indeed do so, if the history of science is any guide. When they arise from either box, they may prompt repentant rethinking in the other field, when resonances occur. The prompts may be bidirectional, not just from the side of theology. So these connecting surfaces, or "resonances," do not arise from dependency relations, either that theology directly depends upon natural science for them, or that natural science directly depends upon theology for them, in any *a priori* fashion. Rather they arise historically and are determined *a posteriori*.

Moreover, to affirm that these perspectives arise *kata physin* in multiple scientific domains (including theology), does not commit one to saying that the perspectives in each domain are identical. To take the examples of Big Bang cosmology and the discovery of geohistory, the different versions of contingent order, one arising from geology, one from cosmology, and one from theology, turn out to be *similar enough to have a historical resonance*. Rather than a logical linkage in a rigid philosophical framework, there is a *rapprochement*, where a space for dialogue is created, depending upon the historical circumstances of intellectual culture (see "Note on Big Bang cosmology" and "Note on Geohistory"). In Torrance's relational natural theology, the cosmological argument thus becomes transformed (94) from a logical bridge or demonstrative proof into a prayerful meditation upon the contingent order of creation in light of the Incarnation for the theologian, and in light of the new cosmology for the physicist in conversation with the theologian, and (we might add) in light of the discovery of geohistory for the geologist in conversation with the other sciences including theology.

Torrance continues (94) that contingent order, and the singularity of the universe, "is an area of **[kata physin] overlap** in the inquiries of theological and natural science that is of the greatest significance for us today. But it is in **dialogue between** theological and natural science within that overlap that natural theology has its **natural place [A]**. There it is concerned with the connection between the material content of our knowledge of God [Incarnation and Trinity] and the empirical correlates of that knowledge in the spatio-temporal structures of the created universe – and thus with the common concern that **both** theology and natural science have in the coherent **singularity of the universe**. What is required here is an appropriate transformation of the traditional cosmological argument, in which it will straddle and **correlate the argumentative intra-structure of both** theological and natural science at this point. As such, that argument can be of help to the scientist... [and] of not a little help to the theologian..."

Notice that, according to Torrance, while natural theology may arise from within theology, natural theology is **not simply "contained inside"** the yellow box. Rather, natural theology involves a **relation** that is also simultaneously "contained inside" the blue box, like the blue side in Simson's geometrical textbook. *Relational natural theology is not merely a question of containers (unity of a science) but of relations (between different sciences)*. The space for *kata physin* relations between sciences arises from both boxes, but in such a way as to constitute a common concern and correlating relation between them.

In establishing this second prong, Torrance has gone beyond Barth to consider a universe of multiple boxes.

Perhaps theology might seek out and discern a resonance with them all?¹

In another article, Torrance describes this mutually beneficial dialogue between theology and the other sciences:

"I would like to return to the question I have been trying to answer in connection with my **membership** in two international academies devoted to theology and science. It is the question whether there is a way of **bringing scientists and theologians together** in which rigorous science and rigorous theology can enter **into a serious dialogue** with one another without betrayal of their respective convictions. While we do not and may not try to build theology on science, any more than we build science on theology, there is nevertheless a deep level of **conceptual interconnection** between the two, clarification of which can help **both** theology and science to be faithful to the distinctive nature of the realities with which they are concerned. Dialogue with one another **within the overlap** of their inquiries in space and time **may help scientists** to shed dubious theological ideas that they may have unwittingly picked up in the history of thought, and **may help theologians** to shed discarded scientific ideas which they also may have picked up from the past. Hence, rightly pursued, this kind of dialogue involves a process of mutual purification and **increasing rapprochement**. When we theologians engage in it this way we become better equipped to preach the gospel of the incarnation and atonement in the scientific world in which we live."²

Similarly, in *Space, Time, and Resurrection*, Torrance wrote:

"It will be through dialogue at the deepest level between Christian theology and natural science, in which each remains faithful to the nature and character of its own field of inquiry... that interpretation and intelligible appropriation of the message of the resurrection may take place." (p. 45)

This interdisciplinary approach to theology and science offers a basis for a more profound dialogue than is possible with Traditional (foundationalist) conceptions of natural theology or even with a "theology of nature."³ Trinitarian perspectives on science, which Torrance contributed to that mutually beneficial dialogue, include the open and relational character of reality, including space and time; onto-relations, that the relations of a thing are part of its nature and it cannot be known apart from those relations; contingent order, that nature might have been otherwise than it is; the stratification of reality; irreducibility, contrary to a mechanistic determinism; the integrity of each scientific discipline with its own methods, against scientism and any hegemony or incursion by other disciplines; and integration, as a legitimate act of multi-disciplinary inquiry. *Kata physin* knowing is a realist epistemology in which knowing takes place in a much more profound way than simply on a cognitive level; knowing is appreciated as an inherently personal and ethical act, as an openness to that which is other than oneself, requiring continual "repentant thinking." Theology and science together may overcome epistemological and cosmological dualisms and repair cultural splits. Theology may reinforce scientific convictions on ultimate and penultimate beliefs, such as the amazing intelligibility of nature, for every day, every scientist assumes more than can be proved. Or the contingent freedom of nature, which constantly surprises us. And theology helps scientists preserve space for human significance, freedom and love on a personal level. Such ultimate and penultimate beliefs are required for science, but cannot be established by natural science. These are just a few of the perspectives on science

¹ Torrance challenges theologians with this prospect, of discovering that theological science is "more than a particular science," in *Theological Science*, ch. 6.

² Thomas F. Torrance, "Incarnation and Atonement in the Light of Modern Scientific Rejection of Dualism," in *Preaching Christ Today: The Gospel and Scientific Thinking* (Grand Rapids, Michigan: W. B. Eerdmans, 1994), 41-71; [#1994-571b](#).

³ A "theology of nature" is important, but it remains within the one box of theological science. While thinking of a theology of nature is a help to the theologian, it is not part of the work of the natural scientist as a natural scientist. The reading proposed here actively and directly involves work in every particular science, *kata physin* to that science.

which offer theologians and scientists much to talk about that can be mutually beneficial. This is the promise of Torrance's reconstructed, transformed, relational natural theology.

3.3 What did Torrance mean by “bracketing,” “methodological secularization,” and “completing”?

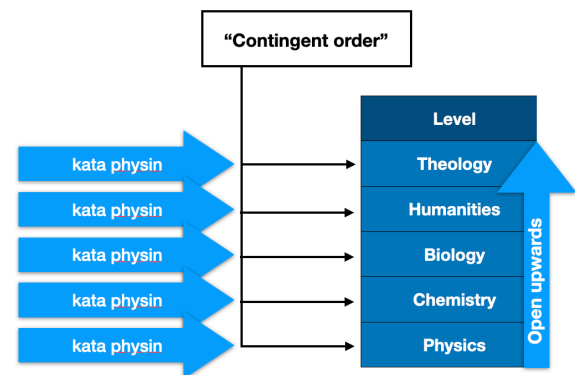
On p. 95 he writes:

“Inevitably, in the focus of attention upon the unity of form and being and the singularity of the universe, some measure of temporary, methodological ‘bracketing’ of these issues will be entailed — but solely in the recognition that what we thus consider is complete only in the integrated unity of Christian theology, and fulfills its role there within the stratified structure of knowledge of God... on its proper level of connection in coordination with the other levels.” (95)

The term “bracketing” has given rise to much confusion, but it does not signal a return to Traditional Natural Theology that needs to be completed by faith, nor an endorsement of “methodological naturalism” in the natural sciences. Rather, when we see the “bracketing” or “methodological secularization” (104) or “completing” language, interpret it as a reference to respecting the *kata physin* methods of each particular science in the context of interdisciplinary relations between the sciences. In the case of vertical relations across the stratified levels of sciences, each particular *kata physin* level is open to the contingent order of a higher level (cf. diagram, right) which completes it in some respect.

In *Space, Time, and Resurrection* (p. 188), Torrance explains: “the various sciences themselves, ranging from physics and chemistry to the humanities and theology can be regarded as constituting a hierarchical structure of levels of inquiry which are open upwards into wider and more comprehensive systems of knowledge but are not reducible downwards.”

Torrance's remark about “bracketing” is thus consistent with a Christian scientist doing her science in light of all that she knows, including her Triune faith, while still adhering to the proper methods appropriate to her subject matter in the natural science.



In GGT, Torrance's “we” pronoun is not always speaking for the theologian-as-theologian. He repeatedly dons the hat of the natural scientist, articulating the voice of the natural scientist-as-natural scientist in her work as a natural scientist. Such a scientist will take care to perform the work in the field of (non-theological) science in a *kata physin* manner for that science, while also remaining alert for a holistic integration of the sciences which might bear on the interdisciplinary aspects of the problems that arise.

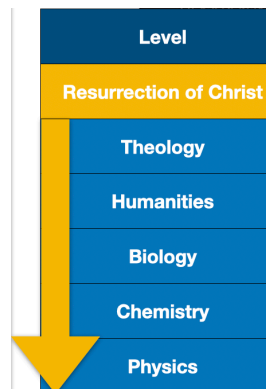
In the new interdisciplinary dialogue that Torrance envisions, the work of natural scientists that has been temporarily and provisionally “bracketed off” on its own level of contingent order becomes related to theology in such a manner that the scope of the natural science will be “completed” through coordination with theological science, just as the work of any science (say, astronomy) might “complete” the understanding of another science (say, geology) when a truly interdisciplinary question arises (say, an asteroid impact). Again, this is *not a movement from reason to faith, but from one discipline to another*; a dialogue between different sciences which are each *kata physin* on their own level.¹

¹ In *Theological Science*, p. 282, Torrance refers to the “bracketing off” of particular sciences in this context of interdisciplinary relations and stratified levels.

Integration is top-down

In the above quotation from *Space, Time, and Resurrection* (p. 188), Torrance states that each level of contingent order is open upwards, and cannot be reduced downwards. The context makes clear that the act of integration is top-down, for the Resurrection sets all other sciences on a new basis (diagram, right).

When physics was subordinated to geometry in the analogy on p. 7, that was an illegitimate bottom-up attempt at integration. Rather, geometry must be open upwards to physics instead of vice versa. Similarly, knowledge in the natural sciences must always be open upwards to theology, not vice versa.



Next pages

- Cf. the Note on the Ries Asteroid Impact. The question of the nature of this event was properly raised *within* the science of geology, but proved to have an interdisciplinary dimension that could only be **completed** within a mutually beneficial interdisciplinary dialogue respecting both disciplines and their different *kata physin* methods.
- Cf. Georges Lemaître's caution to the pope in the Note on Big Bang Cosmology, which illustrates how a resonance between a natural science and theological science does not entail a Traditional Natural Theology.
- I hope the concrete examples conveyed in the three notes below may throw light on the examples to which Torrance refers throughout this chapter (e.g., pp. 95-109).

Types of Relations between Sciences

In this handout, including the case studies on the next pages, we have encountered three different kinds of relations between sciences:

- Horizontal
- Vertical Subordination
- Vertical Subalternation

Here they are illustrated in three slides from my Trinity and Geoscience lecture which provides additional explanations (cf. footnote #1).

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Question	Key ideas
Unity of a science	Kata-physin knowing
	Created reality is open and relational
	Created reality is contingent
Relations between sciences	Horizontal relations: Resonance
	Vertical stratification: Subordination
	Vertical stratification: Subalternation

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Relations between the sciences

Aristotle, *Posterior Analytics* II.7, 13, 28 / "Metabasis"

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The Trinity and Science Stratification 147

Relations between the sciences

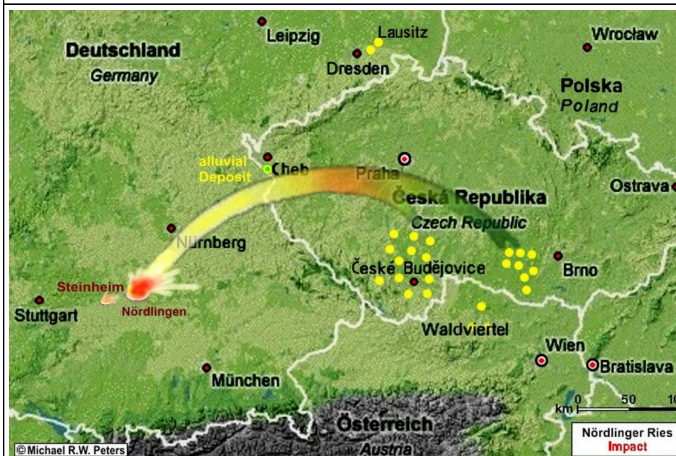
David Oldroyd
Georges Lemaître
Jean De Luc
Hugh Miller

Aristotle, *Posterior Analytics* II.7, 13, 28 / "Metabasis"

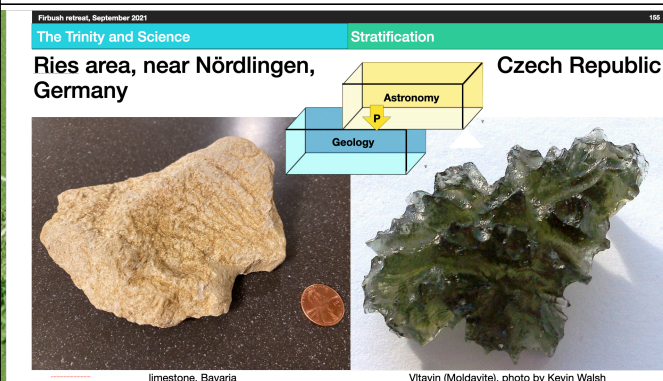
Note on the Ries Asteroid Impact (stratification of sciences)



From Goethe onward, for more than a century, the peculiar area of Ries puzzled geologists. Perhaps it was the site of a giant volcanic eruption. Perhaps, as one prominent 19th century geologist argued, it was evidence of a geological process he called “craters of elevation.”



The modern consensus is that the Ries area was the site of a meteorite impact, which came in at an angle and launched molten ejecta into the neighboring areas of the Czech Republic.



The specimen on the left is a shatter cone. The shell like markings are shock waves from the impact. The vltavin on the right was formed from molten material ejected upon impact, which cooled and solidified while airborne, landing up to 450 km (280 miles) northeast of the impact site. These rocks are not fully understood in terms of the processes of the Earth alone, but only when astronomical events are also taken into account.

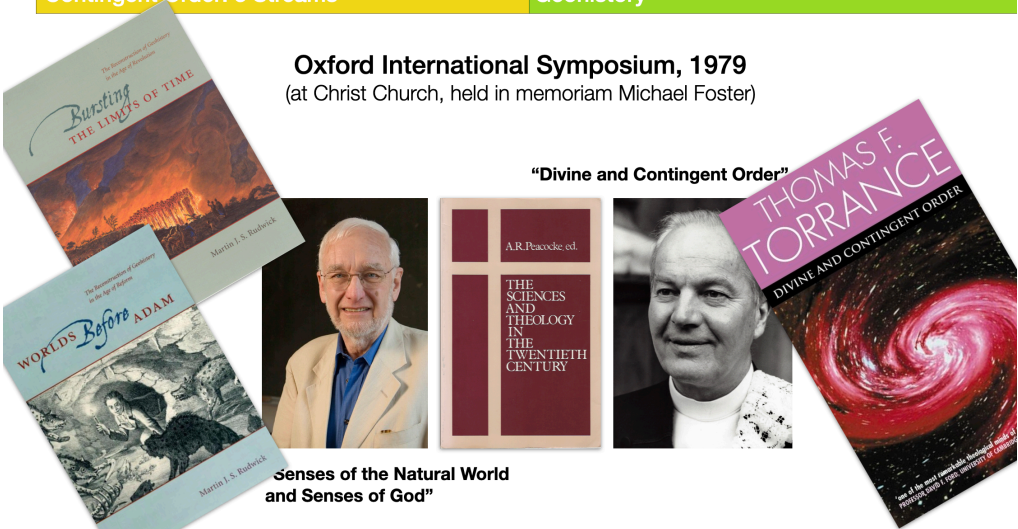
With the stratification of geology and astronomy, the order known by geology is open to the order known by astronomy and completed by it in a vertical relation. Here geology draws upon astronomical knowledge of asteroids and their planetary impacts (P) in a subalternate manner consistent with its own *kata physin* understanding of geological processes, including mineralogy, and igneous and metamorphic processes on Earth.

Note on Geohistory (the contingent order and contingent history of the Earth)

Love and the Cosmos / Week 9 - Perspective: Divine Freedom and Contingent Order
110

Contingent Order: 3 Streams
Geohistory

Oxford International Symposium, 1979
(at Christ Church, held in memoriam Michael Foster)



"Divine and Contingent Order"

Senses of the Natural World and Senses of God

In the "Kata physin relations" diagram on p. 11, imagine that the blue box labeled "Natural science" is geology and the yellow box labeled "Theological science" is theology. How does contingent order serve as a surface of resonance between them?

The distinguished historian of geology Martin Rudwick defines "geohistory" in terms of contingent order and contingent history. Rudwick describes the early work by Jean André de Luc, for example, around 1800: "The impact of de Luc's theistic commitments can be seen in the radical contingency that he attributed to earth history, and which he grounded in God's ultimate role as creator of everything. As de Luc conceived it, earth history at every stage could have taken another course, with a different outcome, without of course abrogating the ordinary laws of nature. It followed that the sequence of events could not, even in principle, be inferred from the ahistorical laws of physics, as both Hutton and Buffon implied: there was too much contingency in earth history, as in human history, for any such determinism. Rather than imposing top-down some grand conclusion of what 'must' have happened, based on unchanging laws of nature, it was necessary, in de Luc's view, to assemble bottom-up the evidence of nature's documents and archives, which showed what in fact had happened. So the new way of analyzing the physical traces of earth history, applying the methods of reconstruction being used for human history... was not just an effective heuristic but was rooted in an ultimately divine reality."¹

The permeating of early modern culture with a Christian sensibility of contingent order, and of linear history and historical significance, had everything to do with the discovery of geohistory (e.g., de Luc and Hugh Miller), but this was not by direct implication, still less by philosophical or theological derivation. Even if the "social coefficient" of intellectual culture favored its emergence at that time, geohistory was still a *kata physin* development within geology. One might also imagine that the historical development of a sense of "geohistory" might have served as a prompt for theologians to reconsider the perspective of contingent order on their own grounds of divine freedom to love.

¹ Martin J. S. Rudwick, *Geology and Genesis* (Baylor University, 2005; <https://www.baylor.edu/content/services/document.php/30846.pdf>). Cf. Rudwick's magisterial studies of the emergence of geohistory, *Breaking the Limits of Time* and *Worlds Before Adam*, both published by Chicago University Press (2005, 2008).

Note on Big Bang cosmology (the contingent order and contingent history of the universe)



Pope Pius XII, 1951



Compatibility



Avoidance

The Belgian physicist and priest George Lemaître (above, middle) worked out the principles of Big Bang cosmology before Hubble, who is more often credited with the theory.

Pope Pius XII hailed Lemaître's work on the Big Bang as a scientific proof of Christian faith. However, Lemaître rejected the Pope's position, insisting that his work should be evaluated on its own scientific merits rather than in light of his theological commitments. The Big Bang does not prove the Christian faith, in any kind of concordist manner, although it is compatible with Christian faith, and it resonates well with a Christian theological instinct, so much more so than did the Aristotelian or Newtonian cosmologies.

Lemaître prevailed with the Pope, and Pius XII soon ceased proclaiming the union of Big Bang theory with Christian faith, as if a natural theology or logical bridge could be built upon the Big Bang.

Yet the very resonance of the Big Bang theory with Christian faith, given its directional sense of history, its relational sense of space and time, and pointers to contingency, prompts some cosmologists like Stephen Hawking to avoidance behavior. They seek any kind of alternative to Big Bang cosmology that would be more compatible with the myth of eternal return, even infinite cycles of Big Bangs or alternative multiverses that cannot even in principle be observed from within our own universe.

Torrance's relational natural theology, as understood here, recognizes the implicit dialogue that takes place between sciences, theological and otherwise, and seeks to discern and pursue more explicit modes of dialogue that will be mutually beneficial while properly respecting each science's *kata physin* integrity and methods.

Pages 95-109: There is much more in the last few pages of the chapter which would be well worth covering if we were meeting for more than a single afternoon! What I have said so far is provocative enough and I hope will be helpful in preparing you to read these pages and to interpret him in a self-consistent manner.

If this afternoon's reading group has been successful, then you are now doing some real thinking. I hope those gears are spinning. Did you discover anything new, surprising, or unexpected? What are your questions? What was most meaningful to you?