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Re-ordering Faith and Science: Tyson's Project to Reverse the Great Reversal

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A CHRISTIAN THEOLOGY OF SCIENCE: Reimagining a Theological Vision of Natural Theology by Paul Tyson. Grand Rapids, MI: Baker Academic, 2022. 224 pages. Paperback; \$24.99. ISBN: 9781540965516.

Theologian Paul Tyson has published a new theology of science. His concern is to address “the great reversal,” whereby the early figures in natural philosophy held Christian faith as “first truth” and their scientific findings as “second truth,” but over the course of two-and-a-half centuries these became reversed – the findings of science became society’s “first truth” and Christian faith became privatized “second truth.” Some Christians, particularly those in science-and-religion discussions today, have succumbed to this reversal, making reductionist-materialist science their operational first truth. Tyson critiques the latter, keying on proposals to reinterpret the Fall as non-historical. This review summarizes Tyson’s argument, identifies valuable aspects to his proposal, and then offers a number of constructive critiques.

Keywords: theology of science, the Fall, methodological naturalism, reductionism, reductionist-materialism, mythos, Christian epistemology

Paul Tyson’s project is motivated by a particular concern—that some Christians (“religion-and-science” theologians in particular) are sacrificing core Christian belief to the reductionist-materialist epistemology of contemporary science. On Tyson’s view, redressing this problem requires a proper theology of science, undergirded by a Christian epistemology, which is the task he sets himself here. His chosen task is a theology of the knowledge of creation, not a theology of creation itself.

My lens in reviewing this book is as a philosophical theologian serving in the community of practicing scientists, in a sense, as a translator between the worlds

of academic science and academic theology. From this view, I find Tyson’s proposal incisive, stimulating, and important, and so I recommend it to readers of this journal. At the same time, though, many nontheologically trained readers will find the book a challenge to get through. Indeed, Tyson’s conceptual richness is precisely why his argument is challenging to follow. While the book is aimed at theologians, Tyson does try to make the book accessible to nontheologians, particularly by providing a helpful glossary of technical philosophical and theological terms at the end for nonspecialist readers. Nonetheless, as the book progresses, each chapter gets conceptually denser, which by the later chapters (especially chap. 7 onward) can make the discussion particularly challenging to follow. So, I begin by providing a summary of his argument before moving to assess his proposal.

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Summary

Tyson enters into the subject by making a distinction between “first truth” and “second truth.” On Tyson’s account, the early modern natural philosophers (early figures of the Scientific Revolution) held to Christian doctrine as “first truth,” and then interpreted their scientific findings as “second truth” within, or through the lens of, Christian faith. Nonetheless, through the seventeenth to nineteenth centuries, a number of epistemological moves took place (Tyson helpfully describes this history) so that, by the late 1800s, empiricist and rationalist accounts of the knowledge of nature combined to produce “reductionist materialism” as the dominant interpretation of the natural order within Western intellectual culture.

Here, though, we should define our terms. “Reductionism,” as defined by Tyson, is “a metaphysical outlook ... the ‘pure matter’ perspective that takes physical reality to be the only reality that defines nature” (p. 189). Christian theology is “incompatible ... with post-nineteenth century empiricist and rationalist accounts of the knowledge of nature” (p. 54). Tyson is not saying that Christian theology is incompatible with the findings of modern scientific method; he is saying that Christian theology is incompatible with reductionist-materialist interpretations of the findings of modern science.

Tyson calls the historical move of reductionist materialism supplanting Christian theology “the great reversal.” That is, Christian theology, which for centuries had been society’s public “first truth,” came to be displaced by reductionist materialism as society’s new “first truth,” rendering Christian theology private “second truth.” Which brings us to the issue that provides Tyson’s central concern: Christians in the field of “religion-and-science” today often succumb to this nineteenth-century reversal by “overlapping” the reductionist-materialist interpretations of modern science with doctrinal categories of Christian faith—but they do so in a way that concedes first truth to reductionist materialism, thereby compromising creedal Christian faith. In effect, Tyson’s objective is to reverse this reversal in theology today.

The central (indeed only) exhibit in Tyson’s account of how the great reversal has infiltrated Christian theology is the doctrine of the historical Fall of humanity and creation, for there are Christian theologians and scientists who, acceding to this reversal,

deny a historical Fall. Let us call such persons “overlappers.”¹ Their rationale arises from the findings of science—that the universe, including its biological processes and hominid history, has always been a place of violence, destruction, and death. Consequently, there has never been an Edenic or nonviolent state, whether for humanity or for the universe as a whole, and thus no historical Adamic or cosmic Fall from an Edenic state. It should be noted that this does not predetermine the historicity of Adam and Eve: as seen in the pages of this journal, some overlappers argue for some form of historic Adam and Eve in the history of humanity, while others argue against their historicity.

This is a topic of considerable interest to many ASA members, whether in the pages of *PSCF* or in conference conversations. Within the ASA are those who, such as Joshua Swamidass, want to retain a historical Adam and Eve, and thus a historical Fall,² while there are others, such as George Murphy, who hold that “there is little to be gained by continuing to insist on a ‘historical Adam’”³ (or a historical Fall of Adam). Tyson believes, though, that there is much of critical importance to Christian faith that is sacrificed in denying a historical Fall (the specifics of which we will see further below).

Nonetheless, Tyson believes that truth is a unity; thus, science should indeed be integrated with faith, but the direction of integration is critical. The denial of a historical Fall amounts to doing theology as “religion-within-science,” which is the method of the overlappers but which compromises creedal Christian Faith. Tyson rejects this in favor of integration through “science-within-religion,” for this retains Christian faith as first truth. But then, *how* should we apply science-within-religion (or, more precisely, science-within-faith), according to Tyson?

His first step is to critique reductionist materialism. He argues that natural things (the universe, rocks, puppies) possess both physical and metaphysical properties, but reductionism fallaciously removes, indeed denies, nature’s metaphysical properties (particularly, essence, meaning, purpose, aesthetics, value, and wisdom). So, we need a Christian framework by which to reattach metaphysics to nature as understood by the investigative methods of modern science.

To this end, Tyson proposes using Plato’s notion of “Awareness” as our fundamental epistemological

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category; then, within awareness, he proposes separate subcategories of *knowledge* and *understanding*. He further subdivides these, to produce the following four-tier framework by which to reintegrate the metaphysical with the physical:

High Understanding – Essential illumination
(wisdom and true/ultimate meaning)

High Knowledge – Rational illumination
(mathematics, quantification, logic)

Low Understanding – Existential illumination
(belief, theory [including scientific theory], myth)

Low Knowledge – Empirical illumination
(the functional reductionist findings of science)⁴

This four-part hierarchy, or “integrative zone,” provides Tyson’s central proposal for how to integrate Christian belief with the findings and theories of science. Within this hierarchy, reductionist science, “as practiced by modern scientists, will yield genuine epistemic light at the level of perception-dependent and mathematically reasoned truth” (p. 159). That is, reductionism can indeed yield genuine low and high knowledge; however, reductionism produces emaciated accounts of high and low understanding, leaving humanity greatly impoverished. For instance, low and high understandings get relegated to the private sphere, describing religious belief as “an infantile psychological need to believe such things” (p. 129), and rendering myth equivalent to fiction.

The mention of myth brings us to the central concept by which Tyson critiques the overlappers – namely, *mythos* – for “any unified lifeworld must have its guiding mythos” (p. 132). Tyson puts considerable effort into understanding the nature of myth, particularly through the work of Paul Ricoeur. A *mythos* may or may not be true. For instance, reductionism has its own *mythos*. Originating particularly with Thomas Huxley (d.1895), this *mythos* contends that enlightened scientific truth has broken away from superstitious theological oppression, that scientists are “brave seekers of truth,” whereas religious believers are hopelessly holding on to “vanishing pre-modern religious authorities” (pp. 157, 159). Nonetheless, “as is well understood by historians of science, Huxley’s origin myth has no correlations with the actual history of modern science” (p. 159) – yet this is a myth which has proved enormously successful.

In contrast, Christianity’s “true myth” is the Jesus story as God incarnate, crucified, resurrected, and ascended. Materialist-reductionist history, with its feeble capacity for high understandings, has, however, removed true myth from any sort of high understanding, fallaciously rendering “myth” a purely fictional category. Using Ricoeur’s analysis of myth-types, Tyson then identifies the *pro*-historical Fall position as an instance of humanity’s “mythos of the Fall,” and identifies the *anti*-historical Fall position as an instance of humanity’s “mythos of original violence” (because this parallels the scientific argument that the universe has always been violent). He then argues that the *mythos* of the Fall is necessarily the superior *mythos*, because “Adam and Eve and the fall in the garden of Eden are mythic truths for Christian theological epistemology” (p. 155).

How then does Tyson propose to reconcile this apparent discrepancy between Christian true myth, with its affirmation of a pre-lapsarian Eden, and the findings of science with regard to the continuous violent history of the universe and of *Homo sapiens*? Tyson says he does not know, and he does not feel the need to resolve the tension. His first truth is the biblical affirmation of a historical Fall:

I have no interest in weighing in on the details of how the truth claims of our present natural history knowledge-constructs, within a reductively naturalistic set of interpretive commitments, may or may not be compatible with truth claims of an orthodox Christian belief in the fall of both humanity and nature. (pp. 144–45)

As he also puts it,

I do not know how revealed myth relates to natural history and human historicity. On that plane, I am prepared to be firmly committed to *not* knowing rather than to assume Adam and Eve are historiographical and natural-history impossibilities. (p. 149, italics in original)

While this move to an intentional agnosticism is unexpected, at least to this reader, nonetheless “this lack of resolution should not be feared by Christians” (p. 156).

Tyson concludes with messages to two audiences. First, to reductionist materialists:

The “natural light” of the post-lapsarian human knower is an inherently inferior theoretical framework for natural knowledge compared with

knowledge that is theoretically integral with intrinsic, love-defined, grace-enabled empathetic and spiritually discerning Understanding. (p. 176)

But his ultimate message is directed to the overlappers, who should cease trying to adapt their theology to reductionist materialism as first truth and instead should “go on the front foot and reconfigure the interpretive lens of natural philosophy so that it is compatible with the first truths of Christian theology” (p. 176).

I will now comment on the many parts of his book that are to be appreciated, then move to discuss the parts about which I have concern.

Appreciation

The question of how to relate extra-theological knowledge claims (whether derived by rationality or the senses) to Christian belief is an ancient one. There is, for instance, the classic contrast between Tertullian, on the one hand (that “Jerusalem” [faith] has nothing to do with “Athens” [philosophy]), and Origen, on the other hand (with his blend of Christian faith and Neoplatonist philosophy); or there is the later contrast between Dominicans (with Aquinas’s high view of post-Fall rationality), Franciscans (Scotus and Ockham, with their more limited assessment of humanity’s inherent rational capacities), and Calvinists (with John Calvin’s low view of post-Fall rationality).

During the age of emerging natural philosophy (the early Scientific Revolution), Christians continued to wrestle with this issue. For instance, Francis Turretin (1623–1687) argued for a view similar to Tyson’s:

Theology ... is thus the judge and lord of all things, so that it judges concerning them and is itself judged by no other science; for all other disciplines must be examined according to [theology’s] criteria, so that whatever [the disciplines] have that is not consonant with theology is to be rejected.⁵

The similarity to Tyson is not surprising, though, because Tyson is trying to recover for today the Christian first truth epistemology of that period.⁶ Tyson is engaged in an important ancient Christian enterprise, one with which every generation needs to engage for its own times.

As already indicated, I find Tyson’s book helpful at many levels. For one, I think framing his task within

a Christian epistemology is correct: he gives a classical theistic justification of the general reliability of both our rationality and senses, tied to the nature of God; from this, the question of the place of science in Christian belief becomes a category within “Christian epistemology.” This, however, is just another way of saying “the doctrine of Knowledge,” and I prefer to use this term (rather than “Christian epistemology”) simply to keep our understanding of epistemology accountable to the whole Christian doctrinal system. Nonetheless, Tyson’s use of “awareness” to distinguish, yet integrate, both knowledge and understanding prompts me to think that maybe Christian theology should change “the doctrine of Knowledge” to “the doctrine of Awareness.”

Then he provides his categories of first truth and second truth (perhaps inspired by Aristotle), which I find helpful for identifying and clarifying patterns of epistemic normativity: naming which concepts should be interpretively normative over other concepts. The actual content of Christian first truth is a matter we will return to below; nonetheless, the terms are heuristically helpful.

I also find very helpful Tyson’s account of how the two truths came to be reversed. The story is, as he notes, far more complex than the overview he provides. Countless books have been written on the historical development of Western epistemology since the Scientific Revolution, although, in terms of the process Tyson calls “the great reversal,” Charles Taylor’s *A Secular Age* has set the standard.⁷ For the wider Christian community, however, life does not provide time to digest many of these works, let alone Taylor’s massive volume, so providing an accessible rendition of this history is a valuable service to the Christian community.

There are quibbles one could make with Tyson’s telling of the story, but no history is exhaustive, and his account is well told. Indeed, I think it is important for all Christians in academia to have a basic grasp of this history, of how we got to where we are today. Naming this history helps us recognize that materialism is itself historically contingent; and naming materialism’s own mythos serves to mythologize materialism precisely in order to then demythologize it—by exposing materialism’s own contingency and provisionality, thereby removing the mythic aura of unassailability that enshrouds it.

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Following from Tyson's historical account of the great reversal, I also find helpful his retrieval of the Medieval theological principle (nominalism aside) that every part of creation possesses both physical and metaphysical properties; therefore, to truly understand any part of creation requires understanding the totality of its physical and metaphysical properties. There are, of course, distinctive methodologies for understanding physical versus metaphysical properties. Philosophical description of metaphysical categories can get quite complex (including such categories as causation, change, existence/essence, possibility/necessity, freedom/determination, wholes/parts, time, and so forth). Tyson, however, seems concerned with a narrower range of metaphysical properties: in particular, he names essence, meaning, purpose, aesthetics, value, and wisdom.

Regardless, the consequence of materialism removing such categories has been to atrophy both low and high understanding. This is seen in reductionism's instrumentalization and exploitation of nature, as well as in "scientists, academics, and policy makers often having no educated expertise in the terrains native to understanding" (p. 160). Consequently (and here is one of my favorite comments in the whole book), "We may have advanced beyond the Greeks in travel technology, from horses and wagons to jets, but we have not advanced beyond the Greeks in wisdom" (p. 170). For a marvelous work on this theme, I highly commend *Faith and Wisdom in Science*, by Christian physicist Tom McLeish.⁸ I think, though, it would have been helpful if Tyson had named other harmful consequences from the removal of metaphysics. Further examples would significantly help readers, especially nontheologians, to understand the breadth of metaphysical reductionism's harm, and thus strengthened the overall importance of Tyson's project.

I also find Tyson's distinction between metaphysical reduction and functional reduction helpful. Tyson describes that part of the scientific task that Christians can share with materialists, namely, common-grace knowledge of nature:⁹

The notion of reductive physical reality can be seen as a useful and partially truth-revealing abstraction. As God's creation, and as defined by Logos-infused natural "laws," truths about nature can indeed be grasped by viewing creation through

the abstraction of a reductively physical lens. (p. 69; italics in original)

I see this as helpful not only on its own terms, but for a reason Tyson does not mention—namely, for discussions of whether Christians in the sciences should use the term "methodological naturalism."

This issue has been the source of previous discussion in this journal.¹⁰ In contrast to these earlier *PSCF* contributions, Andrew Torrance argues that Christians should *not* use the term "methodological naturalism." Torrance (whose interlocutors include the earlier *PSCF* contributors) contends that the Christian's "scientific voice is inseparable from her faithful voice because she is committed to the pursuit of truth—truth that includes the nature and purposes of the Creator as well as the nature and purposiveness of the created."¹¹ To use "methodological naturalism" to describe how she does science risks conveying, even if unintended, a naturalist (materialist) interpretation of the object being studied. Moreover, the term should also be avoided, "lest she allow herself to become caught up in a culture that seeks to silence her discourse and blind her to what she has been given to recognize [by God]."¹² Similarly, Robert Larmer has recently argued that the term "exacts ... questionable epistemological [and] metaphysical costs."¹³

To put this in Tyson's terms, for a Christian scientist to say they use methodological naturalism is to describe their task in terms set by materialist first truth, which inevitably carries a metaphysical value, namely that any object studied by methodological naturalism possesses no metaphysical properties. Then what terminology should Christians use? One possibility would be to replace "methodological naturalism" with Tyson's "abstractive functional reductionism." Nonetheless, one reviewer of this article (in earlier form) commented, "If one is seeking alternatives to the elocution 'methodological naturalism,' why not just stick with Tyson's 'natural science inquiry'? Because that's all methodological naturalism is." Within the back-and-forth of this terminological debate, to my ears this suggestion, "natural science inquiry," conveys with an attractive simplicity the desired sense of the scientific task undertaken with metaphysical neutrality.

Tyson's four-tier "integrative zone" is his central conceptual offering in the book. The high/low

understanding/knowledge distinctions are very helpful for alerting us to robust awareness of the different dimensions of Awareness. This prompts our attention to explore what it means for each of the four tiers to be integrated into the task of doing science. Indeed, Christians should make the case to materialists that nature possesses metaphysical properties. In this regard, Tyson makes an important point that how we conceive of science is socially constructed. This has been a standard observation in some secular academic circles for several decades.¹⁴ Nonetheless, it is a principle often forgotten, and helpfully reiterated by Tyson, that,

Science is not a natural object in the world that can be defined; rather, it is an ever-changing, historically situated, and culturally, philosophically, linguistically, and politically embedded human activity ... [E]very way we have of knowing nature is in fact embedded in human culture and in our distinctive practices of living in the natural world. So, there is no reason why we should not do science differently. We can change our science. (pp. 90, 93)

The reason to change our science (that is, to change our reductionist-materialist presuppositions and interpretations of the findings of science) is precisely to recognize that nature possesses both physical and metaphysical properties. Nonetheless, Tyson recognizes that this will be an uphill battle with materialists, which he discusses in his final chapter.

Finally, I like Tyson's proposal for "ecclesially embedded intellectual communities, [which] could do science as integrated with the theoretical higher-wisdom insights of their religious traditions" (p. 173). To my ears, this sounds continuous with a comment from Barth: "The Christian can come to see the natural sciences as a discipline and vocation that is most at home in the life of the church—the community whose movements seek to track the fundamental reality of things."¹⁵ I quite like this vision, though the cost of labs and equipment is so exorbitant, often many millions of dollars, I don't foresee churches making these sorts of expenditures, so I'm not sure what this would look like in practice. But I think it's an intriguing vision worthy of further exploration.

Constructive Critique

We come now to discuss what I see as the problematic portions of the book. I begin with the less

substantive matters, simply to make the book's ideas more accessible. Then I move to more substantive comments.

Stylistic matters

As earlier mentioned, the book is principally aimed at theologians, but Tyson does try to make the book accessible to nontheologians. Beginning with chapter 7, however, the book becomes much more complex and difficult to follow. Looking at the book through the eyes of nontheologically trained readers, the material in section 7.5 ("Distinguishing and Integrating Natural Light and Divine Light," where he employs both medieval and Platonic ideas) and section 7.7 ("Ockham's Pincer") would particularly be a struggle. I think many readers would find it more helpful had Tyson simply presented his own four-tier framework (or "integrative zone") in chapter 7, and then moved his description of how he arrived at his framework from medieval and Platonic ideas into an appendix.¹⁶

Then I found the in-depth discussion of myth (sections 8.3–8.6) laborious. I have no problem with Tyson employing the mythos concept, and I understand why he provides this discussion (more below). Nonetheless, this was a section in which it was hard to see where the discussion was going; it could have used more cues to assist the reader—indeed, in my view the whole discussion of mythos could have been much more succinct. Moreover, the problem of seeing where the discussion was going remained throughout the latter chapters. Tyson is aiming the book at a readership that includes those who would benefit from a glossary, that is, those who are not used to reading at the philosophical level of Tyson's discussion. This readership would also benefit significantly from more transitional phrases to help them follow along, such as, "To recall what was said earlier in section 5.3 ..."; or "To briefly summarize this part of the discussion so far ..."; or "Here's where we are going with this ..."

As well, I found some chapter and section titles unhelpful. Chapter and section titles set up the reader to expect the discussion to go in a certain direction, yet in some cases, it wasn't readily apparent to me how the subsequent discussion followed from the title. So, at times I found myself having to work to make the connection in order to feel I was accurately following the direction of his discussion.

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I would add that in chapter 7, I found myself frustrated with his use of Greek letters (α , β , γ , δ) and Roman numerals (I, II) to identify particular categories in his framework/zone. Not that I have any inherent problem with Roman numerals or the first four letters of the Greek alphabet, but through the course of the discussion one has to remember which awareness category is assigned to which numeral or letter. Adjectival labels (such as “low knowledge” or “high understanding”) are much easier for the reader to retain, and exclusive use of adjectival labels would have made this already-challenging chapter easier to follow. Tyson may object that ameliorating some of these concerns would have made the book somewhat pedantic. Perhaps so, for trained theologians, but not, I feel, for those outside the theological guild, such as practicing scientists.

We come then to Tyson's final chapter, “Recovering an Integrative Zone.” Unfortunately, this chapter quickly became quite confusing for me as the chapter topics weren't making sense to me,¹⁷ and it took me some time to figure out the reason. In his final chapter, Tyson expands the scope of what he means by “integrative zone.” I would describe his earlier use of the phrase in chapter 7 as a *conceptual* zone, but in the final chapter (chapter 9), he turns to discuss what I would call a *cultural-institutional* zone—how to recover a place for equal consideration of Christian belief as a first truth within today's wider scientific world, including within educational institutions. Once this change in scope is recognized, the chapter topics fall into place. (Those interested in reading Tyson's book may find my 5,000-word summary as a helpful orientation before plunging into the book itself.¹⁸)

Finally, I think readers would be significantly aided if Tyson had engaged, or at least referenced, the names and works of a wider range of contemporary figures. Tyson engages in any depth with only Plato, Aristotle, Aquinas, Augustine, and Ricoeur—only Ricoeur is not ancient. His critique, however, is explicitly directed at contemporary overlappers, yet he names only Polkinghorne plus “the Faraday Institute at Cambridge, and the work of ISCAST in Melbourne” (p. 84). The reader is left to guess to whom else he is addressing his critique—perhaps to McGrath, Deane-Drummond, Coakley, Barrett, or van Huyssteen? Although I agree with his Christian epistemology as far as it goes, it would have been enriched by engaging with other impor-

tant recent figures, such as T.F. Torrance.¹⁹ Engaging with a wider range of contemporary, or recent, figures would help readers more fully understand the content and breadth of the implications of Tyson's proposal.

The nature of first truth

We come now to the parts of Tyson's proposal that I found problematic. While I find the notion of first and second truths heuristically helpful, it seems to me that Tyson's application of them doesn't work. This is *not* to say they *can't* work—in fact, I share his direction of concern.²⁰ It's just that I don't think his method of getting there works.

How he identifies the content of first truth is problematic. He employs several different descriptions, each of which provides a different scope of content included in Christian first truth, the effect of which is to introduce unworkable ambiguities. Early in the book, he uses the terms “Christian creedal theology” and “Christian theology” to describe “first truth discourse” (pp. 4, 28) without defining either of them, but seeming to assume they are equivalents. This, though, raises the first ambiguity, for there is much in Christian theology that is not in the Nicene Creed, so these do not appear to be the same thing at all. “Christian creedal theology” seems to imply theology deriving just from the Nicene Creed, which seems considerably narrower in scope than “Christian theology,” the latter implying the whole panoply of Christian doctrinal theology.

He also leaves undefined the question of who makes the decision for what counts as falling within the scope of either “creedal theology” or “Christian theology.” In the latter case, for instance, *whose* articulation of full Christian doctrine counts? Melancthon's one-volume *Loci Communes*? Francis Turretin's three-volume, 2,000-page opus? The 94-page *Christianity. Fundamental Teachings* recently published by the Christian churches in Turkey?²¹ There are massive differences here in the content of what counts as “Christian theology.” In effect, the concepts “Christian creedal theology” and “Christian theology” are simply too imprecise as guides for the purpose Tyson desires.

The ambiguities do not stop there, however. He adds a “minimal starting point” for Christian theology, namely five Christological truth-commitments from “Nicene orthodoxy”—the historical person of Jesus

as God incarnate, born of a virgin, crucified and died under Pontius Pilate, physically risen from the dead, and ascended to heaven. He calls these five beliefs “core doctrinal belief commitments” (p. 12). Note that this core is not the whole of the Nicene Creed, just the Christology of the creed. Yet he also speaks of “the primary interpretive commitments of Christian theology,” in which he describes God’s nature and relation to creation (though he does not name or discuss any other doctrines within this discussion of “primary commitments”). So, the Christology of the creed is “core doctrine” and the doctrine of God and God’s relationship to creation is “primary interpretive commitment.”

Tyson doesn’t indicate what difference it makes that some beliefs within first truth discourse have the status of being “core,” whereas other beliefs do not. Presumably, it must make some difference (otherwise why bother assigning “core” status to some doctrines?), but since he doesn’t actually identify what the importance of being “core” is within either creedal or Christian doctrine, its function as core seems empty. Then several chapters later, Tyson identifies the Nicene Creed as a whole, not just its five-point Christology, as the criterion (“canon” and “rule”) for orthodox faith (p. 92).

Then, we come to yet a further ambiguity, one between his terms “first truth” and “first truth *discourse*.” The former sounds to my ears more precise, as if a fixed set of propositions or doctrines, whereas “first truth *discourse*” sounds to me intentionally more fluid—discourse conveys a sense of participants discussing possibilities around a topic, not setting boundaries. Indeed, I see no way to use “first truth” and “first truth discourse” synonymously. Discourse needs to be actual discourse, or discussion, *about* first truth—discourse can never *constitute* first truth.

So, Tyson’s account of first truth turns out to be highly ambiguous, for its scope ranges from just the Nicene Creed as first truth (a very clear and limited set of propositions) to the whole range of Christian doctrine (though left undefined by Tyson). This massive breadth of scope just renders the content of Tyson’s “first truth” unworkable. Tyson’s task here, of doctrinal boundary setting, is an ancient one that the church has wrestled with throughout its history, but I don’t see that his “first truth” proposal has advanced this effort.

The Fall and hermeneutics

To recall, the failure of overlappers to hold to a historical Fall is Tyson’s central example of doctrinal acquiescence to science as first truth, for he says much stands or falls on this doctrine:

[I]t is clear the Edenic myth cannot be meaningfully extracted [removed] from traditional and creedally orthodox Christian understandings of knowledge, as the category of the Fall is not only of basic soteriological significance but also of basic significance to Christian theology. (p. 103)

He later elaborates on this:

If evil—at cosmic (devil), natural (death), and human (sin) levels—cannot be understood as exogenous [originating externally] to reality and as entering into the world in history ... then the entire narrative of Christian salvation is profoundly incoherent ... The truth of an Adamic Fall is [not] an optional component of a genuinely Christian understanding of cosmic meaning and the narrative arc of biblical salvation history. (p. 144)

Overlappers could argue, however, that Tyson overplays the importance of a historical Fall for protecting cosmic meaning, salvation history, and Christian epistemology. For even without a historical Fall, one’s doctrinal system can include individual sin (people are still considered “fallen” in the sense of still rebelling against God), and it can include the same cosmic meaning, the same narrative arc of biblical salvation history on God’s part, and the same theological epistemology. What would indeed change is one’s account of biblical hermeneutics—how one interprets Genesis 1–3 and Romans 5:12–17. Remarkably, though, Tyson never engages in hermeneutical discussion. He makes just one hermeneutical comment, that the overlappers succumb to “the eighteenth century’s historicization of biblical studies and its de-biblicizing trajectories in deist rationalism” (p. 103).

This, however, does not account for the overlappers’ actual argument—that science itself shows a history of violence throughout the history of the universe and of humanity. Overlappers can readily argue that there is no inconsistency in holding the creed as first truth *and* holding to a nonhistorical Fall. This combination can still fully include the following: God’s saving actions throughout Israelite history; God’s saving action in the incarnation, resurrection,

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and ascension of Jesus; the sanctifying work of the Holy Spirit; and the Christian eschatological vision for the second coming of Christ and a new creation. In effect, the consequences of a nonhistorical Fall are not “dire” as Tyson claims—indeed, it could be argued that the consequences are very positive for the task of faith seeking understanding, and for the persuasiveness of Christian faith in a scientific age.

The mythos of the Fall

In the face of the consequences of a nonhistorical Fall, how does Tyson respond? The usual response is hermeneutical, by discussing interpretive principles for the texts from Genesis 3 and Romans 5. But Tyson does not discuss scripture. Instead, his means of critique is to deploy the concept of *mythos*. This does come, at least to this reader, as a surprise—*mythos* is not a usual concept to employ as an argument against one's theological interlocutors. This could explain, though, why Tyson expands his notion of “first truth” to “first truth *discourse*,” because “discourse” provides sufficient flexibility (or ambiguity) in his definition of “first truth” to import the concept of *mythos* as his means to protect a historical Fall—that the *mythos* of the Fall is superior to the *mythos* of original violence.

Overlappers will have at least two responses. First, as earlier observed, Tyson draws excessively dire implications that just don't follow. Here we can note one particularly egregious example, his comment that “once Western history and Christian myth become dissociated, that is, in fact, a very complete destruction of Christian theology” (p. 142). Really? Such a comment simply dismisses the substantial history of Asian and African theology produced apart from Western history. Despite his many comments throughout the book to displace Western hubris in light of indigenous ways of knowing, this comment sounds like just the sort of Eurocentric comment that elsewhere he is wanting to displace. But as a rhetorical flourish, it certainly conveys the sense of dire consequences he wants to convey. Overlappers are, however, unlikely to be persuaded.

Second, overlappers will find his categorization of them within the “myth of original violence” fallacious. While overlappers do contend that the eternal violence portion of the scientific story means there has never been an Edenic, nonviolent period in cosmic or human history, this does not mean that

overlappers can be categorized by the *mythos* of eternal violence. By forcing this particular scientific claim (that the universe, the world, and humanity have always been violent) into the constraints of the “myth of original violence,” Tyson misrepresents the scientific story held by overlappers: that is, in the story of the universe (including evolutionary biology), original violence is interwoven with equally original creativity, emergent complexity, cooperation, and beauty. Indeed, God has declared all this “very good.” To force this whole story into the box of being a “myth of original violence” is to seriously misrepresent overlappers by labelling their multidimensional story by just one of its dimensions.²²

In place of being categorized in this way, overlappers may well offer an alternate account of *mythos* as true myth, beginning from the observation that truth is as equally conveyed by figurative language as by literal language. We can recall that, on at least two occasions, Jesus corrected people for taking his language literally instead of figuratively.²³ That is, Jesus chose at times to use figurative rather than literal language to convey important truths. This allows us to distinguish between “figurative true myth” and “literal true myth,” from which overlappers can argue that the Fall should be understood as “figurative true myth” rather than “literal true myth”—a possibility which Tyson doesn't address. In short, I don't see overlappers being convinced by Tyson's “inferior/superior *mythos*” argument.

Tyson's account of integration

What, then, is Tyson's methodology? It is, as is mine, one of integration. We both agree with Aquinas that truth must be a unity, and so, “In some way, Christian theology and a credible knowledge of the natural world must be capable of integration, or else one (or both) of them must be false” (p. 87; cf also p. 109).

Given that Tyson does not like the overlappers' proposal for how to integrate into Christian doctrine the findings of science with regard to the universe's eternal history of violence and destruction, then what is his proposal? Given his long discussion of the four-tier “integrative zone,” one assumes he will explicitly apply this to the question. As it turns out, however, he intentionally *opts out* of demonstrating his method of integration, for he outright rejects integration in this case.

His rationale for this unexpected move is agnosticism combined with indifference. He states,

I have no interest in weighing in on the details of how the truth claims of our present natural history knowledge-constructs, within a reductively naturalistic set of interpretive commitments, may or may not be compatible with truth claims of an orthodox Christian belief in the fall of both humanity and nature. (pp. 144–45)

A few pages later he repeats the point this way:

So the fact that the fall must be historically and cosmologically impossible to materialistically reductive, naturalistically theorized science should be of no particular concern to Christians. (p. 154)

In other words, the claim that both the universe and humanity have always been violent is a product of materialism's metaphysical reductionism.

I am not opposed to saying, "Beyond here lies mystery because we see through a glass darkly." To illustrate this, we could cite Polkinghorne regarding the new Creation and scientific prognostication for the physical future of the universe:

It is God's steadfast love that is the only ground of a true and everlasting hope ...²⁴

[W]hat is ultimate is not physical process but the will and purpose of God the Creator. God's final intentions will be no more frustrated by cosmic death on a timescale of tens of billions of years than they are by human death on a timescale of tens of years. The ultimate future does not belong to scientific extrapolation but to divine faithfulness.²⁵

Here Polkinghorne implies an agnosticism about *how* the long-term projections of science (about the universe's future death by expansion or by contraction) and God's future New Creation will be managed by God. In effect, Polkinghorne's theology moves from attempted explanation to agnosticism, and thus to simple affirmation of God's faithfulness. But Polkinghorne invokes his agnosticism after writing a whole book exploring the topic. That is, Polkinghorne does not invoke his agnosticism prematurely, whereas I would argue that Tyson does.

The reason is that, in my view, Tyson makes a category mistake. Present-day observations of constant destruction in the universe generally, along with continuous violence and death in biology/zoology, are instances of Tyson's low-knowledge/empirical-illumination category; and the logic that deduces that

these processes have always been part of the universe (and of our planet, and of humanity) is an instance of his high-knowledge/rational(formal)-illumination category. Together these are *functionally* reductionist, not metaphysically reductionist, observations. That is, they are just the sort of common-grace, abstractive functional-reductive interpretations that Tyson affirms as providing useful and partially truth-revealing abstractions acceptable to Christians. Additionally, we recall his statement that "Christian theology and a credible knowledge of the natural world must be capable of integration" (p. 87). Well, the eternal violence of the universe (including in biology and by *Homo sapiens*) is as credible a part of knowledge of the natural world as one can find.

So, Tyson's decision to abstain seems inconsistent to me. Consequently, the task of integration, of seeking to understand how these pieces of low and high knowledge fit with the biblical story of the Fall, remains in place. Yes, the task of integration in this case is difficult, but I would argue it is no more qualitatively or substantively difficult than all the other sorts of complex questions that theologians address. As far as I can see, invoking agnosticism here means invoking agnosticism in countless other matters too, leaving the task of "faith seeking understanding" significantly atrophied. To take a parallel example from science, general relativity and quantum mechanics are both highly successful theories that have been tested and substantiated in countless ways. Every physicist believes they are both true—and yet the theories continue to contradict each other in significant ways. Nonetheless, despite this being such a perplexing problem, physicists don't abandon the problem, they continue to work hard to solve it. So, likewise, for the role of theologians when it comes to apparently contradictory perspectives in the Book of Nature and the Book of Scripture—our job is to continue seeking to understand how they belong together, even if we have to hold our proposals lightly.

Mythos and Plato as test cases

Tyson offers no other explicit test case by which to apply his four-tier integrative zone. He has, however, provided us with two implicit case studies: his use of "awareness" from Plato and "mythos" from anthropology. Surprisingly, Tyson does not identify either of these as examples of integration, yet that is precisely what they are. Unfortunately,

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though, he fails to apply his creedal or creedal discourse test to either of them. In the case of Plato, and also Aristotle (whom Tyson also uses, though less centrally than Plato), Tyson does critically filter their ideas through Augustine and Aquinas. This, though, is not the same as testing Plato and Aristotle against the Nicene Creed or creedal theology – this is, rather, testing them against the thought of important Christian theologians. It is good to test Plato and Aristotle against Augustine and Aquinas, but within Tyson's schema this implies that Tyson is treating Aquinas and Augustine, and their respective corpuses, as equivalent to "first truth discourse." But if so, this just illustrates my earlier point that the category "first truth discourse," as a test for doctrinal acceptability, is unworkably large. And why stop with Aquinas and Augustine? Again we see the unsolvable problem of *which* theologians get counted as "in" or "out" as doctrine-defining authorities.

In the case of mythos, Tyson's justification for integrating mythos into his doctrine of knowledge is even more problematic and is limited to just two sentences: "any unified lifeworld must have its guiding mythos" (p. 132); and "mythic archetypes are a fundamental social reality" (p. 136). That's it. Yet, in light of 1 Timothy 4:7 ("godless myths"), many Christians would be unpersuaded that these two brief sentences succeed in justifying his use of "true mythos" as acceptable Christian language. They could contend that any use of "myth" attached to "truth" would potentially compromise the "truth" attached to it (similarly to Torrance's suggestion that Christians should avoid the term "methodological naturalism" because the word "naturalism" carries potential risk of theological compromise).

To be clear, I have no problem with using conceptual resources such as these from outside Christian faith, for Christian faith has always drawn – discerningly, critically, and provisionally – from extra-Christian conceptual schemes. The problem is that Tyson fails to meet his own methodological criterion – there is no discussion at all as to whether these extra-Christian ideas ("Awareness" and "mythos") fit with creedal first truth. Perhaps in Tyson's mind he believes they would pass the creedal test, yet for a book proposing that a theology of science requires first testing extra-Christian concepts against creedal first truth, or even "creedal theology," it is surprising and unfortunate that he fails to apply his own criterion.

In summary, when it comes to demonstrating his integration theory in practice, Tyson completely abstains from engaging with the one subject he explicitly raises (the Fall vis-à-vis current science). Then, in the cases of integration which he does engage in practice (mythos and Plato's awareness), he does not meet his own standard of first testing them against creedal first truth. Tyson offers no other examples by which to illustrate the application of his four-tier "integrative zone"; consequently, his "integrative zone" proposal ends up feeling theoretically potent but unclear, and disappointing, in actual application.

Antireductionist materialism

It is time to move our discussion from Christian doctrine to the challenge of materialism. Here I have a large concern: Tyson engages with materialist science only in its reductionist versions, but never identifies or discusses antireductionist materialism.²⁶ There have long been materialists who have recognized problems with reductionism and its cognate concept positivism, and this does seem to me a significant omission in the formation of a theology of science.

An early example of antireductionism is found in the *Einfühlung* tradition of J.G. Herder (1744–1803), which seeks understanding of cultures through *Einfühlung* – "feeling one's way into" the culture being studied, to understand that culture's values, relational patterns, hopes, rituals, relationship with nature, cosmology, and the like.

Much more influential than Herder, however, has been the antireductionism of the *Verstehen* tradition of sociology, stemming from Max Weber (1864–1920). This tradition distinguishes between *Erläuterung* (explanation) and *Verstehen* (understanding) – very similar to the distinction Tyson himself makes between knowledge and understanding. In the *Verstehen* tradition, "understanding" refers to the task of understanding social phenomena from the actor's point of view, treating the actor as a subject, rather than merely as an object of observation, thereby understanding a person's meanings, purposes, values, feelings, ultimate beliefs, and so forth that lie behind their actions.²⁷

In other words, the *Verstehen* and *Einfühlung* traditions recognize many of the types of properties that Tyson wants included in richer low and high

understandings. The *Verstehen* tradition has had a great influence on both sociology and anthropology, making those disciplines alert to issues of low and high understandings. Similar principles are also seen in the positive psychology movement of recent times, as well as in the many university programs today researching “human flourishing.” To pick one such example, the Greater Good Science Center, at the University of California, Berkeley, researches and promotes such human properties as altruism, awe, compassion, forgiveness, purpose, and social connection.²⁸

These examples are from the social sciences, because Tyson considers social sciences to be as reductionist as the natural sciences. Nonetheless, antireductionism exists in the natural sciences too, at both applied and theoretical levels. At the applied level, one can point to, for instance, the Oxford University TORCH/Shaping Destiny Project, which “brings together the fields of molecular biology and the arts.”²⁹ Or, for another example, in 2017 the University of York, England, created a Chair in Natural Philosophy, in which the Chair spends 60% of their time working in physics and 40% in humanities, explicitly to bring the two fields together in mutual interaction.³⁰

At the theoretical level, antireductionism arises in both the social and natural sciences through the concepts of *emergence* and *holism*.³¹ These two closely related perspectives arose in the second half of the last century out of concern that the hyper-individualist methods of reductionist science do not account for wholes. *Emergence* is the idea that the physics of the universe at the big bang provided the content and processes for ever-greater complexity to emerge within the universe, bringing about the emergence of complex chemical, geological, and biological structures, right up to the immense complexity of the human brain and human societies. *Holism* is the idea that an object or group is greater than the sum of its parts, so that the parts interact and produce something more than what the individual parts can achieve on their own. It can be seen that the two concepts are closely related—holism results from emergence, and then holism provides conditions for further emergence.

While emergence and holism are prominent ideas today, they are nonetheless controversial, dividing scientists and philosophers alike—both the natural and social sciences today are divided between reduc-

tionists and emergentists/holists. Regardless, my point is that emergentism/holism is a prominent form of antireductionist materialism, opening the way for richer low and high understandings within materialism. In turn, this opens the way for the considerable amount of writing that has been published in recent years by materialist scientists on the meaning of life.³² These writings do not carry the dour sense of meaning associated with the French existentialist philosophers Camus and Sartre. Rather, these are materialist accounts that point to hope, meaning, beauty, and goodness within the context of our place in a nonteleological universe. Unsurprisingly, holism contributes to anti-instrumentalist (i.e., pro-environment) views of nature, which are widely found among materialist scientists today.

All these are examples of materialists offering much richer low and high understandings than reductionists precisely because they take an antireductionist stance. Because these understandings do not include God or Christ or the Holy Spirit, they are not as robust as Tyson, or any of us as Christians, would want to see. Nonetheless, they do provide much fuller accounts of understanding than the reductionists.³³ From an antireductionist-materialist perspective, Paul Humphreys comments, in words that would warm Tyson’s heart, “Scientific *understanding* provides a far richer terrain than does scientific *explanation*, and the latter is best viewed as a vehicle to understanding rather than as an end in itself.”³⁴ In terms of religion, some antireductionists share with reductionists a desire to keep religion relegated to the private sphere, while other antireductionists, even if not religious themselves, see religion as contributing positively, at least on balance, to human well-being.

Why am I giving so much attention to antireductive perspectives in materialist science? For several reasons. For one, I think it is important that any theology of science provide an accurate account of the science about which it is theologizing. Of course, there will never be any perfect description of science—indeed, scientists and philosophers of science alike disagree on how to describe science. Nonetheless, we need to provide a defensibly comprehensive account. To write a theology of science that omits recognition of antireductionist materialism just seems too important an omission, for antireductionist materialism will unavoidably have implications for how we develop our theology of science.

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For another, failing to recognize antireductionism affects both discipleship and evangelism. When bare reductionism is the only form of meaning offered by materialists,³⁵ Christian faith and hope can look much more attractive. But in light of antireductionism and its accounts of human flourishing and meaning, as well as its anti-instrumentalist interpretation of nature, Christian faith and hope have much stronger competition for the existential hearts and rational minds of people (as if it weren't already hard enough when there was just reductionism on the scene). If we describe science in purely reductionist terms, and we frame our responses to materialism solely through the lens of reductionism, then we do not have the conceptual tools either to prepare our own members for how to respond Christianly when they encounter antireductionist views, or to present a persuasive apologetic to seekers who are already shaped by antireductionism.

I have attempted precisely this task, of addressing these antireductionist materialist challenges, in *Freedom All the Way Up: God and the Meaning of Life in a Scientific Age*. Christian scientists Andrew Briggs and Michael J. Reiss have also attempted this in their book *Human Flourishing: Scientific Insight and Spiritual Wisdom in Uncertain Times*.³⁶ Nonetheless, too few Christians are working to address antireductionism, the best side of materialism's face. But getting more Christians engaged in this requires recognizing that materialism today comes not only in its reductionist mode but also in an antireductionist mode.

Theology of Science

Let us now return to the big picture. To recall, the full title of Tyson's book is *A Christian Theology of Science: Reimagining a Theological Vision of Natural Theology*. To reiterate an earlier comment, Tyson is not writing a theology of creation; he is, rather, writing a theology of the knowledge of creation. Nonetheless, the book's title overpromises. This is the result of the problem that triggers his theology of science project, namely, a specific epistemological concern about a specific group of people (the overlappers) whom he thinks are in epistemological error. This particular epistemological concern gives Tyson a precise focus for discussion, but ends up constricting his use of both theology and science.

His anti-overlappers agenda makes his use of science too narrow. This is not just in the sense of

omitting antireductionism, but particularly, in the sense of focusing only on the *epistemology* of science. To repeat, his four-tier account of awareness, integrating low and high types of knowledge and understanding, is very helpful. In my view, though, a full theology of science would need to include other topics, such as a more comprehensive discussion of metaphysics. For instance, while the idea of "essence" is metaphysically essential for Tyson, current science is not supportive of the idea of essences—as, for example, in current philosophy of biology, where the concept of species was once considered an essentialist category but is now seen as very fluid (not due to postmodernism but rather due to advances in genetics). In the face of increasing anti-essentialism in science, a theology of science that employs "essence" needs to explain itself—not because it is bowing to materialism as first truth, but because it seeks to be understood and even persuasive. Moreover, while epistemology will obviously be a critical element within a theology of science, science is a complex human activity, and so a full theology of science needs to include attention to other important dimensions of science, including the sociology of science, the economics of science, the ethics of science, and science education.

Furthermore, Tyson's anti-overlappers agenda makes his use of theology too narrow. It is this agenda that leads him to employ the concept of first truth. This may be heuristically helpful for framing a response to the particular challenge of theological integrity in the science-and-faith context, but on its own, it is insufficient for a full-blown theology of science. A theology of science will potentially draw from systematic theology as a whole, from a larger portion of the full panoply of Christian doctrinal loci—creation, humanity, the Trinity, the church, salvation, redemption, mission, and so forth. At one point he does hint briefly at this need (for wider theological resources in the task of forming a theology of science), but he never raises this again; however, each of these loci will have implications for how we understand the tasks, methods, theorizing, sociology, and ethics of science. The content of creed, while central to the task, will not of itself achieve the theological richness of deploying a wider breadth of theological loci to the topic of science.

To give just one hint of this, the doctrine of revelation could draw on the ancient idea of the two books of revelation—scripture and nature. St. Augustine,

writing around 420 CE, provides an early version of this: “Some people, in order to discover God, read books. But there is a great book: the very appearance of created things. Look above you! Look below you! Note it. Read it.”³⁷ Surprisingly, to my mind, Tyson never discusses this ancient interpretive frame of the two books of revelation, but I believe it provides an alternative methodology to that of Tyson. In effect, the ancient two books concept treats both books as first truths, meaning that they should be mutually interpreting, not related hierarchically one above the other. As one reviewer of this article (in earlier form) put it, Tyson “privileges special revelation over creation revelation, which is like saying that we have to privilege one of God’s two revelations over the other rather than putting them in conversation with each other to learn as much as we can about God’s good creation” —or even to compose a comprehensive, integrated story.

Furthermore, incorporating the doctrine of revelation into his theology of science would also require Tyson to address the place of hermeneutics in his proposal, since he consistently steers clear of hermeneutical discussions. Indeed, I would suggest that the heart of the issue lies not in competing types of mythos, but rather in the hermeneutics of Genesis 1–3 and Romans 5. The ancient “two books of revelation” tradition allows “mutual interpretation” to be part of the discussion of these specific texts; this, of course, opens the interpretive door to the overlappers. In effect, overlap methodology (and the “two books” tradition) need not be only a matter of illegitimate “religion-within-science” subservience, but also be a matter of faithful “religion-with-science” discernment. Regardless, I expect that the mutual interpretation principle of the ancient “two books” tradition means that Tyson would reject the “two books” tradition, just as he rejects another ancient principle, nominalism. He persuades me with regard to the latter, but not the former.

Other doctrinal loci will contribute new angles to a theology of science. Regardless, my larger point here is that the book is mistitled, thereby somewhat misleading the reader about what to anticipate. My suggestion would be *Reimagining a Theological Vision of Natural Knowledge: Prolegomena to a Christian Theology of Science*. I think this would capture more accurately what the book is about.

Conclusion

I have recommended Tyson’s book to readers of this journal, indicating my own points of appreciation and critique. Here I would conclude with the words of Mark Mann: “[T]he scientific enterprise is in many ways sacred work, for it is the attempt to understand more fully the handiwork of God, and is in this way not unlike disciplined reading and discerning the Word of God in Holy Scripture.”³⁸ So, too, thinking about the relationship of faith to science is sacred work. Despite various differences Tyson and I may have, our commonalities are far deeper, and so we share in the privilege of this sacred work. ☀

Notes

¹“Autonomous overlap” is Tyson’s term for their method; “overlappers” is my term of convenience, not Tyson’s, for practitioners of this method.

²Joshua Swamidass, *The Genealogical Adam and Eve: The Surprising Science of Universal Ancestry* (Downers Grove, IL: IVP Academic, 2019).

³George L. Murphy, “The Twofold Character of Original Sin in the Real World,” *Perspectives on Science and Christian Faith* (hereafter PSCF) 73, no. 3 (2021): 153, <https://www.asa3.org/ASA/PSCF/2021/PSCF9-21Murphy.pdf>.

⁴I would, though, modify some of Tyson’s terminology. I don’t believe “Existential Illumination” is really the right term to capture the properties Tyson assigns to low understanding (belief, theory, myth); I would suggest that “Conceptual Illumination” would be better. Likewise, I don’t think “Rational Illumination” is the best choice to capture the properties of high knowledge, as the properties of low understanding (belief, theory, myth) are also highly rational; thus, I would replace “Rational Illumination” with “Formal Illumination,” as mathematics, statistics, and logic (the content of this level of illumination) are often described in academia as the formal sciences.

⁵Francis Turretin (François Turretini), *Institutio Theologiae Elencticae, Pars 1* (Geneva, Switzerland: Samvelem de Tovnes, 1679), 1, 6, 7. Cited by Karl Barth, *Church Dogmatics, Vol.1.1 The Doctrine of the Word of God*, ed. G. W. Bromiley and T. F. Torrance, trans. G. W. Bromiley, G. T. Thomson, and Harold Knight (London, UK: T&T Clark, 2009), 6. I have been unable to find this text in the English translation by G. M. Giger, though I have not sought the Tovnes edition to try to locate it through textual comparison.

⁶In his historical discussion, Tyson references a marvellous book of which I was previously unaware: John Henry, *Knowledge is Power: How Magic, the Government, and an Apocalyptic Vision Helped Francis Bacon to Create Modern Science* (London, UK: Icon, 2002). Henry recovers the critical role of faith for Bacon, which has long been denied by many historians. Henry also gives a wonderful, and surprising, explanation of what counted as “magic” back in the day, and why it played a central role for nearly all the early natural philosophers.

⁷Charles Taylor, *A Secular Age* (Cambridge, MA: Belknap Press, 2007).

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⁸Tom McLeish, *Faith and Wisdom in Science* (Oxford, UK: Oxford University Press, 2014).

⁹Tyson defines "common grace" as "Gifts of God given to all humanity, be they saints, sinners, pagans, atheists, or even Australians" (p. 184).

¹⁰Robert C. Bishop, "God and Methodological Naturalism in the Scientific Revolution and Beyond," *PSCF* 65, no. 1 (2013): 10–23, <https://www.asa3.org/ASA/PSCF/2013/PSCF3-13Bishop.pdf>; Kathryn Applegate, "A Defense of Methodological Naturalism," *PSCF* 65, no. 1 (2013): 37–45, <https://www.asa3.org/ASA/PSCF/2013/PSCF3-13Applegate.pdf>; and Harry Lee Poe and Chelsea Rose Mytyk, "From Scientific Method to Methodological Naturalism: The Evolution of an Idea" *PSCF* 59, no. 3 (2007): 213–18, <https://www.asa3.org/ASA/PSCF/2007/PSCF9-07Poe.pdf>.

¹¹Andrew B. Torrance, "Should a Christian Adopt Methodological Naturalism?," *Zygon* 52, no. 3 (2017): 719, <https://doi.org/10.1111/zygon.12363>.

¹²*Ibid.* Torrance engages with a line of other Christians on this topic—he specifically references C. Stephen Evans, Del Ratzsch, James K. A. Smith, Murray Rae, and Brad Gregory.

¹³Robert Larmer, "The Prohibitive Costs of Methodological Naturalism," in *Philosophia Christi* 24, no.1 (2022): 101–18, <https://doi.org/10.5840/pc20224110>.

¹⁴Paul Feyerabend is the classic figure here, but see also Nancy Cartwright, *A Philosopher Looks at Science* (New York: Cambridge University Press, 2022), chapter 2.

¹⁵George Hunsinger and Keith L. Johnson, *The Wiley Blackwell Companion to Karl Barth* (Hoboken, NJ: Wiley-Blackwell, 2019), 771.

¹⁶I recognize this problem precisely because this was a problem with my book *Freedom All the Way Up: God and the Meaning of Life in a Scientific Age* (Victoria, BC: Friesen, 2017). From the feedback I received after its publication, I should have provided a greatly simplified chapter 2 and moved the scientific-technical content of that chapter to an appendix. For those interested, that scientific content has since been revised and published as "God's *Agape*/Probability Design for the Universe," in *PSCF* 70, no. 3 (2018): 161–75, <https://www.asa3.org/ASA/PSCF/2018/PSCF9-18Barrigar.pdf>.

¹⁷Let me explain this confusion. Back in chapter 7, Tyson introduced the phrase "integrative zone" as the conceptual space where both knowledge and understanding exist and properly operate together, and in that same chapter he provides his four-tier proposal. In other words, by the end of chapter 7, the reader takes it that Tyson has recovered that integrative zone through his four-tier proposal. It is then confusing to arrive at his final chapter and find it titled "Recovering an Integrative Zone." I found myself thinking, "Hasn't he already recovered an integrative zone back in chapter 7? I guess not, or perhaps not sufficiently, otherwise he wouldn't be talking about it again. So, I presume in this chapter he is going to elaborate on the content of his four-tier proposal to complete the recovery." But then as I got into the chapter, the topics were about identifying problems with reductionist materialism ("Why hadn't he included this material in earlier chapters?") and about educational institutions ("Huh, what does this have to do with fleshing out his four-tier proposal?"). I couldn't put the section titles and discussions together with the chapter title.

¹⁸To receive this, please contact me at cjbarrigar@sympatico.ca.

¹⁹Importantly for their respective readings of history, Torrance views Duns Scotus as a hero for recovering contingency from Neoplatonism, but Tyson views Scotus along with Ockham as anti-heroes for their nominalism, which lead to Gassendian atomism and thus to contemporary reductionism.

²⁰Here I will give an example of where I do see "first truth" and "second truth" working heuristically in practice. When I have taught epistemology, I discuss in class the nature of truth and the diverse accounts of truth on offer in the philosophical literature (correspondence, coherence, deflationary, and so forth). Then I offer my "Christian first truth" account. In materialist philosophy, the concept of "truth" is associated with propositions (linguistic [sentences] or formal [symbolic logic]), and so the materialist offers an account of truth attached to linguistic or formal propositions. Then I observe that scripture first places truth not in a proposition but in a *person*, who is also the *Logos* who created creation—"I am the way, the truth, and the life" (John 14:6). This, though, seems like nonsense to materialists: how can a *person* be truth? My contention is that Jesus is the truth because his character, words, and actions are directly tied to God and thus are *trustworthy* and *reliable*. Consequently, truth is *having the property of reliability*. Propositions therefore possess truth only derivatively, because God has created propositions to be able to reflect the *divine* properties of reliability and trustworthiness. (Note also how well this fits with Tyson's affirmation that our minds have "truth-carrying power" because God has created them.) From this "Christian reliabilist" account of truth, the Christian can then engage with secular accounts of truth—including worthwhile conversation with materialists about propositional reliabilism.

²¹This volume is actually a remarkable document. Under the pressure of living together in an Islamic context and needing to provide a unified face to the nation, the following churches, composing the Joint Commission of Churches in Turkey, published this document together in 2017: The Association of Protestant Churches in Turkey, The Catholic Bishops Conference of Turkey, the Syriac Orthodox dioceses of Turkey, the Armenian Patriarchal Surrogate in Armenia, and the Ecumenical Patriarch of Constantinople. That they have come together to produce such a document, albeit motivated by persecution, is a remarkable achievement within the scope of Christian history.

²²Tyson rejects the mythos of original violence as Christian because of the moral consequences: "If we revert to this sort of cosmological outlook via a Hobbesian/Darwinian/Freudian naturalism, there cannot really be any such thing as a war crime, for violence, destruction, dominance, and death are primal and natural features of life and the human condition" (p. 140). Tyson is saying that these moral consequences apply to the overlappers because they fall within the mythos of original violence. But as indicated above, overlappers would reject the "original violence" category as their mythos, and thus reject these negative moral implications. Tyson also contends that for overlappers there can be no basis in the original goodness of creation, including of people, by which to ground the concept of human rights. The grounding of Christian human rights, however, should be in the doctrine of the

imago Dei, not in the original goodness of creation; the role of the latter is to show our responsibility to care properly for God's good creation. As well, because creation is good, and because people do rebel against God, the problem of evil remains for overlappers – it is not displaced for overlappers as Tyson contends.

²³When Jesus said, "Beware of the yeast of the Pharisees" (Matt. 16:6, 11–12), he had to correct his listeners that he wasn't literally meaning the actual biological, bread-raising yeast of the Pharisees; and when he said to Zacchaeus "You must be born again" (John 3), he corrected Zacchaeus's literal interpretation, that he had to be physically born a second time from his mother's womb.

²⁴John Polkinghorne, *The God of Hope and the End of the World* (New Haven, CT: Yale University Press, 2002), 113.

²⁵*Ibid.*, 12. Note that this comment meets Tyson's "Christian first truth" criterion, even though Polkinghorne is Tyson's primary exemplar of a theologian who compromises Christian first truth.

²⁶Sometimes the term "nonreductionist" is used in the literature. I would note that the terms "nonreductionism" and "antireductionism" are both partially fallacious from a Christian perspective, in that they still "reduce" God out of the picture.

²⁷See Michael Martin, *Verstehen: The Uses of Understanding in the Social Sciences* (New York: Routledge, 2000).

²⁸"What We Do," *Greater Good Magazine*, Greater Good Science Center at the University of California, Berkeley, accessed January 13, 2023, https://ggsc.berkeley.edu/what_we_do.

²⁹"Shaping Destiny," TORCH: The Oxford Research Centre in the Humanities, <https://torch.ox.ac.uk/shaping-destiny>.

³⁰University Appoints Professor Tom McLeish to a Chair in Natural Philosophy," University of York, November 16, 2017, <https://www.york.ac.uk/news-and-events/news/2017/research/mcleish-chair-york>; and personal email correspondence with the Chair, Tom McLeish, November 2022.

³¹See Patricia Palacios, *Emergence and Reduction in Physics* (New York: Cambridge University Press, 2022); and Mas-

simo Pigliucci, "Between Holism and Reductionism: A Philosophical Primer on Emergence," *Biological Journal of the Linnean Society* 112, no. 2 (2014): 261–67, <https://doi.org/10.1111/bij.12060>.

³²For an overview, see Laura A. King and Joshua A. Hicks, "The Science of Meaning in Life," *Annual Review of Psychology* 72 (2021): 561–84, <https://doi.org/10.1146/annurev-psych-072420-122921>. See also: physicist Brian Greene, *Until the End of Time: Mind, Matter, and Our Search for Meaning in an Evolving Universe* (New York: Vintage, 2021); and physicist Max Tegmark, *Life 3.0: Being Human in the Age of Artificial Intelligence* (New York: Vintage, 2018).

³³For an important example of a materialist social scientist building up from low knowledge to low understanding to high understanding, see Paul Thagard's three-volume series "Treatise on Mind and Society." The three titles (all 2019) are *Brain-Mind: From Neurons to Consciousness and Creativity*; *Mind-Society: From Brains to Social Sciences and Professions*; and *Natural Philosophy: From Social Brains to Knowledge, Reality, Morality, and Beauty* (New York: Oxford University Press).

³⁴Paul W. Humphreys, "Analytic versus Synthetic Understanding," in *Science, Explanation, & Rationality: Aspects of the Philosophy of Carl G. Hempel*, ed. James H. Fetzer (Oxford: Oxford University Press, 2000), 201.

³⁵See, for instance, "[D]eep down, we, like everything, are driven by purposeless decay," in Peter Atkins, *On Being: A Scientist's Exploration of the Great Questions of Existence* (New York: Oxford University Press, 2011), 20.

³⁶Andrew Briggs and Michael J. Reiss, *Human Flourishing: Scientific Insight and Spiritual Wisdom in Uncertain Times* (Oxford, UK: Oxford University Press, 2021).

³⁷Sermon 126.6 in the Angelo Mai collection, *Miscellanea Augustiniana* 1, ed. G. Moran (Rome, 1930), 355–68, cited in Vernon Bourke, trans. *The Essential Augustine* (Indianapolis, IN: Hackett, 1974), 123.

³⁸Mark H. Mann, "The Church Fathers and Two Books Theology," *BioLogos*, November 4, 2012, <https://biologos.org/articles/the-church-fathers-and-two-books-theology>.

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