

PERSPECTIVES on Science and Christian Faith

JOURNAL OF THE AMERICAN SCIENTIFIC AFFILIATION

In This Issue ...

Science and Theology as Gifts to the Church:
How Creation Allows Scientists and Theologians
to Work Together

Acts 17:26: God Made of *One [Blood]*—Not of *One Man*—
Every Ethnic Group of Humans

Theodicy and the Historical Adam:
Questioning a Central Assumption
Motivating Historicist Readings

*“The fear of the Lord
is the beginning of Wisdom.”*

Psalm 111:10

VOLUME 74, NUMBER 1

MARCH 2022

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Perspectives on Science and Christian Faith (USPS 28-3740, ISSN 0892-2675) is published quarterly by American Scientific Affiliation, 218 Boston St, Ste 208, Topsfield, MA 01983-2210. Periodicals postage paid at Topsfield, MA, and additional mailing office. POSTMASTER: Send address changes to: *Perspectives on Science and Christian Faith*, 218 Boston St, Ste 208, Topsfield, MA 01983-2210.

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4. While figures and diagrams may be embedded within the Word text file of the manuscript, authors are required to also send them as individual electronic files (JPG or PDF format). Figure captions should be provided as a list at the end of the manuscript text.

ARTICLES are major treatments of a particular subject relating science to a Christian position. Such papers should be at least 2,000 words but **not more than 8,000 words in length**, excluding endnotes. An abstract of 50–150 words and a list of 5–15 keywords are required and should be in both the text of the email submission and at the beginning of the attached essay.

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James C. Peterson

Why Anonymous Peer Review Is the Professional Standard

In each March issue, *Perspectives on Science and Christian Faith* publishes a list of scholars who have generously given authors and the journal peer review in roughly the year before. Quite intentionally, their names are not specifically attached to particular resulting articles, nor to essay titles that did not make it into the journal. We want to express appreciation for how they have shared their expertise without pay or other recognition, while keeping their particular dialogue with the journal and authors anonymous. This is to encourage a crucial step in providing the best possible quality to serve our readers. The ideas in each published article have stood on their own in a collegial dialogue where they could be challenged and tested without special status of acceptance or approbation because of who said them. *PSCF* is not a vanity press that publishes an article because of the professional credentials or association standing of an author. Neither does it screen out an argument because of who said it. The argument is separated from its writer so that it is evaluated only on its content.

Sometimes a reviewer or author will feel that they have, earlier, heard an argument or “recognized” a style from a particular individual and that only that person would write in that way. The piece may be highly idiosyncratic—but the editor will not confirm who the author of a proposed essay or peer review is, and there are many people in the world that seek to write for the journal. Only about one in three submissions eventually makes it to publication, and none without improving through revision. Nor should the essay author contact the possible review author to see if they wrote the review. The point at this stage is to deal with the arguments, not the personalities of past experiences—positive or negative.¹

Recently an objection was raised that said *PSCF* has not published a formal policy forbidding an author from trying to ferret out and confront a particular anonymous reviewer, and therefore authors have a right to do so. Well, *PSCF* has also not published policy against plagiarism, or misquoting, or making up references. These actions are so antithetical to the clear intentional process of the journal that

they should not have to be spelled out as inappropriate. The expectation that reviewers receiving anonymized essays to review, and authors receiving anonymized reviews as a result, to maintain anonymity, should not have to be stated as a legality, or repeatedly explained. Almost all peer-reviewed journals have always required this. There are statistics showing that more than 98% of peer-reviewed journals do not publish reviews and reviewer names.² There is good reason why they do not, and *PSCF* has not since its inception 74 years ago. Anonymous peer review is central to the very structure of how the journal is experienced by authors, reviewers, and readers.

In the ongoing effort to welcome and equip new authors, *PSCF* has gone beyond assuming standard professional expectations and the very structure of the process, to state and appreciate the method of *anonymous* peer review. This is clear in each March issue when expressing thanks to the prior year’s anonymous reviewers, inside the front cover of each issue, and at further length in an article in the *ASA’s God and Nature* entitled “Peering at Double-Blind Peer Review.” The standard process of anonymous peer review of anonymized essays is not a secret! Here is a section from that essay:

Reviewers are motivated to do incisive and fair critique because the system judges their essays too, and the editor will see their peer review alongside that of others. Reputation is hard to earn and easy to lose. Reviewers will not necessarily agree with the author’s conclusions, but they can articulate what would be needed for the most effective contribution. Naturally, sometimes they will disagree with each other as well, although it is quite striking how often there is a clear consensus in their independent critiques. Granted, no one reviewer catches everything. Individual reviewers will often spot concerns that other reviewers did not. The combination of multiple peer reviewers giving their best advice is a tremendous help to the editor, as well as to the author who is willing to improve her work. As the author rewrites the essay taking into account the suggestions of the reviewers, the editor decides when indeed the article has satisfied the comments in the critique, and standards to be

Acknowledgment

published. This triggers the type of letter I most enjoy writing: that the essay is clear, accurate, well-informed, and making an important contribution—and so will appear in the journal.³

If an essay does not make the cut to be published in *PSCF*, this in no way limits an author from publishing their arguments. On the contrary, hearing reviewer responses that are not laudatory is an opportunity for the author to foresee reader concerns; the author can then write more clearly and make better arguments. If the author feels that their essay would be better recognized by another journal, they can next offer it to other journals. That is the standard response to not being chosen for one journal's publication. No one's freedom to make their case has been compromised. Even when a journal decides not to publish the manuscript, the author can improve their essay on the next try from what was said in the anonymous peer review, at no charge to them. That is a gift.

If the author is not persuaded by a criticism from a reviewer, they can and no doubt will state so privately to the editor. They also can articulate, in any forum that will have them, that they have heard an objection to their work and this is their reply to it. Peer reviewers, who have freely donated their time to help an author improve their work, should not have to expect that a communication informally shared with an author may appear in print with or without their reputed name. We all write more directly when wrestling privately with an anonymous idea than we do when we are trying to protect a known correspondent's ego or are expecting to be read by a broad audience.

If an author confronts a fellow scholar as the possible reviewer and receives permission to assign their name for publication to an originally anonymous peer review, that does not justify publishing the review. This would undermine the expectations and benefits of the process for everyone else. The scholarly conversation at this important stage is destroyed by games of tracking down attribution for censure or refutation. This promotes pointless speculation and attack on people just trying to help the author and journal readers. It makes it more difficult to find scholars willing to give their time and expertise freely, subverting a crucial step in journal quality.

If an author undermines the anonymous peer review process, it is unlikely that they will be entrusted again with the benefits of counsel from anonymous peer review. ▲

Notes

¹Jacalyn Kelly, Tara Sadeghieh, and Khosrow Adeli trace the discussion about the advantages and disadvantages of such anonymous peer review in "Peer Review in Scientific Publications: Benefits, Critiques, and a Survival Guide," *The Journal of the International Federation of Clinical Chemistry and Laboratory Medicine* 25, no. 3 (October 25, 2014): 227–43, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4975196/>.

²Joanna Wilkinson, "Who's Using Open Peer Review?," October 27, 2017, <https://clarivate.com/blog/whos-using-open-peer-review/>.

³James C. Peterson, "Peering at Double-Blind Peer Review," *God and Nature* (Summer 2018), <https://godandnature.asa3.org/peterson-peering-at-double-blind-peer-review.html>.

James C. Peterson
Editor-in-Chief

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We wish to thank the following scholars for their crucial service in anonymous peer review.

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Lydia Jaeger

Science and Theology as Gifts to the Church: How Creation Allows Scientists and Theologians to Work Together

Lydia Jaeger

In contrast to common practice, which separates science and theology, this article takes the doctrine of creation as the key to map out fruitful interactions between science and theology. In particular, it asks how theologians – and the wider church – can benefit from science and what scientists can learn from theology for their professional work. Such an integrated view enables us to understand science as a gift to the church and also to consciously take advantage of theological resources in scientific practice. Although this article mainly uses creation as the lens through which to address these questions, it also hints at contributions which the doctrines of sin and redemption offer.

Keywords: Doctrine of creation, science-engaged theology, theology-informed science, scientists, theologians, NOMA, truth claims, scientism, worship.

Science with Theology?*

The ASA statement of faith begins by affirming: “We accept the divine inspiration, trustworthiness and authority of the Bible in matters of faith and conduct.”¹ What does accepting the “authority of the Bible in matters of faith and conduct” imply for the collaboration between scientists and theologians? A very common view is that science and theology should be pursued each in splendid isolation – thus adding an “only” to the first clause of the statement of faith: “We accept the ... authority of the Bible [only] in matters of faith and conduct,” whereas science is to be pursued without interference from theology. After all, the Bible is not a science book! Or so the story goes. And when it comes to interference in the opposite direction – from science into theology – most theologians, and the

church as a whole, seem to assume that they can thrive without science. Scientists are not often invited to speak in churches or theological seminaries about their field of knowledge.

Obviously, such a restricted understanding of the ASA statement of faith is wrong, as it goes on to affirm: “We believe that in creating and preserving the universe God has endowed it with contingent order and intelligibility, the basis of scientific investigation.”² We learn about creation and preservation from the Bible. Thus, this further clause acknowledges the relevance of biblical teaching, and therefore also of theology, for the scientific enterprise. The relevance of science for the church in general, and

*This paper is a revised version of my talk at the 2021 ASA Annual Meeting, delivered online July 30, 2021. I would like to thank Geoffrey Fulkeron and John Wood for many helpful suggestions while preparing the talk, and Erica W. Carlson, Joshua Harris, and Thomas McCall for their stimulating responses to my talk.

Lydia Jaeger obtained her PhD in philosophy at the Sorbonne on the possible links between the concept of laws of nature and religious presuppositions after completing postgraduate studies in physics and mathematics at the University of Cologne (Germany) and in theology at the Seminary for Evangelical Theology in Vaux-sur-Seine (France). She holds a permanent lectureship and is academic dean at the Institut Biblique de Nogent-sur-Marne (France), and is a research associate of St. Edmund's College, University of Cambridge.

Article

Science and Theology as Gifts to the Church: How Creation Allows Scientists and Theologians to Work Together

for theology in particular, is implied by the ASA statement of faith when it states: “We recognize our responsibility, as stewards of God’s creation, to use science and technology for the good of humanity and the whole world.” And the church is certainly part of “humanity.”

But it is fair to say that the ASA statement of faith is not very explicit in spelling out how science could benefit from theology and the Christian faith, nor does it go to any lengths to explain how science and technology could be used for the good of humanity, of which the church is a part. This is not a critique: by their very nature, statements of faith need to be short. In addition, the ASA keeps to the policy that it “does not take a position when there is honest disagreement between Christians on an issue.”³

This article then tries to show in what ways scientists and theologians can work together. I will cover a wide range of diverse topics, presenting as many avenues as possible for fruitful interaction between scientists and theologians in order to stretch our imaginations, and then let the readers work out the details of the different suggestions. I mainly use creation as the lens through which to address these questions, but also provide some hints along the way at contributions which the doctrines of sin and redemption offer. But first, the doctrine of creation.

The Doctrine of Creation as the Foundation upon Which to Engage in a Fruitful Partnership between Science and Theology

The classic definition by Reformed theologian Louis Berkhof states:

Creation may be defined as that free act of God by which He ... in the beginning brought forth the whole visible and invisible universe, without the use of pre-existing materials, and thus gave it an existence, distinct from his own and yet always dependent on Him.⁴

Without trying to unfold all the richness of the doctrine of creation, may I draw attention to several crucial aspects of the definition offered.

1. *Creation is a free act.* It depends on God’s will. As the worship song in Revelation 4 declares: “Worthy are you, our Lord and God, to receive glory and

honor and power, for you created all things, and by your will they existed and were created” (Rev. 4:11⁵). Therefore the world is contingent, which means that it is not necessary. It does not flow from God’s nature (as pantheism claims). It could not exist or be different than it is. As we will see, this is foundational for the experimental method of science.

2. *The created order has a beginning.* Orthodox Christianity has always held to a beginning of the world in time. Creation is not just a statement about the metaphysical dependence upon God of all that exists (although it is that as well), but creation also opens up a history, with a beginning at the first act of creation and an endpoint decided by the Creator himself. In cosmology, this leads to challenging questions (which I will not pursue here), as time is a tricky parameter, especially for the very high densities which are believed to have been obtained close to the Big Bang. But it is fair to observe that historical categories have proved ever more important for the natural sciences—first for geology, and then for biology since the nineteenth century, and later for physics since the beginning of the twentieth century. Creation provides a congruent theological framework in this regard.

3. *Creation is ex nihilo.* The term “*ex nihilo*” (Latin for “from nothing”) comes from an apocryphal writing of the Old Testament (2 Macc. 7:28), but the teaching is clearly biblical. In fact, it is a direct implication of the frequent insistence on the fact that all that exists has been created by God (Isa. 44:24; Jer. 10:16; Ps. 89:12–13; John 1:3; Col. 1:16; Rev. 4:11). This implies that there was no eternal, preexisting matter from which the world was drawn, contrary to the ancient Greek conception of the demiurge or the so-called scientific materialism of nineteenth-century communism. Strictly speaking, creation *ex nihilo* applies to the first moment of creation. Later creation acts can—and often did—build on what God created earlier, for example, as is suggested in the first creation account, when it states: “Let the earth sprout vegetation” (Gen. 1:11), and “Let the earth bring forth living creatures according to their kinds” (Gen. 1:24).

4. *Creation is continuously dependent on its Creator.* Creation excludes deism, that is, the notion that the natural order was set up by God at the beginning and continues to unfold without God intervening in it any further. No, creation has as its twin doctrine,

providence: the world relies from moment to moment on God sovereignly upholding it.

When you hide your face, they are dismayed; when you take away their breath, they die and return to their dust. When you send forth your Spirit, they are created, and you renew the face of the ground. (Ps. 104:29–30)

You may have noticed that Berkhof's definition of creation is silent on the date of creation and on the means that God employed in order to create the world. His definition is in this regard fairly standard for historic Christianity (Berkhof himself represents the Orthodox Reformed tradition). There may be interesting debates about the age of the universe or about creationist versus evolutionary mechanisms leading to the current state of affairs. But we should not forget that these debates are not central to the doctrine of creation. In fact, a strong view of providence (over against deism) allows for the use of natural processes, as there is nothing in "nature" that is left to itself: whatever happens, happens under God's divine Lordship and by his gracious upholding of the natural order.⁶

Before going further in drawing out the implications of the doctrine of creation for science, let us pause and consider what the doctrine of creation implies for our topic of interest: scientists and theologians working together for the common good. In fact, the doctrine of creation provides the very foundation for scientists and theologians working together, and not just alongside each other. For creation precludes what is probably the most frequent conception of the relationship between science and theology, the idea that the sphere of faith, with which theology is concerned, can be totally isolated from the scientific endeavor. Henri Blocher names this posture "fideism,"⁷ of which Stephen Jay Gould's NOMA, or "nonoverlapping magisteria,"⁸ is a prominent contemporary representative. But if creation is true, this cannot be right, because creation is a theological statement, rooted in scripture, about the very same world which science examines.⁹ Thus theology cannot ignore science. And science cannot ignore theology.

Obviously, there are very good reasons for not conflating science and theology. Each one of these human endeavors has its own starting point: natural revelation for science and special revelation (primarily the scriptures) for theology. And they use

distinct methodologies.¹⁰ The Galileo affair remains a constant warning not to forget this distinction. In fact, it not only tells the tale of the incompetence of the church for directing the scientific enterprise, it also highlights the danger for theology of relying too heavily on science. The Galileo affair was not foremost a conflict between science and Christian faith, but between two different sciences: the burgeoning new science promoted by Galileo and the Aristotelian-based science which the church, from the Middle Ages onward, had integrated into her theology.¹¹

It seems to me that in our time and culture most are well aware of the pitfalls which threaten us when we do not sufficiently distinguish between science and theology. Thus this article will assume this as background knowledge, and it will instead focus on fruitful and helpful interactions which do exist—in fact, which must exist because of the doctrine of creation. Theologians need scientists and scientists need theologians. Let us see first what science can contribute to theology, before turning to examine what theology can contribute to science.

Science as a Gift to Theology and the Church

1. *Providing tools for theological work*

Let me start by pointing out practical benefits which science has offered to theology. It provides theologians with tools and resources for their studies. The most essential benefit goes largely unnoticed, as we take it for granted: scientifically informed medicine has hugely expanded the average time span during which theologians (like other humans) are able to live healthy lives and thus to pursue their work. Resources provided range from eyeglasses which allow middle-aged and older scholars to continue to read and write,¹² to sophisticated medical drugs and treatments which heal or delay so many illnesses that took their toll in previous ages (and, lest we forget, continue to do so in less-privileged places on our planet even today). Humans are the most precious resource in any enterprise. Imagine if most theologians (and pastors, evangelists, missionaries) were unable to continue to work beyond forty or fifty? What a wealth of experience, knowledge, and wisdom would be lost! What a hindrance to fruitful gospel ministry! The same is true for science:

Article

Science and Theology as Gifts to the Church: How Creation Allows Scientists and Theologians to Work Together

although younger scientists are often more open to exploring new, promising avenues of research, the wisdom of the older teacher is necessary for providing a framework in which to develop research skills.

Science also provides technical resources that are useful for theological studies. Computers capable of handling large databases have made significant contributions in the lexical and syntactic study of the biblical texts. The internet allows worldwide collaboration. Church historians are helped immensely by being able to search large bodies of texts, once again assisted by information technology. We are now able to address and answer questions that previous generations were unable to address, even though they often knew the primary sources by heart (for example, the Bible, the writings of the Fathers and the Reformers)—a skill that is very rare today.

Allow me to provide just one example of the kind of new evidence that has emerged in theology using computer technology. Richard Bauckham, in his *Jesus and the Eyewitnesses: The Gospels as Eyewitness Testimony*, studies the frequencies of Jewish personal names in the New Testament Gospels and Acts and compares them to current knowledge of Jewish names in the ancient world.¹³ Here are some of the results (table 1):

- The relative frequencies of names in the Gospels corresponds to what we know of Palestinian Jewish names at the time,¹⁴ whereas the relative frequencies of Jewish names among the diaspora, or the Gentiles, are very different.¹⁵
- We find in the New Testament the usual ways of distinguishing between people with common first names: addition of (or even replacement by) the father’s name; addition of the name of the husband or son (for women); addition of (or even replacement by) a nickname (Simon Peter, Simon the leper in Matt. 26:6, John the Baptist, Barnabas); addition of place of origin (Jesus of Nazareth, Simon of Cyrene); addition of profession (Simon the tanner in Acts 9:43); and double Hebrew/Greek name, or more rarely Hebrew/Latin (Silas-Silvanus in Acts 15:22; 2 Cor. 1:19).

This study was made possible only by the extensive use of computer software. It shows that the Gospels contain relative frequencies of personal Jewish names which correspond to the situation in Palestine at the time—a feature difficult to produce for anybody who might try to invent such stories. In addition, personal names are disambiguated in the New Testament texts in ways which were common among first-century Palestinian Jews. They also felt the need to disambiguate names which were frequent among

Table 1. Frequency of Names Found in the Jewish Palestinian Population and in the Gospels and Acts

Names	Jewish Palestinian Population %	Gospels and Acts % ¹
Men who bore one of the two most popular male names (Simon/Simeon, Joseph/Joses)	15.6	18.2
Men who bore one of the nine most popular male names (Simon/Simeon, Joseph/Joses, Lazarus, Judas, John, Jesus, Ananias, Jonathan, Matthew/Matthias).	41.5	40.3
Men who bore a name that is attested only once in the sources	7.9	3.9
Women who bore one of the two most popular female names (Mary, Salome)	28.6	38.9
Women who bore one of the nine most popular female names (Mary, Salome, Shelamzion, ² Martha, Joanna, Sapphira, Berenice, Imma, Mara ³)	49.7	61.1
Women who bore a name that is attested only once in the sources	9.6	2.5

¹Richard Bauckham, *Jesus and the Eyewitnesses: The Gospels as Eyewitness Testimony* (Grand Rapids, MI: Eerdmans, 2006), 71–72.

²Long form of Salome.

³Possibly an abbreviated form of Martha.

Jews in the Holy Land, but not in the Jewish diaspora (although most Gospels were written outside Palestine). These different features demonstrate that the gospel writers had access to first-hand information about the life of Jesus.¹⁶

2. Challenging results of biblical exegesis

Beyond providing tools for theology, science offers knowledge which theologians would benefit from using. I want to specifically focus on scientific knowledge useful for biblical exegesis. It is uncontroversial that science understood in a broad sense can and should inform exegesis, insofar as one considers linguistics, archaeology, and ancient history as scientific disciplines (that is, investigations conducted according to a rigorous method). The use of knowledge gained through natural sciences is a much more delicate subject, and opinions may well vary among us. Without trying to present much argument for my position, may I just outline my current thinking on this issue.¹⁷ The heart of the matter lies, in my view, in striking the right balance between two methodological principles.

a. *When it comes to establishing the meaning of a text, exegesis proper should only be constrained by knowledge accessible to the human author himself.* Only in this way do we take seriously the historical character of divine special revelation. Obviously, behind this affirmation lurk strong philosophical commitments, not least the presupposition that authorial intent is crucial for determining the meaning of a text. Nevertheless, the restriction to knowledge available to the human author is necessary in order to avoid arbitrary allegorical readings of the biblical texts, or concordist interpretations which force on the biblical texts contemporary concepts and questions, foreign to the original readers, thus falling into the pitfall of anachronistic eisegesis.¹⁸

b. *Knowledge not available to the human author may inform exegesis as an external motivation for checking the solidity of our understanding.* God does not contradict himself: knowledge gained from natural revelation and knowledge gained from scripture cannot be in opposition. Therefore, when we encounter a contradiction, something has gone wrong in the process of interpreting revelation. In this way, scientific knowledge, when it contradicts convictions which we have reached by reading scripture, can legitimately challenge our understanding of the texts. But

beware, this is not a one-way process. The apparent contradiction may just as easily result from an overestimation of what we know in terms of science. Thus, scientific knowledge may provide a corrective for exegesis, but also theology may provide a corrective for the sciences. More on this later when we turn to the question of what scientists may learn from theologians.

Let me illustrate how these two principles work together by an example from my own experience. I had long believed that the mustard seed is the smallest of all seeds. This is what Jesus says in the parable of the mustard seed (Matt. 13:32)—or so I thought. One day, somebody challenged me, pointing out that the seed of an orchid is even smaller. He concluded that Jesus was voicing the wrong knowledge of his time. But this is unacceptable, as Jesus's words are totally trustworthy and therefore true. I went back to the gospel text, and in this case, the solution was ready at hand. In the parable, Jesus speaks of "a grain of mustard seed that a man took and sowed in his field" (v. 31).¹⁹ The following statement about the mustard seed being "the smallest of all seeds" must be understood in this context. It is not meant as a general statement about all seeds, but about the seeds routinely used by a farmer in Jesus's day. Here is an example in which scientific knowledge—legitimately—changed my understanding of a biblical text. But observe how science comes in: *the meaning of the text has to be established in its own right, without bringing in knowledge foreign to the context of the author.* When a contradiction with science arises, it motivates us to go back and check whether our textual interpretation was correct.

3. Modeling a rigorous method for seeking truth

Beyond helpful tools and challenging questions, science offers theologians a model for a rigorous method of research. To be sure, the differences between science and theology on a methodological level should not be underestimated. Nevertheless, there are similarities as well. Both domains have an ultimate source of authority: natural order explored by observation and experiment for natural science, and scripture for Christian theology. In both fields, the construction of theories and knowledge from the ultimate source of authority is not a straightforward, inductive process; background assumptions and research paradigms prevalent in the scholarly community play a vital

Article

Science and Theology as Gifts to the Church: How Creation Allows Scientists and Theologians to Work Together

role. Therefore, neither science nor theology is a metaphysically neutral enterprise, although it should be expected that faith commitments become ever more important, the closer questions get to matters of existential concern.²⁰

Science has an impressive track record, and theologians would do well to pay close attention to what they can learn from scientists in terms of method. This is even more so for historic Christian theology, as it has a stronger emphasis on the factual, historical basis of faith claims than liberal forms of Christian theology – in line with Peter’s assertion:

For we did not follow cleverly devised myths when we made known to you the power and coming of our Lord Jesus Christ, but we were eyewitnesses of his majesty. For when ... the voice was borne to him by the Majestic Glory, “This is my beloved Son, with whom I am well pleased,” we ourselves heard this very voice borne from heaven, for we were with him on the holy mountain. (2 Pet. 1:16–18)

Note the emphasis on eyewitness reports,²¹ on history, not myths:²² theology, like science, is aiming at factual truth. Therefore, although both the object of study and the method of research are different, theologians may well gain insights from their scientific colleagues on how to pursue truth in a communal effort. The French Enlightenment philosopher and scientist Descartes considered that regular exposure to mathematics would help him in his critical thinking. As a preparation for his intellectual ascetic undertaking which would lead in due course to his famous *cogito ergo sum* (“I think, therefore I am”), Descartes writes,

I reserved some hours from time to time which I expressly devoted to ... the solution of mathematical difficulties, or even ... the solution likewise of some questions belonging to other sciences, but which, by my having detached them from such principles of these sciences as were of inadequate certainty, were rendered almost mathematical.²³

I sometimes tell my theology students that we should introduce a compulsory math class in our curriculum. In general, they are not pleased at the prospect, but I agree with Descartes and consider that immersion in mathematics and rigorously conducted science is an excellent training field for logical thinking and stringent problem solving.

4. Providing a better understanding of the world in which we are called to live and preach the gospel

Our culture is heavily influenced by both science and theology. Scientists have a crucial role to play in helping all Christians, and specifically church leaders, to better understand certain aspects of the context in which we are called to live and preach the gospel. John Stott spoke of “dual listening” – holding a Bible in one hand and a newspaper (and we could add a science textbook or journal) in the other:

I believe we are called to the difficult and even painful task of “double listening.” That is, we are to listen carefully (although of course with differing degrees of respect) both to the ancient Word and to the modern world, in order to relate the one to the other with a combination of fidelity and sensitivity.²⁴

The Christian community will not be able to accomplish this task of dual listening without the help of scientists. Examples abound:

- Christians are called to care for the nature around us, which God created; we are “stewards of God’s creation,” as the ASA statement of faith says.²⁵ But how can we do this effectively without an appropriate understanding of the natural order? Applications range from providing at least some space for wildlife in our neighborhood to lifestyle changes which may help to slow down global climate change.
- Medical science has had an enormous impact on human experience at the beginning and end of life. In the West, both birth and death are experienced in a hugely different way from traditional societies. There are numerous ethical questions unheard of even a century ago, but which now face us due to our increased technological capabilities: cloning, prenatal screening tests, deep sedation for terminally ill patients, excessive medical intervention ... None of these existential ethical concerns can be appropriately answered without drawing on expert scientific knowledge.

5. Informing our worship

Often our worship centers on redemption. However, Psalm 104 (among other psalms proclaiming God’s glorious action in nature) teaches us that our worship can and should also feed on creation. Adoration of the Redeemer God goes hand in hand with praising him as the Creator. Psalm 19 first celebrates God’s

revelation in nature — “The heavens declare the glory of God” (Ps. 19:1) — before rejoicing in the perfection of God’s law which makes “wise the simple” and “warns” God’s servants, in order to keep them from “presumptuous sins” (Ps. 19:7–13). The vision of the throne of God in Revelation 4–5 is punctuated by grandiose choruses which celebrate both creation and redemption. In the first chorus, the four living beings praise the holiness of the Lord Almighty (Rev. 4:8). Then the twenty-four elders proclaim the glory of the Creator (Rev. 4:11 quoted above). Both groups next join in singing “a new song” to the Redeemer Lamb (Rev. 5:9–10), before the host of myriads of angels repeats and expands the heavenly praise: “Worthy is the Lamb who was slain” (Rev. 5:12). The vision culminates in the unison chorus spoken by

every creature [in Greek, *ktisma*, “creature” from *ktizō*, “to create”] in heaven and on earth and under the earth and in the sea, and all that is in them, saying,

To him who sits on the throne and to the Lamb
be blessing and honor and glory and might
forever and ever!

And the four living creatures said, “Amen!” and the elders fell down and worshiped. (Rev. 5:13–14)

This final chorus is both the conclusion and the climax of the vision. It is linked to the preceding worship by the four living beings confirming it with an “Amen!” and by the elders falling down and worshipping (Rev. 5:14).²⁶ The interweaving of all the different choruses emphasizes that the adoration of the Creator and the worship of the Redeemer are inseparable, one “God in three persons, blessed Trinity.”²⁷

Insofar as creation has a legitimate and specific place in praises sung by the redeemed, science has a contribution to offer for private and communal worship. Science leads us to a more precise understanding of creation and provides us with deeper insights into God’s work in nature. But I fear that far too few of our church communities are aware of this gift that science has to offer. We are used to drawing on extra-biblical resources to extend our praise of the Redeemer, as we quite commonly include in our prayers thankfulness for God’s saving grace in our life and in the lives of our fellow believers. Why not draw on science in order to deepen our appreciation of God’s works in creation? Obviously, we need to ensure that our worship does not become elitist in

that it might become understandable only to those trained in natural sciences. But overall, scientists are very good at popularizing their findings. Thus they would certainly find ways to nurture our praise of the Creator God if they were invited to do so. It would also help the Christian scientists themselves, as it would encourage them to overcome the compartmentalized, if not schizophrenic, posture which many adopt, keeping their faith at arm’s length from their scientific work in the lab.

For believing scientists in the early times of modern science, it was normal to expect that their new scientific findings would enhance worship of the Creator. Let me provide you with two examples.

a. Johannes Kepler (1571–1630), whose three laws of planetary movement were decisive for the formulation of Newton’s physics, concludes his first significant book, *The Secret of the Universe*, published in 1596, by the following admonition to his reader:

Now, friendly reader, do not forget the end of all this, which is the conception, admiration and veneration of the Most Wise Maker. For it is nothing to have progressed from the eyes to the mind, from sight to contemplation, from the visible motion to the Creator’s most profound plan, if you are willing to rest there, and do not soar in a single bound and with complete dedication of spirit to knowledge, love and worship of the Creator. Therefore with pure mind and thankful spirit sing with me the following hymn to the Architect of this most perfect work.²⁸

Then follows a hymn to the glory of the Creator, inspired by Psalm 8.²⁹ Therefore, for Kepler, there are three layers in scientific work: observation, rational theory construction, and worship of the Creator. Theologians and scientists need to work together in order to reclaim the third level, the most noble goal of all scientific endeavor.

b. In the same vein, Robert Boyle (1627–1691), who was one of the founders of the Royal Society and contributed largely to the emergence of modern chemistry, considered that the scientist has much more reason to adore God than does the ordinary person:

For the works of God are so worthy of their Author, that besides the impresses of his wisdom and goodness, that are left as it were on the surfaces, there are great and innermost recesses of them; and

Article

Science and Theology as Gifts to the Church: How Creation Allows Scientists and Theologians to Work Together

therefore are not discovered by the perfunctory looks of oscitant or unskillful but require, as well as deserve, the most attentive and prying inspection of inquisitive and well-instructed considerers.³⁰

For this reason, “a true naturalist, who brings with him, besides a more than common attention and curiosity, a competent knowledge of anatomy, optics, cosmography, mechanics, and chemistry” finds “new motives to acknowledge and adore the divine Author of things.”³¹

Theology as a Gift to Science and the Scientific Community

Having examined several ways in which science can be a gift to theology and the wider church community, let us now turn to the possibilities for theology to make a constructive contribution to science. Whoever endeavors to claim any fruitfulness of Christian theology for science encounters the formidable objection that science is practiced by scientists of all faiths and of none. Is this not proof enough that theology has to be kept out of science? I beg to differ.

Science is perhaps the most successful interfaith and interethnic project in our contemporary world, which is so often torn apart by religious conflicts—and ethnic conflicts disguised as religious. But this does not mean that theology has no positive role to play in science. To begin with, the doctrine of creation was influential in the birth of modern science. Why then should Christian theology have no resources to offer to science today? Of course, the very same doctrine of creation explains the possibility of doing science without explicit reference to God. Contrary to animistic or pantheistic worldviews, creation does establish a clear distinction between the divine and the world, so that it becomes possible to describe nature “in terms of reference defined by creaturely things themselves.”³² But distinction does not amount to separation. Theology draws on the Word of the very same God who created the world that science explores; therefore, it may well have some insights to offer to scientists. Let me enumerate five of them.

1. *Setting the metaphysical framework for science*

It was not by happenstance that modern science emerged in a context steeped in the Christian worldview. Admittedly, we need to guard ourselves from

monocausal explanations; there were other highly influential factors in the emergence of modern science. But the Christian mindset played a crucial role, as many excellent historical studies have shown.³³ This is not surprising, as presuppositions of the scientific practice sit well with the biblical understanding of the world and of humanity’s place in it.³⁴ The concordance between the biblical worldview and methodologies applied in natural sciences is largely forgotten today. It may be useful to show how science-friendly the biblical worldview is in our dialogue with non-Christian scientists and ordinary people who often think that science has disproved the Christian faith.

Let me present three examples of how the biblical worldview provides a metaphysical framework for scientific practice.

a. The experimental method and creation: One of the defining features of modern science is the role of planned experimental activity. Scholastic natural philosophers claimed observation to be the basis of scientific generalizations. But in practice, this was either prescientific commonsense experience, or it arose from thought experiments, or it was taken from written sources without personal verification (much of medieval science consisted in commenting on the works of masters of the past, in particular Aristotle).³⁵ During the scientific revolution, the role of experiments changed: they no longer served to corroborate theories adopted on other grounds, but became a decisive element in testing existing theories and developing new ones. Newton and his disciples explicitly appealed to the contingency of creation in order to justify their empiricism. Roger Cotes, who oversaw the publication of the second edition of the *Principia* (1713), writes in the preface:

From this fountain [the will of God] it is that those laws, which we call the laws of Nature, have flowed, in which there appear many traces indeed of the most wise contrivance, but not the least shadow of necessity. These therefore we must not seek from uncertain conjectures, but learn them from observations and experiments.³⁶

b. The experimental method and sin: Not only did the new experimental method respond to reflection on creation, but also (and perhaps more surprisingly) on sin. Drawing on a wide range of primary sources right from antiquity to early modern times, the science historian Peter Harrison argues that the renewal

of an Augustinian understanding of original sin at the Reformation “was the starting-point for the methodological discussions of the early modern period.”³⁷ Different strands of early modern thought were influenced by the more pessimistic evaluation of reason that is implied (compared to the Aristotelian-Thomistic tradition). Some early modern thinkers sought to find in logic and mathematics a stronghold untouched by the corruption of the Fall, from which to construct certain knowledge. Others, more radical, thought that the only remedy was divine revelation (either scriptural or personal). Still others considered that Genesis 3:19 (“By the sweat of your face you shall eat bread”) set the paradigm for gaining knowledge about the natural world: through laborious and cooperative experimentation, the Adamic curse could be at least partially reversed. The experimental philosophy of Francis Bacon illustrates this third option:

For man by the fall fell at the same time from his state of innocence and from his dominion over creation. Both of these losses however can even in this life be in some part repaired; the former by religion and faith, the latter by arts and sciences.³⁸

Thus, contrary to those who link the emergence of early modern science to the Enlightenment’s optimism, Harrison considers that

the birth of modern experimental science was not attended with a new awareness of the powers and capacities of human reason, but rather the opposite—a consciousness of the manifold deficiencies of the intellect, of the misery of the human condition, and of the limited scope of scientific achievement.³⁹

c. Creation ex nihilo and mathematical science: Creation from nothing implies that all that exists is created by God. There is no preexisting eternal matter that can resist the creation work, as is the case with the Greek demiurge. Plato had taught that mathematical forms are only imperfectly realized in material objects,⁴⁰ thus prohibiting exact mathematical descriptions of material objects. But in the biblical conception, all that exists is created by the omnipotent and all-wise Creator. Therefore, the order instituted by him applies without exception to the whole natural realm.

In his preface to the first edition of the *Principia*, Newton ponders the difference which “the ancients” made between “perfectly accurate” geometry and

mechanics which “is less so.” But the new philosophy of nature that took shape in the seventeenth century was based on the conviction that the perceptible, the material, in itself, is the subject of rational knowledge and thus of mathematical description, “for the description of right lines and circles, upon which geometry is founded, belongs to mechanics.”⁴¹ Some decades earlier, Galileo had likewise affirmed that the book of nature is written in mathematical letters.⁴² The doctrine of creation ex nihilo provides the justification of this central conviction of modern science. In the words of Robin Collingwood, “the possibility of an applied mathematics is an expression, in terms of natural science, of the Christian belief that nature is the creation of an omnipotent God.”⁴³

2. Disseminating scientific knowledge

We have seen then that the biblical worldview, rightly understood, provides a science-friendly metaphysics and thus facilitated the emergence of modern science. Yet even today, theologians may be of help to scientists in improving their communication of scientific findings to some audiences. For example:

a. Religiously motivated opposition to scientific knowledge: Cosmological and biological theories of origins offer a prime example. Conservative Christians will not accept scientific reconstructions if they cannot see how these can be reconciled with biblical teaching. And rightly so. If we are serious about our conviction that the Bible is God’s word, we cannot accept as true any affirmation that goes against that which we have learned from divine revelation. At best, we can suspend our judgment, allowing for some uncertainty in our understanding of scriptural revelation.⁴⁴ But we can consider a scientific discovery to be true only if we can at least see how it can be compatible with biblical teaching—where biblical teaching not only comprehends direct conclusions drawn from biblical exegesis, but also, and even more so, from doctrinal statements included in the creeds.⁴⁵ True, scripture is our final authority and doctrine is subject to scripture, according to the Reformation principle of *sola Scriptura*. But well-crafted doctrinal statements that establish central faith commitments derived from major biblical themes have been tried and tested by many generations of biblical scholars and Christian believers. Whereas we may change our minds on the meaning of this or that biblical passage, we should

Article

Science and Theology as Gifts to the Church: How Creation Allows Scientists and Theologians to Work Together

not easily renounce truths that historic Christianity has deemed important enough to include in the creeds.

b. Deficient performances of other channels of transmission (such as schools and public media): The lack of efficiency may be due to a lack of resources in the wider society—missionaries in developing countries have long been involved in the furthering of school teaching, including science classes and public health education. It may also be linked to the rapid expansion of scientific knowledge in a certain field, which implies that the usual contexts of science teaching are insufficient. Covid-19 vaccination provides a contemporary example. Recently, the smaller French sister organization of the ASA, the *Réseau des scientifiques évangéliques*, invited a vaccinologist to present the current state of knowledge with regard to this question.⁴⁶ The leadership team in my local congregation has labored to help members, in particular those with health risks, to correctly understand the risk-benefit balance of vaccination—probability calculus is not the most easily understood part of mathematics and well-informed church leaders may help in reaching population groups that are not easily reached through other channels, to enable them to grasp what is at stake.

c. Ideological biases and influential lobby groups rendering the objective search for truth arduous: Ideologically motivated resistance to scientific truth is not the privilege of believers alone. Strong societal trends may make it difficult, or even impossible, to conduct open-ended research and to voice results which go against the consensus. It is probably safe to mention gender and post-colonial studies as fields where many seem to know in advance what conclusions should be reached.⁴⁷ Research into possible long-term consequences of abortion on mental and physical health is another example. Christian scientists involved in these areas need strong pastoral support in order to follow the evidence wherever it leads and to stand by the truth.

3. Guarding against scientism

Setting science in the broader framework of biblical thought helps us to see that science cannot describe all of reality. It cannot offer a theory of everything. To start with, God escapes any scientific description. He simply will not submit to the canons of scientific

experimentation: “You shall not put the Lord your God to the test” (Matt. 4:7, quoting Deut. 6:16) as Jesus sharply replied to the devil when he pushed our Lord to experimentally test the reliability of God’s promises. Since humanity is created in God’s image, it is to be expected that at least some aspects of the nature of humans are also beyond scientific grasp.

Scientism, that is, the idea that science can describe all of reality and provide ultimate answers to all questions worth asking, is an idol of our time, which is to be criticized on both epistemological and theological grounds. Obviously, scientism is not science. It is not a thesis open to scientific scrutiny, to be confirmed or refuted by experiment. It is an ideological extrapolation from science, a quasi-religious worldview. It often finds its most fervent defenders among popular writers who aim to make scientific knowledge more widely known.⁴⁸ But working scientists are perhaps not totally immune to the temptation to overestimate the promises which their professional expertise holds. Some help from theologians may be welcome, reminding scientists and the general public alike that there are limits to what science can achieve. Recognizing such limits will make us more alert to detect instances when unwarranted worldview conclusions are drawn from science: for example, when it is claimed that science “proves” that the universe has not been created by a benevolent deity, or that human beings are just material beings, or, on a more practical level, that science will, in the long run, solve all of humanity’s problems.

A more modest approach to natural science will also help to unmask a second idol, closely related to scientism, that of reductionism: the idea that all sciences can ultimately be reduced to one fundamental science. Not only can science taken as a whole not describe exhaustively all of reality, but also no single scientific discipline can pretend to encompass everything that is scientifically accessible. Each discipline uses a restrictive research methodology, which is appropriate to its specific focus of study. Some questions occupy center stage, others are neglected. The limited perspective offered by each scientific discipline is worthwhile because it is obtained by using a rigorous method of enquiry, but it should not be mistaken for the whole picture. Evandro Agazzi even speaks of “reductionism as the negation of the scientific spirit,” because the science of modern times

has revoked the past more-encompassing projects aiming at the “intrinsic ‘essence’” of things. Instead,

it is satisfied to study a certain number of their “affections,” that is, a certain number of their properties, which lend themselves to being isolated and relatively simply described along with the help of mathematical language.⁴⁹

Even within disciplines, reductions do not always succeed, but there is a notable tendency to pass over such restrictions when teaching students, and even more so when explaining the results of science to a wider public. How many physics students are aware of the fact that the second law of thermodynamics (stating the rise of entropy) is not derivable from microscopic physics?⁵⁰ And few are the lecturers, I fear, who explain to their students that macroscopic quantum effects such as superfluidity cannot be derived from first quantum physical principles.⁵¹ Once again, it is possible to discover these limitations of reductionism by in-depth studies of science itself. But as such studies are often overlooked by scientists, theologians may provide precious help in order to unmask the idols of scientism and reductionism.⁵²

Resisting the drive for the grandiose theory of everything can also favor interdisciplinary collaboration. When we no longer believe that our scientific domain offers the answers to all the interesting questions, nor believe that it sets the standard for the one and only scientifically acceptable methodology,⁵³ we understand the crucial importance of multidisciplinary projects.

Scientists who acknowledge that science is only penultimate, that it does not aim to describe all that there is, may perhaps also find it easier to keep a balanced lifestyle, not allowing their professional involvement in science to consume all of their energy. Listening to the theologians’ call to modesty can have beneficial effects in the personal life of scientists. But, of course, theologians need to pay heed to the call to humility for themselves as well.

4. *Challenging and complementing scientific findings*

I will now turn to a controversial topic: I will claim that theology not only maps out the appropriate framework for the scientific method and guards against displaced overconfidence in science, but that it can also provide knowledge which can challenge or complement scientific findings. Such a claim

immediately raises eyebrows, or worse, it sets off inner alarm bells—and rightly so, to a certain extent. There have been far too many preposterous proposals made in this area: misinterpretations of scripture were held against genuine scientific insights; literal readings were forced on biblical texts with literary genres favoring nonliteral readings; twisted claims about scientific results were made in order to align “science” with one’s favorite understanding of nature texts in Job, to name a few.

Despite all these instances in which theological knowledge has been misused in science, I still hold to the claim that theology may provide truths which play a legitimate role in science. Ever since Kant, we have become accustomed to the separation between facts and values: science providing knowledge about the facts, and theology offering insights into values. But Christians cannot just buy into this Enlightenment dichotomy without betraying their core beliefs. The illusory peace of Stephen Gould’s NOMA (considering that science and theology hold nonoverlapping magisteria) is not at our disposal.

Conflicts between scientific and theological knowledge claims are at least possible. Who are we to affirm *a priori* that God has not spoken in the Bible on matters of scientific interest? Given the ever-increasing scope of questions which the natural sciences address, this would be not only astonishing, but it would also limit the relevance of the Bible to a private religion of the heart. Therefore, the study of the scriptural revelation may well lead to truth claims that are relevant for science. This makes life more dangerous for those working at the intersection of science and theology, but it also holds the promise of true interdisciplinary collaboration involving scientists and theologians. Not only should theology listen to science, it should also be allowed a place at the table as an equal partner in the dialogue. This directly follows from acknowledging that the scientific method is one among several legitimate approaches to reality, including theology. Each approach offers a specific perspective on reality and has to learn from the others.⁵⁴ This claim is probably best understood by means of specific examples.

a. The beginning of the universe: There was no observational evidence or rigorous theoretical model for the beginning of the universe in time before well into the twentieth century. In fact, it was Einstein’s general theory of relativity which first provided a

Article

Science and Theology as Gifts to the Church: How Creation Allows Scientists and Theologians to Work Together

rigorous scientific framework for an evolving universe (although Einstein himself did not like the idea because of his Spinozism). Major observational evidence for the beginning of the cosmos in time was provided in the 1920s by the observation of the linear relationship between distance and red-shift in the light spectrum of far-away galaxies (predicted by Georges Lemaître two years before Edwin Hubble observed it in 1929), and decisively in the 1960s by the discovery of the cosmic microwave background radiation. In the 1960s, Roger Penrose and Stephen Hawking proved singularity theorems which show the existence of singularities (the Big Bang being one of them) under very general conditions. Nineteenth-century “scientific” materialism (which was turned into a political ideology, formative in Marxism) held that matter was eternal, as ancient Greek science had held before.⁵⁵ Throughout all these centuries, Christians knew from scriptural revelation that the world had an origin in time, although no scientific information was available. Obviously, the two sources of knowledge (scientific theorizing predominantly built on observing nature and theological theorizing predominantly built on reading the scriptures) are not to be conflated. But knowledge obtained from the Bible could have guarded against interpreting the absence of scientific evidence as evidence for the absence of a beginning in time.⁵⁶

b. Religion in sociological field studies: Contemporary examples of theology providing relevant knowledge to the sciences tend to be more controversial. One relatively safe example stems from the field of the human sciences: the treatment of religious practices and beliefs in sociological field studies. Often (but fortunately not always), one can observe a reductionist approach to religion. In a secular mindset, religion cannot simply be what it claims to be: an encounter with the supernatural realm. Believing sociologists know better and are therefore more prone to conduct open-minded research.⁵⁷ But all need to heed the warning of the eminent historian of religions Mircea Eliade (1907–1986):

A religious phenomenon will reveal itself as such only if it is apprehended in its own modality, i.e. if it is studied on a religious scale. To want to define this phenomenon by physiology, psychology, sociology, economics, linguistics, art, etc. ... is to betray it; it is to miss precisely what is unique and irreducible in it, that is to say its sacred character. Certainly [...], there is no phenomenon that is solely

and exclusively religious. Religion being a human thing, it is therefore a social thing, a linguistic thing, and an economic thing—for we cannot conceive of man outside of language and community life. But it would be futile to try to explain religion in terms of one of those fundamental functions that define man in the ultimate sense.⁵⁸

Although I am an outside observer, it seems to me that more-recent ethnological studies tend to adopt a less reductionist, more sympathetic approach to religion—trying to get inside the mindset of the people they observe and allowing them to speak for themselves. The supernatural is such a prevalent feature of non-Western outlooks on reality that it is hard, inside a reductionist framework, to get an even moderately adequate description of how they function. But when it comes to sociological research conducted in Western societies, the secular mindset still often prevails. This may even inform public policy making: religious fundamentalist violence is often explained in terms of socio-economic causes. Therefore, measures taken to prevent radicalization or to deradicalize those who have been radicalized tend to neglect proper religious categories such as the need for spirituality and for a transcendent meaning in life.

c. Sin in psychology and sociology: Another potentially more contentious example (once again from the human sciences) concerns taking sin into account in psychology and sociology. From a Christian perspective, it is to be expected that no satisfactory description of human inner life and outside behavior can be obtained without the category of sin. But sin is an inherently theological category: human beings are sinners because of their broken relationship with God. As in the cosmological case, the theological contribution inclines the Christian scientist to withhold belief with respect to some claims, made in the name of science, that are insufficiently grounded. In particular, they will be skeptical about those psychological and sociological models founded upon the presupposition that humans are fundamentally good. Furthermore, theology can also inform scientific practice and influence the kind of questions we ask and the evidence we take into account. In the sciences, as in all human inquiry, one will often find only what one is looking for. As a result, the insight provided by scripture can sharpen our discernment to see certain facts that would otherwise have remained unnoticed. As Pascal wrote:

For myself, I confess that so soon as the Christian religion reveals the principle that human nature is corrupt and fallen from God, that opens my eyes to see everywhere the mark of this truth: for nature is such that she testifies everywhere, both within man and without him, to a lost God and a corrupt nature.⁵⁹

5. *Protecting the nonnegotiable dignity of human beings*

Let me conclude with the biblical teaching of humanity being created in the image of God and its implications for scientific practice. Granted, there are other biblical teachings that may have practical implications for the way we do science. For example, what is the biblical teaching about animals and its consequences for animal rights? Or take the very burning issue of environmental care. Understanding that we borrow the Earth from our children may not provide enough motivation for sacrificial action. However, when we realize that we are “stewards of God’s creation,” as the ASA statement of faith says,⁶⁰ our responsibility is set in a much larger perspective. And once again, the category of sin must inform public policy formation. If we want to make any progress, we not only need to know what would be appropriate actions in order to protect endangered ecosystems and to combat climate change, but we also need to take into account both our sloth which prevents us from acting on what we know to be true, and our human propensity to egocentric and ethnocentric actions.

But as this article should be of finite length, I will limit myself to some quick remarks on human rights. As human beings are created in the image of God, they are endowed with a nonnegotiable dignity. This biblical teaching has multifaceted relevance for scientific practice:

a. “Human dignity is inviolable,” as stated in the first article of the German constitution.⁶¹ Adopted in 1949, this first sentence in the first article of the “Basic Law” tragically echoes back to the horrors of the Nazi regime, in which science played its part, not least by medical experimentation performed on prisoners and so-called racially “inferior” persons. Even if results obtained in such experiments were perhaps found to be scientifically valuable, human dignity sets ethical limits on experiments that we dare not transgress. This safeguard does not apply to humans only during their lifetime, but also before birth and

around death. While this may frustrate the desire for omniscience and omnipotence, to which scientists are not immune, the abomination of Nazi medical research stands as a permanent warning that science should never cross this Rubicon again.

b. Not only are humans who are involved in scientific experiments worthy of special protection, but fellow scientists are also created in God’s image and thus endowed with unalienable dignity. Respect is due to colleagues with whom we work and students whom we teach. The believing scientist should exhibit a special concern for furthering not only his own career, but also for the prospering of those working in his team. Paul’s admonition is right on target for the competitive enterprise of science: “Do nothing from selfish ambition or conceit, but in humility count others more significant than yourselves” (Phil. 2:3). And could Jesus’s command to love our enemies also mean that we should pay due homage to the accomplishments of scientists competing with our own research institution?

c. And finally, the scientist him- or herself is also created in God’s image. This implies both a daunting responsibility and a God-given dignity. First, for the responsibility: scientists, like all human beings, will one day appear “before the judgment seat of Christ, so that each one may receive what is due for what he has done in the body, whether good or evil” (2 Cor. 5:11). This will include the work accomplished in science, which will also be judged for its moral value. Second, for the dignity: knowing myself to be created in God’s image implies that my value as a person does not depend on the success of my scientific work or any other accomplishment. This can strengthen my resilience in the face of failure, when a paper, in which I have invested a lot of time, energy and money, is turned down, or when a long-running experiment in the end does not provide any usable results, or when I am driven out of the job because of personal rivalries. In the face of life’s difficulties, scientists too can take courage in the fact that our final destiny depends on God’s love and grace alone. ▲

Notes

¹American Scientific Affiliation, ASA Statement of Faith, accessed February 24, 2020, <https://network.asa3.org/page/ASAbeliefs>.

²Ibid.

³Ibid.

Article

Science and Theology as Gifts to the Church: How Creation Allows Scientists and Theologians to Work Together

⁴Louis Berkhof, *Systematic Theology* (Grand Rapids, MI: Eerdmans, 1932), 113; italics in original.

⁵All Bible quotes in this paper are taken from the ESV (<https://www.esv.org/>).

⁶David N. Livingstone, *Darwin's Forgotten Defenders: The Encounter between Evangelical Theology and Evolutionary Thought* (Edinburgh, UK: Scottish Academic Press, 1987).

⁷Henri Blocher, *In the Beginning: The Opening Chapters of Genesis* (Leicester, UK: IVP, 1984), 20–24.

⁸Stephen Jay Gould, "Nonoverlapping Magisteria," *Natural History* 106 (1997): 16–22, accessed January 14, 2022, https://web.archive.org/web/20190403152432/http://www.stephenjaygould.org/library/gould_noma.html.

⁹Wolfhart Pannenberg, "Theological Questions to Scientists," in *Toward a Theology of Nature: Essays on Science and Faith*, ed. Ted Peters (Louisville, KY: Westminster John Knox, 1993), 16.

¹⁰Cf. Lydia Jaeger, "Facts and Theories in Science and Theology: Implications for the Knowledge of Human Origins," *Themelios* 41, no. 3 (2016): 437–38, <http://tgc-documents.s3.amazonaws.com/themelios/Themelios41-3.pdf>.

¹¹David C. Lindberg and Ronald L. Numbers, "Beyond War and Peace: A Reappraisal of the Encounter between Christianity and Science," *The Best in Theology* 1 (1987): 138–41; originally published in *Church History* 55 (1986): 338–54.

¹²Claire Préaux, "Grandeur et limites de la science hellénistique," *Chronique d'Égypte* 50, 99–100 (1975): 215–38, considers that the lack of optical lenses for reading and writing purposes is one factor (among many others) which may explain why ancient science didn't thrive as spectacularly as modern science does today.

¹³Richard Bauckham, *Jesus and the Eyewitnesses: The Gospels as Eyewitness Testimony* (Grand Rapids, MI: Eerdmans, 2006).

¹⁴Bauckham draws on data covering the whole period from 330 BC to AD 200. But the majority of the occurrences come from sources dating from the first or early second century (Josephus, New Testament, Judean desert texts, Masada, Jerusalem ossuaries, the earliest rabbinic sources); moreover, the frequencies of the first names seem to be relatively stable during this period.

¹⁵The larger deviations for female names are due to the smaller total number of occurrences.

¹⁶For the data presented in this section and its interpretation, cf. Peter J. Williams, *Can We Trust the Gospels?* (Wheaton, IL: Crossway, 2018), 64–69.

¹⁷See also Jaeger, "Facts and Theories in Science and Theology," 440–41.

¹⁸The double authorship of scripture has led some to admit a *sensus plenior* in biblical interpretation: the divine author can intend a meaning beyond the meaning intended by the human author. Without entering into this complex debate, I consider that the humanity of scripture implies that the meaning of the text is the meaning intended by the human authors, even if they did not understand all aspects of the reality to which they referred (cf. 1 Pet. 1:10–12; and Blocher's comments on the place of scientific knowledge in biblical exegesis: *In the Beginning*, 25–27).

¹⁹There is an interesting variation in the Lukan version of the parable. It speaks of "a grain of mustard seed that a man took and sowed in his garden" (Luke 13:19). The best explanation is what Joachim Jeremias called "representational change": for a predominantly urban, Hellenistic audience, the mustard seed growing in a domestic garden is more easily understandable than its growing in a rural

field. Such contextualizing changes frequently appear in contemporary Bible translations based on dynamic equivalence. See Craig L. Blomberg, "The Legitimacy and Limits of Harmonization," in *Hermeneutics, Authority and Canon*, ed. D. A. Carson and John D. Woodbridge (Grand Rapids, MI: Zondervan, 1986), 148–49. It is noteworthy that Luke allows himself such freedom specifically with regard to parables (another example is his transforming of the Palestinian wadi in Matt. 7:24–27 to a permanent, but sometimes overflowing, river in Luke 6:46–49). This is in line with contemporary translation practice which is at ease with contextualizing changes in symbolic and figurative speech, but considers similar changes problematic in narrative texts reporting history.

²⁰For more detail, see Jaeger, "Facts and Theories in Science and Theology," 437.

²¹The claim to have been eyewitnesses of major events in Jesus's life is a regular feature of apostolic witness: John 19:35; 1 John 1:1–4. See also Paul's argument that the resurrection really happened, and his appeal to eyewitnesses (1 Cor. 15:5–8).

²²C.S. Lewis famously wrote that in the gospel, "myth became fact" (title of an essay included in *God in the Dock*). In line with historic, over against liberal understandings of Christianity, Lewis underlines: "The heart of Christianity is a myth which is also a fact. The old myth of the dying god ... comes down from the heaven of legend and imagination to the earth of history. It happens—at a particular date, in a particular place, followed by definable historical consequences." Lewis goes beyond (but not against!) Peter's emphasis on history, when he insists that "by becoming fact it does not cease to be myth," in the sense that the gospel fulfills the deep aspirations expressed in pagan myth and fuels our imagination and emotions as much as our intellect. Accessed January 14, 2022, <http://mythbecamefact.com>.

²³René Descartes, *Discourse on the Method* (1637), part III, trans. John Veitch (1903), accessed February 27, 2020, <http://www.gutenberg.org/files/59/59-h/59-h.htm#part3>.

²⁴John Stott, *The Contemporary Christian: An Urgent Plea for Double Listening* (Leicester, UK: IVP, 1992), 13.

²⁵ASA Statement of Faith, <https://network.asa3.org/page/ASABeliefs>.

²⁶The ESV translates "living creatures," but the last word has no correspondence in the Greek text, which is rendered more literally by "the living ones."

²⁷Quote taken from Reginald Heber's hymn, "Holy, Holy, Holy! Lord God Almighty!," accessed January 12, 2022, https://hymnary.org/text/holy_holy_holy_lord_god_almighty_early. The visionary diptych in Rev. 4–5 is one of the many trinitarian texts in the last book of the Bible (with the Spirit being mentioned in Rev. 5:6). Other texts include Rev. 1:4–5; 22:1. The fake trinity of the dragon, the beast and the false prophet (the second beast) is an indirect witness to the trinitarian structure of John's theological thinking: the first beast mimics Christ (Rev. 13:3), and the false prophet mimics the Spirit's witness (Rev. 13:12–15).

²⁸Johannes Kepler, *Mysterium Cosmographicum: The Secret of the Universe*, trans. A. M. Duncan (New York: Abaris Books, 1981), 225.

²⁹The two most notable differences with regard to the biblical model are the following: Kepler includes a reference to the five Platonic solids (which he uses in his explanation of the planetary system), and he understands the "domin-

ion over the works of your [the Lord's] hands" (Ps. 8:6), which God has given to humanity, not only to include the earthly sphere, the animals, but also to extend to the heavens: "Thou makest all that is above his head,/The great spheres with their motions, bow before/His genius" (Kepler, *The Secret of the Universe*, 225).

³⁰The Christian Virtuoso, Shewing, That by Being Addicted to Experimental Philosophy, a Man Is Rather Assisted Than Indisposed to Be a Good Christian," 1690, in Robert Boyle, *The Works*, vol. 5, ed. Thomas Birch (London, 1772), 516.

³¹Ibid.

³²Walter R. Thorson, "Legitimacy and Scope of 'Naturalism' in Science: Part 1. Theological Basis for a 'Naturalistic' Science," *Perspectives on Science and Christian Faith* 54, no. 1 (2002): 10, <https://www.asa3.org/ASA/PSCF/2002/PSCF3-02Thorson.pdf>. See Berkhof's definition above, which speaks of God's creative act bringing forth the "existence [of the world], distinct from his own."

³³For example, Robert K. Merton, "Puritanism, Pietism and Science," *Sociological Review (first series)* 28, no. 1 (1936), republished in *Science and Religious Belief: A Selection of Recent Historical Studies*, ed. C. A. Russell (London, UK: University of London Press, 1973), 20–54; Michael Foster, "The Christian Doctrine of Creation and the Rise of Modern Natural Science," *Mind* 43 (1934): 446–68, —, "Christian Theology and Modern Science of Nature, Part 1," *Mind* 44 (1935): 439–66, and —, "Christian Theology and Modern Science of Nature, Part 2," *Mind* 45 (1936): 1–27; Francis Oakley, "Christian Theology and the Newtonian Science: The Rise of the Concept of the Laws of Nature," *Church History* 30 (1961): 433–57 (republished in *Creation: The Impact of an Idea*, ed. Daniel O'Connor and Francis Oakley (New York: Charles Scribner's Sons, 1969), 54–83); Reijer Hooykaas, *Religion and the Rise of Modern Science* (Edinburgh, UK: Scottish Academic Press, 1972); Peter Harrison, *The Bible, Protestantism, and the Rise of Natural Science* (Cambridge, UK: Cambridge University Press, 1998); —, *The Fall of Man and the Foundations of Science* (Cambridge, UK: Cambridge University Press, 2007). Cf. also Cameron Wybrew, ed., *Creation, Nature and Political Order in the Philosophy of Michael Foster (1903–1959): The Classic Mind Articles and Others, with Modern Critical Essays* (Lampeter, Wales: Edwin Mellen Press, 1992).

³⁴To speak of the scientific practice is obviously a simplification. Different scientific disciplines employ different methodologies, and there has been some evolution over time. Nevertheless, there are basic presuppositions which characterize modern natural science and which set it aside from, for example, ancient Greek science or alchemy. More on the biblical justification of essential presuppositions of modern science can be found in Lydia Jaeger, "The Contingency of Creation and Modern Science," *Theology and Science* 16, no. 1 (2018): 62–78, <https://doi.org/10.1080/14746700.2017.1413813>; and —, *What the Heavens Declare: Science in the Light of Creation*, trans. Jonathan Vaughan (Eugene, OR: Wipf and Stock, 2012), chap. 3.

³⁵Edward Grant, *God and Reason in the Middle Ages* (Cambridge, UK: Cambridge University Press, 2001), 181–82.

³⁶Sir Isaac Newton, *Mathematical Principles of Natural Philosophy*, 1st ed., 1687, trans. Andrew Motte, rev. Florian Cajori (Berkeley, CA: University of California Press, 1934), XXXII.

³⁷Peter Harrison, *The Fall of Man and the Foundations of Science*, 87f.

³⁸Francis Bacon, *Novum Organum* 1620, II, §52, quoted *ibid.*, 139.

³⁹Harrison, *The Fall of Man*, 258.

⁴⁰Plato, *Timaeus* 50b, 53b, 56c. Cf. Lydia Jaeger, "Laws of Nature," in *The Blackwell Companion to Science and Christianity*, ed. James B. Stump and Alan G. Padgett (Oxford, UK: Wiley-Blackwell, 2012), 456–58.

⁴¹Newton, *Mathematical Principles of Natural Philosophy*, xvii.

⁴²Galileo, *Letter to Fortunio Liceti*, January 1641, quoted in Carla Rita Palmerino, "The Mathematical Characters of Galileo's Book of Nature," in *The Book of Nature in Early Modern and Modern History*, ed. Klaas van Berkel and Arjo Vanderjagt (Leuven, Belgium: Peeters, 2006), 30.

⁴³Robin G. Collingwood, *An Essay on Metaphysics* (Oxford, UK: Clarendon, 1940), 254. Joshua Harris, in his response to my talk at the 2021 ASA Annual Meeting, pointed out that the conviction that the book of nature was written in mathematical language has been used to foster modern scientism and secularism. Nevertheless, it is important to understand that mathematical science per se feeds on the biblical doctrine of creation, instead of opposing it. It doesn't support atheism—as long as one recognizes that each science uses a specific research methodology which allows one to address certain questions and leave others out. Thus, neither an individual scientific discipline nor natural science taken as a whole offers a complete description of reality. This guards against a too literal understanding of the image of nature's book written in mathematical language: mathematical models are abstractions from the real world. The appeal to mathematical science as an argument against religious belief may well be one incident of the general rule that human beings sin as much as they can; in the hands of sinners, even cultural achievements grounded in creation are turned into weapons against God.

⁴⁴Note that this is a slippery slope and can in the end lead us to evade biblical authority. Against Erasmus, Luther insisted on the clarity of scripture, which allows us to act on the basis of what we have learned from biblical revelation, whereas Erasmus considered that our understanding is never sure enough so that it would allow us to go against the institutional church in the case of conflict between scripture and tradition.

⁴⁵Thomas McCall pointed this out in his response to my talk at the 2021 ASA Annual Meeting, and I gladly take up his comment.

⁴⁶Didier Favre, "Information Evening on Covid-19 Vaccines," June 28, 2021; 1:33:10, recorded here in French: <http://amis.gbu.fr/docs/RSE/Soir%C3%A9%20vaccins.mp4>.

⁴⁷See, for a warning: James A. Lindsay, Peter Boghossian, and Helen Pluckrose, "Academic Grievance Studies and the Corruption of Scholarship," *Areo*, October 2, 2018, <https://areomagazine.com/2018/10/02/academic-grievance-studies-and-the-corruption-of-scholarship/>; and for a critical evaluation: Daniel Engber, "What the 'Grievance Studies' Hoax Actually Reveals: The Headline-Grabbing Prank Has More to Do with Gender Than with Academia," *Slate* (October 5, 2018), accessed September 24, 2021, <https://slate.com/technology/2018/10/grievance-studies-hoax-not-academic-scandal.html>.

⁴⁸The science historian Herbert Butterfield points out that the deism (and later on, atheism) allegedly based on early modern science was less the working of the scientists themselves, than of people such as the Secretary of

Article

Science and Theology as Gifts to the Church: How Creation Allows Scientists and Theologians to Work Together

the *Académie des sciences Fontenelle* (from 1699 to 1740), who “had held his sceptical views before coming into touch with the scientific movement at all—had learned them from Lucretius and from more modern writers like Machiavelli and Montaigne” (Herbert Butterfield, *The Origins of Modern Science 1300–1800* [London, UK: G. Bell, 1957], 166).

⁴⁹Evandro Agazzi, “Reductionism as Negation of the Scientific Spirit,” in *The Problem of Reductionism in Science*, ed. Evandro Agazzi (Dordrecht, Netherlands: Kluwer, 1991), 5.

⁵⁰Barbara Drossel, “Strong Emergence in Condensed Matter Physics,” in *Top-Down Causation and Emergence*, ed. Jan Voosholz and Markus Gabriel (New York: Springer, 2021), chap. 4, sec. 4.4, accessed January 14, 2022, <https://arxiv.org/abs/1909.01134>.

⁵¹Nobel prize winner Robert B. Laughlin relates a telling anecdote:

One of my favorite times in the academic year occurs in early spring when I give my class of extremely bright graduate students, who have mastered quantum mechanics but are otherwise unsuspecting and innocent, a take-home exam in which they are asked to deduce superfluidity from first principles. ... [T]he task is impossible. Superfluidity, like the fractional quantum Hall effect, is an emergent phenomenon ... that cannot be deduced from the microscopic equations of motion in a rigorous way ... The students feel betrayed and hurt by this experience because they have been trained to think in reductionist terms ... But nature is much more heartless than I am, and those students who stay in physics long enough to seriously confront the experimental record eventually come to understand that the reductionist idea is wrong a great deal of the time, and perhaps always.” (“Nobel Lecture: Fractional Quantization,” *Reviews of Modern Physics* 71, no. 4 [1999]: 863, <https://doi.org/10.1103/RevModPhys.71.863>)

Laughlin points to “higher organizing principles in nature” which cannot “be deduced from microscopics” (Robert B. Laughlin and David Pines, “The Theory of Everything,” *Proceedings of the National Academy of Sciences* 97 [2000]: 28, <https://doi.org/10.1073/pnas.97.1.28>). On the ambiguities of his position, see Drossel, “Strong Emergence in Condensed Matter Physics,” sec 4.2, who takes a more consistent stance against reductionism.

⁵²Opposition to reductionism is one of neo-Calvinism’s key themes: Abraham Kuyper underlines the relative independence of different “spheres” of creation (Abraham Kuyper, “Sphere Sovereignty,” in *Abraham Kuyper: A Centennial Reader*, ed. James Bratt [Grand Rapids, MI: Eerdmans, 1998], 461–90; and Abraham Kuyper, *Stone Lectures on Calvinism, 1898* [Grand Rapids, MI: Eerdmans, 2002], 29). Herman Dooyeweerd speaks of “modal aspects, [which] delimit ... the special viewpoints under which the different branches of empirical science examine the empirical world” (Herman Dooyeweerd, *Twilight of Western Thought: Studies in the Pretended Autonomy of Philosophical Thought* [Nutley, NJ: Craig Press, 1975], 7).

⁵³Not all properties studied by specific scientific disciplines lend themselves to mathematization and the same kind of experimental verification as used by physics. As Agazzi points out, all scientific disciplines should “offer criteria of objectivity and rigor, but these criteria depend on the nature of their objects ... while fully admitting that there is a certain ‘normativity’ in the activity of scientific research, one must see

to it that it emerges from the domain of investigation in concern” (Agazzi, “Reductionism as Negation of the Scientific Spirit,” p. 19; italics in the original).

⁵⁴See Alvin Plantinga’s case against methodological atheism (or naturalism) as the norm in academic research: Alvin Plantinga, “Methodological Naturalism?,” in *Facets of Faith and Science, Vol. 1: Historiography and Modes of Interaction*, ed. Jitse M. Van Der Meer (Lanham, MD: University Press of America, 1996), 177–221; and Alvin Plantinga, “Science: Augustinian or Duhemian?,” *Faith and Philosophy* 13 (1996): 368–83, accessed January 12, 2022, https://andrewmbailey.com/ap/Science_Augustinian_or_Duhemian.pdf. For in-depth studies of the history of methodological and metaphysical naturalism in a wide area of academic disciplines, ranging from physics to anthropology and higher biblical criticism, see Peter Harrison and Jon H. Roberts, eds., *Science without God? Rethinking the History of Scientific Naturalism* (Oxford, UK: Oxford University Press, 2019).

⁵⁵Peter van Inwagen points out that “the preferred universe of the Enlightenment ... is infinite in space and time,” whereas “the universe that was constructed to fit the imaginations of Christians ... turned out to be consistent with what science has discovered” (“*Quam Dilecta*,” in *God and the Philosophers: The Reconciliation of Faith and Reason*, ed. Thomas V. Morris [New York: Oxford University Press, 1994], 50).

⁵⁶I use the cautious “could have guarded” as it would need a study in the history of ideas in order to see what influence the biblical teaching on creation exerted on believing thinkers in their cosmological model-building. For example, given the knowledge available at his time, Thomas Aquinas considered that the creation of matter was not something to be known by reason alone, but by (special) revelation. Throughout this article, I use the anachronistic term of “science” for all rigorous study of the natural realm throughout the centuries.

⁵⁷See Eloise Meneses et al., “Engaging the Religiously Committed Other: Anthropologists and Theologians in Dialogue,” *Current Anthropology* 55, no. 1 (2014): 82–104.

⁵⁸Mircea Eliade, *Traité d’histoire des religions* (1949; France: PAYOT, 1990), 11. [The quote is translated by Rachel Vaughan, whom I also thank for correcting the English style of this article.]

⁵⁹Blaise Pascal, *Pensées, Fragment Contrariétés n° 9/15 (Brunschvicg n° 441; Lafuma n° 471; Sellier n° 708)*: <http://www.penseesdepascal.fr/XI/XI9-savante.php?r1=R%C3%A9f%C3%A9rence&r2=d%C3%A9couvre%20ce%20principe>. English translation: *Pascal’s Pensées* (New York: E.P. Dutton, 1958), <https://www.gutenberg.org/files/18269/18269-h/18269-h.htm>.

⁶⁰ASA Statement of Faith, <https://network.asa3.org/page/ASAbeliefs>.

⁶¹My translation. In the original: “*Die Würde des Menschen ist unantastbar*,” accessed March 3, 2020, https://www.bundestag.de/parlament/aufgaben/rechtsgrundlagen/grundgesetz/gg_01-245122.

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Fred S. Cannon

Acts 17:26: God Made of One [Blood]—Not of One Man—Every Ethnic Group of Humans

Fred S. Cannon

Acts 17:26 has been word-for-word translated as “God made of one (henos) blood (haimatos) every ethnic group (ethnos) of humans.” “Of one blood” appears in most ancient manuscripts and Patriarch quotations, including Irenaeus, whereas “of one” appears in several preeminent ancient manuscripts and in a Clement quote. Nonetheless, several recent English translations read “from one man,” even though “man” does not appear in any early handwritten manuscripts. Some English translators perceive that “man” could be added as an ellipsis word after “one.” Ellipses are words that Koine Greek authors omitted from their writings, anticipating that their readers would “supply-in-thought” these missing words in their minds, from the immediately preceding linguistic context. However, inserting “man” here would not match the patterns of any other Koine ellipses. “Of one blood” or “of one” concurs with scientific discoveries, whereas “from one man” conflicts. We are indeed all one blood of God’s creation; and thus there is no room for racial bias.

Keywords: Acts, human origins, of one blood, Adam, Koine Greek Grammar, ellipsis.

In Acts 17:26, the Apostle Paul proclaimed, “He [God] made of *one blood* every ethnic group/nation of humans to live on all the face of the earth.” The overwhelming number of early manuscripts and Patriarch quotations read “of *one blood*,” whereas several early Alexandrian manuscripts read “of *one*,” with no noun. No early handwritten Acts manuscripts read “from *one man*” in this verse.

If Acts 17:26 were actually written as “he [God] made *from one man* all humans,” then this verse would be the only place in the whole Bible where a biblical text would unequivocally say that all humans came from one human. However, the early and sustained handwritten manuscripts read “of *one blood*” or “of *one*.” Unfortunately, those who read the erroneous translations “from *one man*” that have become popularized since the 1960s, and have not gone through the exercise that is described in this article, could unknowingly come to believe that the

Bible teaches that all humans came from one human. But the rigorously accurate reading(s) of Acts 17:26 do not say this. Moreover, no other verses in the Bible definitively say this.

We note that in Genesis 1, *adam* can refer to collective humanity, whereas in Genesis 2, *Adam* can refer to someone who lived with Eve in Eden, and offended God.¹

It is only within the past sixty years that several prominent English translations have presented Acts 17:26 to read “from *one man*.” These translations include the NIV, ESV, NET, and HCSB.² The KJV, Interlinear, and WEB read “from *one blood*” as translated from the *Textus Receptus*.³ The NAB and RSV (1972) read

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Article

Acts 17:26: God Made of One [Blood]—Not of One Man—Every Ethnic Group of Humans

“from one” as translated from the Nestle-Aland *Novum Testamentum Graece*.⁴ The NRSV reads “from one ancestor”;⁵ the REB and NEB read “from one stock”⁶ whereas the NJB reads “from one single principle.”⁷ The NASB of the 1970s reads “from one,” along with its footnote, “some later manuscripts read ‘one blood.’”⁸ In 1995, the revised NASB (NASBR) reads “from one man,” with “man” typed in italics, so as to identify it as an inserted word.⁹ Throughout this article, I will occasionally refer to these fifteen representative English translations. I have tabulated the readings of this Acts 17:26 passage in about 260 Bibles, in forty languages, and have not observed “from one man” appearing in any broadly distributed Bible translations until the 1960s. (Two less-known self-proclaimed paraphrases in the 1700s—one by Mace, the other by Haweis—did insert “one parent” and “one man’s blood” here.¹⁰)

Rationale by Others for Including “from one man” in Acts 17:26

In recent translations, how did so many different nouns get inserted after the word “one” in Acts 17:26? More specifically, why did the noun “man” end up here so recently, after being absent for nearly two millennia? In order to understand this anomaly, I emailed the following question to translators of recent English translations: “Why was the word *man* included as ‘from one man’ in Acts 17:26, when ‘man’ was not included in any early manuscripts?” Several translators were so kind as to offer email responses.¹¹ They all acknowledged that “man” was not included in any early handwritten manuscripts, yet their rationale for including “man” anyway can be summarized in the following four ways:

1. Inserting “man” makes explicit what most scholars think is the implicit reference, namely, to the one man Adam of Genesis 1:26–29 and Genesis 2.
2. Including “man” is a proper interpretation of an ambiguous passage.
3. “Of one” presents a word that begs a noun: of one ... what? “One man” provides this noun.
4. Often, the Koine Greek authors omitted words that they expected the Greek reader to “supply-in-thought” as “ellipsis” words, and “man” here is one of these ellipsis words.

Perspectives Regarding the Rationale for Inclusion of “from one man” in Acts 17:26

With regard to the *first rationale*, the Hebrew word *adam* can mean either “human, man, humanity” or someone named “Adam.”¹² As such, the Hebrew word *adam* is like the English word “deer”: both of these words can refer to the singular or to the collective whole. Thus, Genesis 1 can be about God creating *adam*-humanity (collectively) in the image of God over broad evolutionary time. Also, in Genesis 2–4, *Adam* can refer to someone who lived with Eve in Eden and offended God (Rom. 5:12–21).¹³ Many debates and confusions regarding these two Genesis chapters resolve themselves when this interpretation is employed. Moreover, this perspective corroborates with modern scientific findings: by the time the Genesis 2 individuals named Adam and Eve must have lived in Eden, the Genesis 1 *adam*-humanity had already become fruitful and multiplied and had inhabited six continents of the earth.¹⁴

First Corinthians 15:45–47 speaks of a “first” man, *adam*, and a “second” or “last” man, Jesus. But clearly, Jesus was not the very “last” human before humanity’s extinction—all of us alive today are living proof of that. Likewise, the Genesis 2–4 *Adam* was not the very “first” human before any other humanity existed. This Corinthians passage pertains to God’s narrative of the moral relationships of humans rather than to any ancestral chronology.

For the *second rationale* regarding ambiguity, C. John Collins admonishes:

In cases where ambiguities appear in the initial Greek and Hebrew manuscripts such that the original language grammar offers several ways to understand the text, the “essentially literal” approach will be to pass the responsibility on to the reader to decide, just as the readers of the Greek had to decide ... (In contrast) the tenets of “dynamic equivalence” push the translator to decide between the options on behalf of the reader ... As an expositor, I will take one approach or another; but as a translator, it is not my task to decide on behalf of the reader ... When people refer to a translation as interpretive, this is just the sort of thing they have in mind: it shuts the English reader off from other options.¹⁵

Collins further quotes A. J. Krailsheimer as lamenting,

It does not help if the translator introduces variants of his own, instead of following as faithfully as possible the chosen original, (which is the) ultimate criterion of accuracy and authenticity.¹⁶

In this article, the discussion focuses on issues related to emending factual substance, as distinguished from acknowledging cultural style. From this perspective, translating Acts 17:26 as “from *one man*” is indeed an expository variant and conjectural emendation; it is inappropriate for an “essentially literal” translation. Note that most of the fifteen representative English translations referenced above present themselves as “essentially literal” translations. However, inserting “from *one man*” in Acts 17:26 exhibits a significant departure from the “essentially literal” mandate regarding factual substance that is promoted by numerous translators.

To address the *third rationale* regarding the question “from one ... what?,” let’s pose the follow-up question: why not use the noun that appears in 95% of all handwritten Greek manuscripts and as quoted by Irenaeus (in AD 185), namely, “of *one blood*”? The merits and textual scholarship of this approach will be discussed further toward the end of this article.

Let us now focus on the *fourth rationale* regarding Koine Greek ellipses.

New Testament Ellipses and Grammatically Omitted Words in Koine Greek

Koine Greek grammar has routinely omitted several categories of words that would commonly be included in contemporary English grammar; and these absent words have been called “ellipses.”¹⁷ Heinrich von Siebenthal writes,

The term “ellipsis” (Greek for “omit”) refers to the omission of one or more sentence elements that would normally be required in a well-formed (grammatical) construction. Frequently, they are omitted when they can easily be supplied-in-thought on the basis of context.¹⁸

New Testament ellipses are words that are not grammatically required in Koine Greek, whereas to communicate the same meaning in English, an explicit word could be required.

Even in contemporary English, we practice ellipsis, but we hardly notice it because of how English speakers grammatically form English sentences. For example, in Matthew 6:24, Jesus says, “No one can serve two masters, for the one he will hate, and the other he will love, or one he will cleave to, and the other he will despise.” English speakers naturally find no need to include “master” four more times in this one sentence. We call the absent word {*master*} an “ellipsis.” In this article, I designate ellipsis words with {*brackets and italics*}. Apparently, the Koine Greek mind accepted and supplied-in-thought a yet broader range of ellipses; and these patterns of omissions were common in both biblical and classical Greek texts, including in the writings of Aristotle, Plato, Atticus, and others.¹⁹

The published KJV has tracked these New Testament ellipses with italicized words that are included in the KJV English text, whereas many other translations do not identify their ellipses. Also, examples of New Testament ellipses have been highlighted in two scholarly Greek grammar books: one by von Siebenthal (hereafter VS); the other by Blass, Debrunner, and Funk (hereafter BDF).²⁰ I have tabulated about 3,255 of these New Testament ellipses that have been identified by these three sources;²¹ these represent about 1.8% of all the words in the English-translated KJV New Testament. I also categorized each of them by the Koine Greek grammatical constructs and linguistic patterns that VS and BDF highlight. Notably, the proposed Acts 17:26 reading “from one {*man*}” does not match any of these ellipsis grammatical constructs and linguistic patterns; nor do VS, BDF, or the KJV identify this Acts 17:26 “*man*” as a prospective ellipsis. I surmise that “from one {*man*}” would be a unique outlier as an ellipsis in several regards—if, indeed, someone were to propose this as an ellipsis. Rather, “from one {*man*}” should be construed as a “conjectural emendation,” that is, an added word, a variant not present in the handwritten manuscripts, and a conjecture on the part of the translator.

Short-Term Working Memory in Language Processing

As we appraise these ellipses, we note that these Koine Greek patterns and constructs are based on sound psycholinguistic communication processing that pertains to our short-term working memory.

Article

Acts 17:26: God Made of One [Blood]—Not of One Man—Every Ethnic Group of Humans

We surmise that a generic manner of communication processing is common to all humans, including those of the Koine Greek and the English-speaking linguistic cultures. Yet, the Koine grammar that is employed to achieve understandable communication appears, in some ways, distinct from how English grammar achieves this end.

Psycholinguists Herbert Clark and Eve Clark address the thought processing of speech listeners and text readers in their book *Psychology and Language*, which has been cited 5,500 times.²² In this book, Clark and Clark summarize the underlying thought-processing steps that humans employ over a broad array of languages as follows:

- (1) The listeners (or readers) take in raw speech (or text) and retain a verbatim phonological representation of it in short-term “working memory.”
- (2) They immediately attempt to organize the phonological representation into constituents (phrases), identifying their content and function.
- (3) As they identify each constituent, they use it to encode and construct underlying propositions, building continually on a hierarchical representation of propositions.
- (4) Once they have identified the propositions for a constituent, they retain them in this short-term working memory; and at some point purge memory of the phonological representation. In doing this, they forget the exact wording, and retain the meaning ... Listeners (and readers) typically begin purging verbatim memory after a sentence boundary has passed.²³

In this description, the focus is on the concept of the “short-term working memory,” which maintains the “phonological representations” as verbatim words for perhaps one or several sentences of speech or text.

While analyzing these Koine Greek ellipsis words and tabulating which grammatical construct and linguistic pattern they conform to, I came to realize that these ellipsis patterns accommodate the very short-term working memory. Specifically, these ellipses are preceded within the same sentence—or in the prior one to three sentences—with the context that supplies-in-thought what the ellipsis word is. Thus, Koine Greek ellipses are not about the reader recalling facts from long-term memory or from recalling Old Testament narratives. Rather, they are about the writer grammatically presenting text in a manner

such that the reader can linguistically supply-in-thought the best-fitting words that are derived from the short-term working memory within the immediately preceding one to three sentences of the same pericope (a pericope is a paragraph or story). In this way, Koine Greek hosts grammatical constructs slightly distinct from English, but it effectively adapts to the same linguistic mental processing of the human mind that is posed by Clark and Clark.²⁴

Ellipsis Grammatical Constructs and Linguistic Patterns of Koine Greek That Employ Short-Term Working Memory

Based on the VS and BDF characterizations, I have enumerated the Koine linguistic patterns that these Greeks exhibited, as they appear to have adapted the common fundamentals of short-term working memory to their grammatical constructs.²⁵ Their quantitative frequency of occurrence in the KJV New Testament is summarized in table 1, which is compiled from two hundred pages of Excel spreadsheets.²⁶ This table also identifies where these patterns are addressed in VS and BDF.²⁷

Pattern 1. Passive voice “to be”: In the passive voice, the verbs “to be” are often grammatically omitted in the Koine Greek, and can be grammatically added as ellipses in English translations. These omitted words can include *is, was, be, were, am*.

Pattern 2. Chain-of-reference: Within a given pericope, an author can achieve participant tracking by means of a “chain-of-reference.” Norm Mundhenk describes a chain-of-reference as follows:

Once a particular participant has been introduced into a discourse, that participant can be referred to any number of times. Whenever particular participants are “on stage,” different languages have different ways of keeping track of them, via a “chain-of-reference” ... Greek grammar is quite different from English; and in the Greek, an individual may never be referred to by either a noun or pronoun, but only by the endings of the verbs.²⁸

Ellipsis chain-of-reference personal pronouns can include, for example, *him, her, he, she, them, you*, and also *this, these*. These can be implicitly deduced based on the verb inflections.

Pattern 3. Connectors and prepositions: Connectors and prepositions that English would include are

Table 1: Ellipsis Categories and Koine Greek Grammatical Omissions and Number of Ellipses in Each Category

The *italicized* words are words included in the King James Bible that were not present in the handwritten Koine Greek grammar. Ellipsis words are shown in *{brackets and italics}*. Words that provide context are **bolded**.

Grammatical Pattern	Reference*	Example Verse Reference	Example Verse	Number of Ellipses			
				Acts	Luke	Pauline Letters	All NT
1. Passive Voice: can omit cupola verbs "to be": <i>be, is, was, were, am</i> .	V447 B70	Acts 4:24	You <i>{are}</i> God, who made heaven, earth, and sea	28	67	396	807
2. Chain of Reference: can omit pronouns when they are known from prior context in same pericope: <i>him, her, she, it, them, this</i> .	V451 B72	Acts 5:6	The young men arose, wrapped him up, and carried <i>{him}</i> out, and buried <i>{him}</i> .	140	156	214	948
3. Can omit connectors, prepositions: <i>and, of, which, that, even, etc.</i>	B254	Acts 1:16	Men <i>{and}</i> brothers, ...	55	17	143	389
4. Can omit possessive references: <i>his, hers, your, their, etc.</i>	V208	Acts 8:17	Then they laid <i>{their}</i> hands on them, and they received the Holy Spirit	30	35	72	251
5. Can omit familial relationship: e.g., <i>son of, mother of</i> .	V237 B89	Mark 15:40	Mary the <i>{mother}</i> of James	6	77	0	102
6. In introducing a quotation, can omit "I say, she was saying, he said, I wrote, we send." Also, "know that."	V554 V370 B254	Acts 13:47	The Lord commanded us, <i>{saying}</i> , "be light to the Gentiles"	12	2	12	36
7. If elements are common to two sequential phrases, can omit repeated word(s) in the second phrase (often in parallel structure).	V554 B253	Acts 24:16	Have always a conscience void to offence toward God and <i>{toward}</i> men.	23	17	72	201
8. Other reference as per prior context in same pericope. Also, verb = noun.	V444	Acts 15:23	they wrote <i>{letters}</i> (or <i>writings</i>) (omitted noun linked to verb)	31	12	71	214
9. Insertion not needed in modern English (although appearing in KJV).	-	Acts 25:15	Elders...desiring <i>{to have}</i> judgment against him.	12	10	23	68
10. All <i>men</i> , any <i>men</i> , no <i>man</i> in ESV read as <i>all, everyone, anyone, none</i>	B143 ESV	Acts 1:24	You, Lord, know the hearts of all <i>{men}</i> (i.e., <i>everyone</i> , or all)	5	3	15	52
11. Greek <i>hoytos</i> = this one (translated as this <i>{man}</i> or this <i>{fellow}</i> in KJV, etc.)	Thayer	Luke 23:52	Joseph...of Arimathaea...this one <i>{man}</i>	1	7	0	21
12. <i>Man, men</i> : Can omit when context given previously in same pericope.	B143	Acts 10:1,2	Cornelius...a devout <i>{man}</i> that feared God and gave alms	2	3	5	24
13. Can omit weak head noun linked to an adjectival phrase—primarily inanimate concepts: e.g., next <i>{day}</i> , hilly <i>{land}</i> .	V468 V554 B125	Acts 21:8	And the following <i>{day}</i> , we departed and came to Caesarea.	15	11	5	50
14. Can omit first noun in a "noun of noun" clause: e.g., <i>{part}</i> of the price.	V444 B118 B254	Acts 5:2	Ananias...kept back <i>{part}</i> of the price	11	3	5	26
15. Other ellipses: supplied-in-thought from same pericope; per V and B. Also, idioms.	V245 V444 B306 V555 B254	Acts 7:59; 8:2 Luke 14:18	And they stoned Stephen, and he fell asleep ...men carried Stephen <i>{to his burial}</i> All with one <i>{consent}</i> (or one <i>{accord}</i>)	15	4	22	66
16. Apparent conjectural emendation (if one chooses this emended wording).	ESV NIV	Acts 17:26	God made from one <i>{man}</i> ? all ethnicities of men	1**	0	0	0
SUMS of all ellipses/omissions				387	424	1055	3255

*V = von Siebenthal; B = Blass, Debrunner, Funk; ESV = English Standard Version; Thayer = Thayer's Greek Lexicon; NIV = New International Version.

**In Acts 17:26, if a translator chooses "He (God) made from *one man* all men," then this would be the only conjectural emendation that we find throughout this ellipsis survey. But no Greek or ancient manuscripts read that way; instead, the overwhelming number read "of one blood," while several read "of one."

Article

Acts 17:26: God Made of One [Blood]—Not of One Man—Every Ethnic Group of Humans

often omitted in New Testament Greek; for example, *and, but, of, even, which, so*.

Pattern 4. Possessive pronouns: Possessive pronouns are often omitted; for example, *his, her, their, your, our*. In their place, the Greek article for “the” or “a” may be included instead.

Pattern 5. Familial relationships: When identifying an individual and his/her kin, the familial relationship may be omitted. For example, “Mary the {mother} of James” (Mark 15:40). Likewise in the Luke 3:23–35 genealogies, {son} is omitted; rather, these relationships read, for example, “Joseph, which was {the son} of Heli ... Adam {ellipsis word} of God.”

Pattern 6. The verb “say”: When introducing a quotation, “say” can be omitted, such as in “I {say}.”

Pattern 7. Sequential clauses, often parallel structure: When two clauses appear in sequence, some common elements, such as repeated words, can be omitted from the second clause. However, in my research, I have never found common elements omitted from the first clause. These sequential phrases often appear in parallel structure; and this provides the framework for the reader to supply-in-thought the ellipsis words. For example, in Luke 10:41–42, Jesus admonishes, “Martha, you are anxious about many things, but one {thing} is necessary.”

Pattern 8. Other references within the same pericope: Other reference-related ellipses can include (a) an excluded noun when its meaning is derived from a previously included verb that has the same corresponding root meaning, or vice versa; and (b) an element that has already appeared in the prior one to three sentences—that is, while the reader’s mind still has the working-memory “file-cabinet” open regarding these thoughts.

Pattern 9. Unneeded KJV insertions: The KJV sometimes adds italicized words that are not really needed to understand the English text, particularly by a contemporary English reader. These KJV-italicized insertions do not appear in several of the contemporary English translations.

Pattern 10. *Pantas*: When the Greek word *pantas* (translated “all”) is used, the KJV context can follow with {men}, whereas ESV and other translations present this as “everyone” or “everybody,” or simply

“all.” Since these pertain to the Greek definition of *pantas*,²⁹ they are not true ellipses. Likewise, “no {man}” can be translated as “none” or “nobody,” and “any {man}” can read as “anyone.” Also, *pantas* can refer to “all {things}” or “everything.” In table 1, these “everything” meanings are grouped with pattern 9.

Pattern 11. *Hoytos* or *taute*: Thayer lists *hoytos* and *taute* (along with their other inflections) as demonstrative pronouns meaning “this,” “this one visibly present here,” or “the one just named in the immediately preceding subject.”³⁰ Thus, by their Greek definition, these words serve as both a pronoun and noun spliced together into a single Greek word. These do not constitute true ellipses, although the KJV sometimes presents them as “this {man}” or “this {fellow}.” Similarly, *tis* or *tis heis* can mean either “a certain one” or “a certain.”³¹ The KJV may read “a certain {man}.” This is not a true ellipsis, since “one” is included as a part of this dual “certain-one” Greek structure.³² Notably, the Greek grammar for *hoytos* and *taute* (which mean “this”) is unrelated to the grammar for *heis*, *henos*, and *mia* (which mean “one”), as discussed below.

All the ellipses categorized under patterns 1–11 sum to 3,088 (table 1).³³ Thus, these “routine” ellipses regarding Greek grammar and word meanings constitute more than 94% of all KJV New Testament ellipses.

Pattern 12. Man, men, or women as ellipsis: There are only twenty-four other times when *man*, *men*, *women*, *person*, or a similar word appears as an ellipsis word in the KJV New Testament (that is, other than in patterns 10 and 11 above). In all twenty-four cases, such ellipsis individuals are specifically identified via chain-of-reference by their proper name, by verb tense, or by the pronouns “he,” “she,” or “they” within the immediately prior one to three sentences. In none of these twenty-four instances does the reader need to refer to the Old Testament in order to “supply-in-thought” the ellipsis word “man.” The “man” ellipsis is addressed further below.

Pattern 13. Weak head nouns in adjectival phrase: A weak head noun can be omitted in an adjectival phrase. Often this occurs when an adjective is effectively used to serve as a Greek noun. The omitted head noun is often a concept or inanimate object, such as *day*, *time*, *land*, *rain*, *clothes*. This pattern

appears in Matthew 6:2,3, where “the right {*hand*} knows not what the left {*hand*} is doing.” Here, “right” and “right *hand*” are idioms in both Greek and English. Similarly, Clark and Clark noticed that English readers exhibit understanding when they view a noun that is used as a verb.³⁴

Pattern 14. {Noun}-of-noun: The Koine Greek can omit the first noun in a “{*noun*}-of-noun clause,” which hosts a preposition (often “of”) nestled between two nouns. The first noun can be an ellipsis noun. An example is “{*part*} of price” (Acts 5:2).

Pattern 15. Other ellipses supplied-in-thought from the same pericope; and idioms: There are other ellipses that can be supplied-in-thought from within the same pericope per the immediate context. For example, Acts 27:43 narrates that a centurion commanded that all passengers aboard a **grounded, sinking ship** “that could **swim** should **cast** {*themselves*} first {*into the sea*}, and **get to land**.” In this sentence, “{*into the sea*}” is understood as the ellipsis phrase, because this matches the immediate context derived from the bolded words. In table 1, quite a few of these pattern 15 ellipses are ones that have been specifically discussed by VS and/or BDF.³⁵

I include several Greek and English idioms in this category. In the Luke 14:18 parable, the KJV reads, “all with one {*consent*} ... made excuses to not attend a feast.” Per BDF, this Greek expression “*apo mias*” (word-for-word “with one”) is a “superlative expression” that could read “with one accord,” “once for all,” “all at once,” or “all together.”³⁶ This operates like an idiom.

Pattern 16. Conjectural emendations: These are words that English translations emend (add) into the text that involve conjecture on the part of the translator.³⁷ In such cases, the translator might perceive that the Greek text, as handwritten, is not only “incomplete” or “ambiguous,” but also that two or more possible meanings could be attributed to the text. Then the translator conjectures which of these meanings should be selected. This involves subjective opinion on the part of the translator.³⁸ Among all the ellipsis words that the KJV filled in with italics, I found no substantive conjectural emendations. Nor did I find any conjectural emendations among the ellipses identified by VS and BDF.³⁹ Thus, the sole conjectural emendation found among all these

evaluated passages would be “from one {*man*},” if someone were to consider this as a prospective reading in Acts 17:26.

{*Man*} as an Ellipsis: Further Discussion of Ellipsis Pattern 12

So, how would “from one {*man*}” in Acts 17:26 stack up against these other “*man*” ellipses, where “*man*” could be “supplied-in-thought”? Table 2 presents twenty-four passages in which the KJV identifies in italics the ellipses *man*, *men*, *women*, *fellow*, or *soldier* (that is, in cases not already discussed per pattern 10 or 11 above).⁴⁰ My analysis reveals that, in Acts 17:26, the proposed “from one {*man*}” emendation in Acts 17:26 does not conform to the Koine grammatical constructs or linguistic patterns employed for any of these other valid twenty-four “*man*” ellipses.

In narratives and parables, the identity of a valid “*man*” or “*woman*” ellipsis hosts chain-of-reference links on multiple occasions in the same pericope—often by specific name and also by such words as *he*, *his*, *him*, *she*, *they*; as well as by verb tenses (refer to pattern 2 above). Among these twenty-four cases, the number of chain-of-reference links that validate “*man*” as the grammatically appropriate ellipsis word was in the range of 1 to 30 (table 2).

Frequently, when “*man*” occurs as an ellipsis, it appears in an adjectival phrase that comprises an adjective plus the ellipsis head noun “*man*” that the adjective modifies. In this adjectival phrase construction, the adjective actually serves as a noun in the Koine Greek; the italicized English word “*man*” would not be needed if the adjective were transformed into the equivalent English noun. Thus, this “ellipsis” pertains to how the Greek grammar allows an adjective to be used as a noun (refer to pattern 13 above). In Acts 10:2, Cornelius is described by an adjectival phrase as being a “*eusebes* {*man*}.” *Eusebes* is formally an adjective that means “devout,” yet in this verse it acts as a noun that could be translated as the English noun “devotee.”

The ellipsis word “{*woman*}” could be inserted in Luke 17:35, where Jesus says, “Two {*women*} shall be grinding together; the one shall be taken, and the other left” (KJV). Here, {*women*} is discerned by the Greek verb tense. Matthew and Luke quote Jesus as repeating this sentence structure several more times,

Article

Acts 17:26: God Made of One [Blood]—Not of One Man—Every Ethnic Group of Humans

such as with “two in a field” (Luke 17:36, as in pattern 13). As a practical function, these proverbs carry more eloquence and urgency when presented in their abbreviated double-parallel structure, without the ellipsis words. This eloquence-through-absence is achieved in both Koine Greek and English.

The KJV refers to a “band {of men}” in John 18:3, which gathered against Jesus at the Mount of Olives. The Greek word is “*steiran*” — a noun that designates a Roman “cohort” of five hundred to one thousand soldiers. “Cohort” appears in many English translations without the added ellipsis “men” (pattern 9).⁴¹

In the KJV, Paul’s letters include only “man” or “men” as an ellipsis word in five passages; four of these are in rigorous parallel structure per pattern 7 (such as old man/new {man} in Colossians 3:9,10).

In the Romans 5:12–21 pericope, Paul contrasts the offense and death of Adam with the resurrection and grace of Christ. In verse 17 in the Interlinear Bible, the word-for-word English reads: “For if by the offense of the one, death reigned by the one ...” Many of the representative English translations contain variations such as “one {man’s} offense,” although several do not include “{man}” (pattern 9).⁴² According to the Koine Greek grammatical patterns, “one” could be interpreted as referring to “one offender,” “one man,” or “Adam,” as all of these are referenced in this pericope immediately before Romans 5:17 (patterns 2 and 8). This Romans passage is starkly distinguished from Acts 17:26, where no such context or chain-of-reference within Paul’s speech in Athens supplies-in-thought a “from one {man}” translation. Parenthetically, please note that there is nothing in this Romans 5:12–21 pericope that states outright that this one offender Adam was the first human to have ever lived.

Another Pauline “man” ellipsis appears in 1 Corinthians 14:21, which reads in the KJV: “In the law it is written, ‘With {men of} other tongues and other lips will I speak ...’” Notably, these words “{men of}” appear neither in the Interlinear Bible (either English or Greek), nor in other recent English translations (REB, NJB). Moreover, the Isaiah 28:11 source for this does not include “men” — neither in the Hebrew⁴³ nor in the Greek Septuagint.⁴⁴ So, “men” is an unnecessary ellipsis word in 1 Corinthians 14:21 (pattern 9).

Then, in Hebrews 11:8–12, the KJV does not include an italicized ellipsis “man,” but many other recent English translations do. This passage speaks of the faith of Sarah and the “seed” of Abraham, who by faith “conceived from one {seed}.” Many recent English translations include the ellipsis word “man” here rather than “seed.” Such a {man} or {seed} could appropriately refer to either Abraham or his seed, as both have already been introduced within this pericope in immediately preceding sentences.

Peter wrote about “Noah, the eighth {person},” per the KJV in 2 Peter 2:5. However, most representative contemporary English Bibles translate this as “Noah with seven others” who were saved in the flood. These eight are Noah, his three sons, and their four wives. Importantly, in this 2 Peter 2:5 passage, it is Noah who is specifically named as that eighth {person} (pattern 2).

In summary, among these twenty-four table 2 passages where the ellipsis word “man” appears, all of these passages internally spell out who this “man” is within the prior one to three sentences of the same pericope. This stands in stark contrast to Acts 17:26, where there is no mention of any such “man” in the same pericope. Moreover, in most of these twenty-four passages, the ellipsis word “man” is a weak place-holder noun that need not be there in the Koine Greek, since the preceding adjective is being used as a noun. In stark contrast, if “man” were to be included in Acts 17:26, it would instead be a very emphatic word. Indeed, it would cause Acts 17:26 to be the only passage in the whole Bible that would definitively say that all humans came “from one {man}” (see discussion below).

Occurrence of the Combination “one man” in the New Testament

The combination “one man” is spelled out seven times in the Koine Greek New Testament — always to emphasize both *one* and *man*. For example, in John 11:50 and 18:14, Caiaphas schemes that it is “profitable for one man to die for the people.” Then Romans 5:15 speaks of the “grace of the one (*henos*) man (*anthropou*), Jesus Christ.” So likewise, in Acts 7:26, Luke and Paul had wanted to emphasize both “one” and “man,” surely the word “man” would have appeared in the handwritten manuscripts. This complete absence of “man” connotes that Luke and Paul intentionally did not say “man.”

Table 2: Passages in which “man,” “men,” “women,” or similar person-identifiers are perceived as an ellipsis, and are italicized in the King James Bible (pattern 12).

Note the English noun equivalent for the Koine adjectival phrase.

Book	Verse	Phrase with elliptical word such as “ <i>man</i> ,” “ <i>men</i> ,” “ <i>women</i> ,” which are in <i>italics</i> .	Person	Text Type	Number of References	Pattern Number	English noun/phrase for Koine adjectival phrase
Matt.	1:19	Joseph, a just <i>man</i>	Joseph	N	8	8, 12	Purist, innocent, saint
	5:11	Blessed when <i>men</i> revile you	G	T	1	2	They (per verb tense)*
	13:17	Prophets and righteous <i>men</i>	G	P	11	8, 12	Purists, innocents, saints*
	23:27	Dead <i>men’s</i> bones	G	P	na	8, 12	bones of the dead*
	24:41	Two <i>women</i> grinding...one...other	G	P	1	2, 7, 9	grinders
	26:71	Another <i>maid</i> saw him (Peter)	Unnamed	N	1	9, 12	Maid*
	27:27	Band of <i>soldiers</i> (in garden)	Cohort	N	6	8	Cohort (500–1,000 soldiers)*
	28:4	Keepers...as dead <i>men</i>	G	N	1	13	as though dead*
Mark	6:21	Chief <i>estates (men)</i> of Galilee	leaders	N	1	8, 13	leaders*
Luke	17:34	Two <i>men (persons)</i> ...one...other	G	P	1	7	sleepers
	17:35	Two <i>women</i> grinding...one...other	G	P	(verb)	2, 7, 9	grinders
	17:36	Two <i>men</i> in field...one...other	G	P	1	7, 9	field hands
John	18:3	Band of <i>men</i> (in garden)	Cohort	N	10	9	Cohort (500–1,000 soldiers)*
Acts	10:2	Cornelius ... a devout <i>man</i>	Cornelius	N	13	8, 12	Devotee, saint
	24:5	This man a pestilent <i>fellow</i>	Paul	N	30	2, 8, 13	real pest, plague*
Rom.	5:17	By one <i>man’s</i> offence	man/ Adam/ offender	N/T	4	2, 7, 8, 9	One offender
1 Cor.	10:29	Another <i>man’s</i> conscience	G	T	na	7, 9	Another’s (parallel structure)
	14:21	With <i>men of</i> other tongues	G	T	1	9	With other tongues*
2 Cor.	4:16	Outward man...inward <i>man</i>	G	T	na	7	self*; (parallel structure)
Col.	3:9,10	Old man...new <i>man</i>	G	T	na	7	self*; (parallel structure)
1 Tim.	5:24	Some men’s...some <i>men</i>	G	T	na	7	(parallel structure)
Heb.	11:11,12	(Multitude) sprang from one <i>man</i>	Sarah	N	1	2, 9	(from one received seed)
1 Pet.	4:16	You suffer... <i>any man suffers</i>	G	T	na	7, 9	Anyone (parallel structure)
2 Pet.	2:5	Noah, the eighth <i>person</i>	Noah	N	1	2, 8, 12	Noah and seven others*
Acts	17:26	From one <i>man</i> (?)	no ID	N	0	none	none

Person: G = generic person in parable, proverb, or teaching

Text type: N = narrative; P = parable or proverb; T = teaching.

Number of references: Number of times within the same pericope that the individual(s) are identified by name, or by “he,” “she,” “they,” or by gender, etc.

Pattern number: Koine Greek grammatical rule and characteristic pattern, according to table 1.

Equal noun: English noun or phrase that would be equivalent to the Greek adjectival phrase that has head noun “man,” etc.

*Equal noun or phrase that is used in at least one of the fifteen representative English translations (NIV, ESV, NET, HCSB, KJV, The Interlinear Bible, WEB, NAB, RSV, NRSV, REB, NEB, NJB, NASB, and NASBR).

Article

Acts 17:26: God Made of One [Blood]—Not of One Man—Every Ethnic Group of Humans

“From one {*man*}” as an Ellipsis?

In Acts 17:26, how would “from one {*man*}” stack up against these other ellipses, if one were to consider “from one {*man*}” as an appropriate ellipsis rather than as an improper conjectural emendation? Surely “from one {*man*}” would not be categorized with the Greek grammatical structures listed above as patterns 1–6, 8–11, or 14.

Note that “from one {*man*} all ethnicities of **men**” would not fit within the category of pattern 7 regarding parallel structure, because the ellipsis word should be supplied-in-thought in the second parallel phrase, but it is not. Here, the phrase structure is reversed: “{*man*}” would be an omitted ellipsis word in the first phrase, with “**men**” not appearing until the second phrase. Indeed, if such a pattern 7 parallel structure construct were to be construed regarding Acts 17:26, this would be the only place in the whole New Testament – out of the 3,255 ellipses analyzed – where one would find such a “backward” parallel structure.

Nonetheless, let us consider what such a “backward” parallel structure would look like, as a peer reviewer has requested. Upon careful consideration of the handwritten Greek text and the ellipsis parallel structure pattern, this text would be construed as “of one {ethnic group}/all **ethnic groups**” – that is, quantifier-head noun/quantifier-head noun. The Greek word for “ethnic group(s)” is “*ethnos*.” So, even here, we would not derive “from one *man*.” Please note, moreover, that this backward “one {*ethnos*}/all *ethnos*” construction would be in concurrence with very recent paleogenetic findings (as discussed below), and its meaning could be quite similar to “of one *blood*.”

With regard to patterns 12, 13, and 15, there is no context immediately before Acts 17:26, nor even any prior Acts text, that would lead the audience to infer “from one {*man*}.” Neither was Paul’s Athens audience familiar with the Hebrew traditions related to Genesis. Indeed, the primary reason that Paul was making this speech in the Areopagus of Athens was to address Epicureans, Stoics, and other Hellenists whom he knew held no prior background in Hebrew literature or customs.⁴⁵

Among these table 2 passages, there is no other case in which recent English translations have inserted

one variant word {*man*}, whereas an overwhelmingly large number of handwritten manuscripts support a different word, “*blood*.”

Cardinal Numbers Followed by an Ellipsis Noun

Cardinal numbers of two or greater are rarely followed by ellipsis nouns in the New Testament manuscripts written in Koine Greek. The rare cases where this does occur have already been mentioned: in the Matthew and Luke passages where there are two {*women*} grinding: one taken; one not. Also, there is one other such case that appears in Revelations 22:2, where the tree of life yields “twelve {*manner of*} fruit” (KJV). Recent English translations and BDF interpret this to mean either twelve “types” of fruit or “crops” of fruit.⁴⁶ Perhaps Collins would let the reader be the one to discern which.⁴⁷ Indeed, we all look forward to finding out which – sometime in glory.

Koine Greek Use of *heis*, *henos* and *mia*, Which Translate as “One”

Next, let’s consider whether there is anything grammatically distinct about the Koine Greek words *heis* (masculine or neuter), *henos* (genitive masculine or neuter), *mia* (feminine), and their inflections that have been translated as “one.” In my research, I particularly sought patterns that would justify the notion of following *heis*, *henos*, *mia*, and their inflections with an ellipsis noun such as we might include in English, even though it is absent in the Koine Greek.

The Koine Greek *heis*, *henos*, *mia*, and their inflections have been characterized as “the ordinal number one” and “an adjective.” These Greek words appear with the meaning of “one” on about 350 occasions in the New Testament.⁴⁸ In about 280 cases, these Greek “one” words are immediately followed by a Greek noun that this word modifies. Then, in most of the remaining cases, *heis*, *henos*, *mia*, and their inflections serve as chain-of-reference words in the very same manner as the English “one” does: that is, where the understood noun that modifies “one” – *heis*, *henos*, or *mia* – appears among the preceding three to ten words. Importantly, with these “one” *heis*, *henos*, and *mia* words, a following explicit noun is no more absent in the Koine Greek than in the translated English.

In addition, the Greek words for “one” appear in about sixty-five “unity passages”; usually these are followed by a noun. These unity passages emphasize that we have one faith, one Spirit, one God, and one body in Christ (as in John 17). In about eight of these “unity verses,” no noun follows “one” – either in the Greek or English – and this noun absence is clearly intentional. For example, in John 17:22, Jesus says, “that they may be one, as we are one.” Here, if someone felt obliged to follow “one” with a noun, perhaps they could choose “one oneness” or “one unity.”

It is proposed in this article that Acts 17:26 is yet another “unity” passage that is presented by Paul. Specifically, in Athens, Paul emphasized that all ethnic groups have *one blood* or *one oneness*. This *one blood* provides our image-of-God foundation upon which all other human “unities” are built.

Henos or mias in the Genitive Construction

Let us now focus on passages that use *henos* or *mias* as “one” in genitive construction, and especially in the partitive genitive or genitive of origin. These can be an adjective-noun or noun-of-noun phrase in which the head noun (second word in our case) identifies the whole, of which the genitive adjective (or genitive noun) is a part.⁴⁹ For example, relative to our Acts 17:26 discussion, the head noun would be “blood” or “man” and the genitive adjective is “*henos*.” Koine Greek employs a genitive construction, whereas contemporary English does not.⁵⁰

For the genitive – and especially the partitive genitive or genitive of origin – to be understood in all its emphases, both the head noun and the genitive adjective (or genitive noun) should be presented in the text. Or, if the head noun is an omitted ellipsis (as is rare),⁵¹ it should be readily “supplied-in-thought” by the immediately preceding context. The Koine genitive forms of “one” are *henos* (masculine or neuter) and *mias* (feminine); these two genitive forms appear in thirty-six New Testament passages. In all but seven of these, the head noun, designating the “whole,” appears in the Greek text. The seven exceptions are Matthew 6:24, Luke 10:41–42, Romans 3:12, 1 Corinthians 12:12, Galatians 3:16, Galatians 3:20, and Hebrews 11:12. In all of these seven, the implicit head noun appears in the immediately preceding passage, and generally in parallel structure. For example, Luke 10:41–42 reads, “Martha, you

are anxious about many **things**, but *henos* {*thing*} is necessary.” In most of these seven passages, English translations also leave out this head noun. Matthew 6:24 reads, “No one can serve two masters, for the one he will hate, and the other he will love, or *henos* he will cleave to, and the other he will despise.” To be understood in English, as in Koine Greek, the text need not include “{*master*}” four more times.

We connote that the genitive use of *henos* or *mias* involves strong head nouns that definitively characterize the whole that is being partitioned. This genitive construction invokes the question “one what”; and the “what” is most often explicitly written in or (infrequently) strongly implicated by the immediately preceding parallel phrase. With this genitive construction, the author never leaves a shadow of doubt as to what this “whole” is. Per this analysis, if Paul and Luke had meant “one *man*,” this word “*man*” would have surely been written down in the early handwritten manuscripts.

By the way, this analysis offers further credence to the perspective that the initial Acts 17:26 text was more likely to have read “of *one blood*,” with this head noun “*blood*” emphasized, rather than merely “of *one*,” without a head noun.

New Testament Passages with Ellipses That Involve the Old Testament

In my research, I found only four ellipsis-use passages where a New Testament author makes significant reference to a specific Old Testament passage; and in all four cases, the ellipsis word is provided in the immediately preceding New Testament context. Three of these passages were discussed above: (1) Hebrews 11:8–12, the (optional) ellipsis {*man*} or {*seed*} pertains to the just-previously referenced Abraham; (2) 2 Peter 2:5, the (optional) ellipsis {*person*} is the just-previously referenced Noah; and (3) Romans 5:12–21, the ellipsis {*man*} is the just-previously referenced offender Adam. The fourth passage is 2 Corinthians 8:15, in which Paul discusses how Greek churches had taken a love offering for their fellow-believers in Jerusalem. Then, in the KJV, Paul quotes Exodus 16:18 as “he {*taking*} much, he had nothing left over; and he {*taking*} little did not have less.” Consistent with other ellipsis grammatical patterns, notice that in 2 Corinthians 8:15, the immediately prior context, in parallel structure, alludes to an ellipsis word such as “taking” or “gathering.”

Article

Acts 17:26: God Made of One [Blood]—Not of One Man—Every Ethnic Group of Humans

Thus, in all four of these cases, the ellipsis words are grammatically supplied-in-thought from the short-term working memory of the New Testament pericope itself. The reader is not required to engage his or her long-term memory to recall specific Old Testament words that should be filled in.

“From one {man}”: An Outlier Ellipsis? Or a Conjectural Emendation?

In overview, if the proposed “from one {man}” reading of Acts 17:26 were to be perceived as a Koine Greek New Testament ellipsis, it would be an unusual and unique outlier in many respects.

1. It would be the only New Testament passage where the vast majority of handwritten manuscripts in multiple languages host one reading (of *one blood*), whereas the proposed ellipsis reading (from one {man}) cannot be found in any of those early ancient languages.

2. It would be the only New Testament passage where there are no references within the immediately preceding context of the same pericope as to who this “{man}” is.

3. It would be the only passage in the New Testament where specific reference to the Old Testament would be required to supply the ellipsis word-in-thought—and it would be filling in such a word inappropriately, at that.

4. Indeed, neither Paul nor Luke could have expected that the word “man” would have been “supplied-in-thought” by any of Paul’s Athens audience, who were Stoics, Epicureans, and Hellenists—Greeks who had no Old Testament background.⁵² Thus, the whole psycholinguistic rationale for considering an ellipsis word would be absent.

5. The combination “one man” is spelled out in seven New Testament passages, always to emphasize both “one” and “man.” Acts 17:26 would be the only passage where the emphatic word “man” somehow was left out of the initial text, even though such a word would surely be needed to emphasize its point.

6. The genitive words for “one” (*henos* and *mias*) appear thirty-six times in the New Testament, and always with either an included head noun (29 times) or a strongly implied head noun that appears in an

immediately preceding parallel phrase (7 times). Acts 17:26 “from one {man}” would be the only departure from this pattern.

7. It would be one of only two cases in which Paul would use “man” as an ellipsis without Koine parallel structure. In the other case of 1 Corinthians 14:21, Paul quotes Isaiah; and the ellipsis “man” that several English translations insert in 1 Corinthians actually does not appear in the Isaiah text.

8. Both VS and BDF discuss the Greek grammar and ellipses in many New Testament passages. Specifically, they both include discussion of the grammar in Acts 17:26.⁵³ But none of these Greek grammar scholars attribute “from one {man}” as a prospective ellipsis here.

9. Usually, the ellipsis word “man” is a weak, insignificant placeholder noun that follows a strong and revealing adjective—an adjective that in the Koine Greek is effectively serving as a noun. But if Acts 17:26 were to truly read “from one {man},” the “man” would be significant and emphatic; indeed it would be the only place in the whole Bible that definitively indicates that all humanity came from one “man.”

10. In this regard, both Bruce Metzger and Klaus Wachtel perceived that the scribes who were transcribing Acts would have expected to read “man” (*anthropou*) after “one” (*henos*).⁵⁴ Yet these eminent scholars and others have recognized that those ancient scribes never handwrote “man” here.⁵⁵ Why insert {man} in now, two millennia after Luke wrote Acts?

11. This {man} would be the only variant of consequence that has become popularized within a mere sixty years—and two millennia after the text’s initial writing—and in a whole different language from any of the languages that were used in handwritten Bible manuscripts.

12. Such a “from one {man}” statement would be the only biblical passage where a proposed “ellipsis” could be proven false by modern scientific discoveries (see discussion below).

In overview, the “from one {man}” reading, if perceived as an ellipsis, would be a unique outlier on many counts. Therefore, this proposed reading

should not be construed as a valid ellipsis at all. Rather, this “from one {*man*}” reading should be recognized for what it truly is: a conjectural emendation that would not match any of the Koine Greek grammatical constructs or linguistic-based patterns.

Some translators have invoked the concept of “dynamic equivalence” as a rationale for including “from *one man*” in Acts 17:26. However, Koine Greek has a word for “man”; it is *anthropou*. By means of our quantitative analysis, we can deduce that if the initial text meant *anthropou*, its authors would surely have included such an emphatic head noun here. But to the contrary, neither this word *anthropou* nor its equivalent appears in early handwritten manuscripts of any language. Therefore, “from *one man*” in this passage is not equivalent to “of *one*” or “of *one blood*,” whether dynamic or otherwise.

Why did this phrase “from *one man*” become popularized in English translations within the past sixty years, when it had no support from any early handwritten manuscripts? When would it be legitimate for English translators to depart from all extant manuscripts, and insert a word with such emphasis and significance as “*man*” here? Such an insertion would effectively be a conjectural emendation. Emanuel Tov states,

The term conjectural emendation of the biblical text refers to the suggestion of new readings that are not transmitted in the witnesses of the biblical text ... Generally speaking, over the course of the past few centuries, far too many emendations were suggested, and most may now be considered unnecessary.⁵⁶

Numerous translation scholars reject the use of conjectural emendations as merely inappropriate “educated guesses,”⁵⁷ “a process precarious in the extreme,”⁵⁸ a “counsel of desperation,”⁵⁹ “mere imaginative rewriting,”⁶⁰ “capitulations that are violations to the text,”⁶¹ and “amusing themselves.”⁶² As summarized by Ryan Wettlaufer, many scholars would say that inserting any word that departs from extant manuscripts would be legitimate “only when it is clear that the extant manuscripts cannot be right.”⁶³ Yet here, it is the emended word “*man*” that cannot be right, relative to recent scientific findings. Instead, what can be right and in keeping with recent scientific findings is the text as it appeared in all the early handwritten Bible manuscripts, which read “of *one*” or “of *one blood*.” None read “from *one man*.”

Early Handwritten Bible Manuscripts All Read “of *one*” or “of *one blood*”

The rendering, “He (God) made of *one blood* all nations or ethnic groups of humans,” is shared by many of the earliest extant manuscripts and patriarchs.⁶⁴ These include Irenaeus (AD 185), St. John Chrysostom (AD 400–401),⁶⁵ Augustine (AD 356–426),⁶⁶ the Bezae Codex (GA05, AD 400s),⁶⁷ the Laudianus Codex (GA08, AD 550s), the Armenian Bible (AD 411), several Old Latin manuscripts (AD 400s–800s),⁶⁸ the Aramaic translation (AD 400s),⁶⁹ the Syriac Peshitta (AD 400s–600s),⁷⁰ and the Arabic Codex 151 (AD 867).⁷¹ A total of 453 Greek manuscripts read “of one blood,”⁷² along with the Patriarchs Theodoret of Cyrrhus (AD c466), Ephraem Graecus (d373),⁷³ Nilus Ancyranus (AD 400s),⁷⁴ and Venerable Bede (AD 709–710).⁷⁵ The earliest witness we have of this verse was as quoted by Irenaeus in his book, *Against Heresies* (AD 185), which reads “of *one blood*.”⁷⁶ Irenaeus knew and heard Polycarp, and Polycarp was a disciple of the Apostle John, who was a disciple of Jesus. Thus, Irenaeus’s quotations bring us relatively close to the time of the autograph Acts source.

The other handwritten rendering of Acts 17:26 reads, “... of *one* all nations/ethnic groups of humans.” This “of *one*” rendering appears in four preeminent Alexandrian manuscripts, namely, Codex Vaticanus (GA03, AD 325–400), Sinaiticus (GA01, AD 325–375), Alexandrinus (GA02, AD 400s); and Papyrus 74 (P74, AD 600s). “Of *one*” also appears in most (but not all) of the Coptic renderings (AD 200s to 600s).⁷⁷ It also appears in quotes by Clement of Alexandria (Egypt) (AD 215),⁷⁸ Cosmas (the Monk) Indicopleustes of Alexandria, Egypt (AD 550),⁷⁹ and in numerous Latin Vulgate manuscripts.⁸⁰ In all, twenty-one handwritten Greek manuscripts host this “of *one*” reading.⁸¹

When aiming to discern whether “of *one*” or “of *one blood*” was the earliest attested rendering of this Acts 17:26 passage, we engage in a discussion of the “Alexandrian” and “Byzantine” textual traditions (as a simplification of a far more complex appraisal). In the Acts of the Apostles, important witnesses of the Alexandrian tradition are Codex Vaticanus, Sinaiticus, Alexandrinus,⁸² and Papyrus P74 (AD 600s). Another important early Alexandrian text is Papyrus P45 (AD 200s–250s). However, P45 lacks much of the Acts text due to the decay of its papyrus; and P45 does not include Acts 17:26. We

Article

Acts 17:26: God Made of One [Blood]—Not of One Man—Every Ethnic Group of Humans

identify these five manuscripts—GA01, GA02, GA03, P74, and P45—as the *preeminent Alexandrian* texts in Acts.⁸³ During the recent 160 years, scholars have held these five documents in highest preeminence when aiming to discern the initial text of Acts in the New Testament,⁸⁴ although very recent scholarship has tempered this preeminence perspective.⁸⁵

The Byzantine textual tradition had culminated in complete Byzantine New Testament manuscripts, such as Codex Angelicus (GA020), in the AD 700s–800s. On the basis of limited knowledge regarding these, New Testament scholars during the 1800s imposed “tenacious negative bias against the Byzantine majority text,” as observed in the *Editio Critica Maior* (ECM).⁸⁶ By means of this negative reasoning, if a Bible scholar could convince oneself that the Alexandrian text came before the Byzantine, then it would make sense for such a scholar to readily favor the Alexandrian. But recent scholarship has discerned that the Byzantine tradition was alive and active at times contemporary with the Alexandrian tradition—and, in some respects, active before.⁸⁷ Specifically, regarding Acts passages that pose a pure Alexandrian/Byzantine distinction, Irenaeus in AD 185 and Augustine in AD 350–420 adopted Byzantine readings twice as often as Alexandrian.⁸⁸ Moreover, when Chrysostom quoted nearly all of Acts in AD 400–401,⁸⁹ he used the Byzantine text of Acts for these distinctive passages far more often (78%) than the Alexandrian (16%).⁹⁰ The Armenian Bible in AD 411 adopted the Byzantine readings just as often as it adopted the Alexandrian.⁹¹ Recognizing these and other factors has given fresh credence to the notion that “our Byzantine manuscripts have early roots; and this puts them in a position in some cases to preserve the earliest reading in isolation of the rest of the tradition.”⁹² This perspective is also recognized by ECM:

Since the *Textus Receptus* was overcome by the scholarly textual criticism of the 19th century, there is tenacious negative bias against the Byzantine majority text ... it is undoubtedly true that the majority (Byzantine) textual tradition as a whole goes back to a very early period and that the coherent transmission of the majority of all textual witnesses provides a strong argument *for*, not *against*, the variant in question. If the bias against the text of the (Byzantine) majority of all witnesses has been overcome, then the variants transmitted by the majority will appear in a different light ... It can then

be considered with due impartiality whether or not a majority reading does in fact follow the tendency towards the fuller, easier, more smooth variant.⁹³

So, what does “Byzantine tradition” mean, and how do scholars detect it and define it? Until recently, this was a nebulous concept that was difficult to quantify, and it was hard to single out the “trees” in the midst of the vast “forest” of so many manuscripts. But in 2017, ECM presented a list of about 767 Byzantine-distinguishing passages in Acts.⁹⁴ For each of these 767 Acts passages, nearly all Byzantine manuscripts host one reading called the “Byzantine reading,” while many Alexandrian manuscripts host a different reading called the “Alexandrian reading.” These distinguishing passages include those listed in ECM Part 2, pages 9–15, plus most (forty-four) of those listed in ECM Part 1.1, page 34*. If a manuscript predominantly hosted the “Byzantine” variant reading in each of these Acts passages, it could be definitively identified as a Byzantine manuscript.

For my analysis, I have taken this one step further. Among these 767 Byzantine-distinguishing passages, I focused on those where the delineation was very clear-cut in that *all* the preeminent Alexandrian manuscripts hosted one reading, whereas the Byzantine manuscripts hosted a different reading. I identified these as passages that host a *purely* distinctive Byzantine reading, and to save space, I identify these as the “B_p passages.” My aim has been to particularly focus on these B_p passages because, for these, the Byzantine reading could not have been witnessed from a preeminent Alexandrian manuscript (since *all* of those preeminent Alexandrian manuscripts host the Alexandrian reading). I found 480 passages that host purely distinctive Byzantine readings (the 480 B_p). Acts 17:26 is one of these B_p passages: “of one blood” is the purely distinctive Byzantine reading, whereas “of one” is the Alexandrian reading. I have compiled another three hundred pages of Excel data sets regarding these 480 B_p passages, while extensively using Text und Textwert by Aland, ECM, the ECM computer apparatus, and other sources.⁹⁵

In Acts 17:26, Aland identifies 453 handwritten Greek manuscripts that host the Byzantine reading “of one blood.”⁹⁶ In contrast, twenty-one host the Alexandrian reading “of one”; and these include the preeminent Alexandrian manuscripts GA01, GA02, GA03; and P74. I aimed to make a comparison regarding how many others, among these 480 B_p passages with a

purely distinctive Byzantine reading, host a similarly overwhelmingly high preponderance of the Byzantine reading over the Alexandrian reading. I found sixty-four such passages. When appraising overwhelming preponderance for Aland-tracked passages, I used the thresholds of 428 or more handwritten Greek manuscripts hosting the Byzantine reading, while twenty-five or fewer handwritten Greek manuscripts hosted the Alexandrian reading. Also, I used comparable thresholds when appraising ECM-tracked passages.⁹⁷

Among these sixty-four passages of overwhelmingly high Byzantine preponderance, Irenaeus quoted the Byzantine reading in six passages and the Alexandrian in one passage,⁹⁸ while Augustine quoted the Byzantine reading in eight and the Alexandrian in two.⁹⁹ The Armenian text translated with the Byzantine reading in nine of these passages and the Alexandrian in one.¹⁰⁰ In all but three of these sixty-four passages, Chrysostom quoted the Byzantine reading.¹⁰¹ Among these sixty-four, there are nineteen passages where the Byzantine reading was adopted by most of the Old Latin handwritten manuscripts.¹⁰² There are ten passages where the Byzantine reading was adopted by more of the ancient languages than adopted the Alexandrian reading.¹⁰³

For most of these sixty-four passages, the Byzantine reading has been adopted by several of these patriarchs and translations, but not by others. However, significantly, there is only one passage among these sixty-four—and indeed among all the 480 B_p passages—where the Byzantine reading is adopted relative to all of these criteria, and that is in Acts 17:26. Specifically, the “of *one blood*” reading, identified as “Byzantine,” is adopted by Irenaeus, Augustine, Chrysostom, and several other patriarchs; moreover, this reading is adopted by the Old Latin and the Armenian text, and a majority of other ancient languages.

In quantitative overview, ECM tabulates 767 passages in Acts that host a Byzantine reading that is different from the Alexandrian reading. Among these, there are 480 purely distinct Byzantine B_p passages. Among these 480 B_p passages, there are only sixty-four cases where an overwhelmingly high preponderance of Greek manuscripts host the Byzantine reading, whereas a very low number of Greek manu-

scripts host the Alexandrian reading; and Acts 17:26 is one of these. In Acts 17:26, the “of *one blood*” reading is also supported by (1) numerous very early patriarchs, including Irenaeus, Chrysostom, and Augustine; (2) numerous ancient languages, including Armenian, Syriac Peshitta, Syriac Harklean, Slavonic, and Georgian; and (3) Old Latin. Notably, the ECM team and Metzger exhibited some uncertainty regarding whether they preferred “of *one*” or “of *one blood*.”¹⁰⁴ This early and sustained support for “of *one blood*” is more substantial than for any other purely distinct Byzantine B_p reading in Acts. Thus, from multiple considerations, it would seem appropriate that if any Byzantine reading warrants consideration as the “guiding line” for an initial text, then this Acts 17:26 Byzantine reading “of *one blood*” surely warrants the utmost such consideration. Moreover, this “of *one blood*” reading corroborates with recent science findings.

“Of *one*” or “of *one blood*,” Not “from *one man*”

This brings us full circle back to Acts 17:26. We have surmised that this “of *one blood*” reading of Acts 17:26 hosts earlier and more-sustained support for a purely distinct Byzantine reading than any other passage in Acts. Moreover, I can say that, following an exhaustive search, I found no extant handwritten Greek, Latin, Syriac, Coptic, Armenian, or Aramaic manuscript Bibles that read, “He (God) made from *one man* every ethnic group.” Two later exceptions that read “from *one man*” are the Arabic Leiden Codex of AD 1342,¹⁰⁵ and the obscure Latin Lectionary Π^F Monte Cassino, Archivio della Badia, 521 AA (AD 1000s).¹⁰⁶

If “from one {*man*}” is proposed as an added ellipsis word, it would be a unique outlier that stands far apart from the grammatical constructs and linguistic patterns of New Testament Koine Greek. It is quite apparent that the word “*man*” in Acts 17:26 is an emendation that is both unnecessary, inaccurate, and misleading. The author agrees with Tov, and numerous other scholars, relative to not emending biblical texts, and particularly, in not emending this Acts 17:26 passage. Matti Friedman explains:

The language of the Bible had to be clear, standardized, and not in dispute ... The text tells many truths—those on the surface, and those hidden beneath it ... It is not just that we must know exactly

Article

Acts 17:26: God Made of One [Blood]—Not of One Man—Every Ethnic Group of Humans

what the words mean, ... because we do not and cannot know exactly what they mean. Perhaps we did once, and perhaps we will again one day, but for now, the information must be preserved even if it is beyond our understanding ... If we even change a short vowel to a long one, we may lose knowledge that God wanted us to have, even if we don't know why.¹⁰⁷

In this article, it is posed that recent science discoveries have revealed to us why we should have always kept Acts 17:26 as it was initially written: “of *one blood*” or “of *one*.”

Acts 17:26 in Context of the Bible and Science

We can glean from Acts 17:26 that God made all humans of one bloodline; and this is consistent with science, paleogenetics, and anthropology. Darwin used “similar *blood*” to depict observable similarities among species, such as among horses, donkeys, and zebras,¹⁰⁸ although neither he nor any of his contemporaries had yet uncovered the genetic code that dictated this similarity. Notably, during the past 150–200 years, anthropological evidence has pointed to a complex human lineage. Also, during the most recent five to twenty years, genetic evidence has pointed to a very tight “one bloodline” of ethnicity among all humanity. This genetic bloodline may have been as narrow as thousands in effective population, who were living in various pockets of Africa as recently as 50,000–200,000 years ago.¹⁰⁹

We now have the textual, anthropological, and genetic evidence to recognize that this “from one *man*” insertion is a conjectural emendation. For 1,500 years, scribes painstakingly hand-copied the Acts manuscripts. During this time, they had no scientific evidence that would keep them from handwriting “from *one man*” in Acts 17:26. Yet they remained disciplined in not writing “*man*” because they did not witness that reading in any manuscript they had accessed. Rather, they faithfully copied “of *one*” or “of *one blood*.”

The Apostle Paul said, “... we do impart wisdom, although it is not a wisdom of this age ... we impart a secret and hidden wisdom of God, which God decreed before the ages ...” (1 Cor. 2:6–7, ESV). These inspired authors, faithful scribes, and fervent patriarchs—throughout one and one-half millennia—may

not have fathomed the full depth of humanity’s common bloodline secret. But now, via scientific discovery, we are unveiling God’s secrets of how God created life and *adam*-humanity through God’s creative-evolution.

Consistent with Paul’s Athens oration, we now glean that all humans are genetically linked together as a single blood-related family.¹¹⁰ We are all made by God.¹¹¹ We humans from every ethnic group are all united as one blood in the image of God,¹¹² and there is no room for racial bias. ▲

Notes

¹Denis R. Alexander, *Creation or Evolution, Do We Have to Choose?* (Oxford, UK: Monarch Books, 2008), 200.

²*New International Version (NIV) Life Application Study Bible* (Wheaton IL: Tyndale House, and Grand Rapids, MI: Zondervan, 1973–1991); *English Standard Version (ESV) Study Bible* (Wheaton, IL: Crossway Bibles, 2001–2016); *New English Translation (NET)* (Dallas, TX: Biblical Studies Press, 2005); and *Holman Christian Standard Bible (HCSB)* (Nashville, TN: Holman Bible Publishers, 2004–2010).

³*King James Bible (KJV), Authorized Version* (London, UK: Robert Barker Printer, 1611); Jay P. Green, ed., *The Interlinear Bible*, with Textus Receptus (Received Text) (Peabody, MA: Hendrickson Publishers, 1984); M. P. Johnson, ed., *World English Bible (WEB)* [revision of the American Standard Version of 1901] (Colorado: Rainbow Missions, 2000, copyright waived); and Desiderius Erasmus, *Novum Testamentum*, 2nd ed. (Basel, Switzerland: Johann Froben, 1519). Digitized by Princeton Theological Seminary Library, 2011.

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Acts 17:26: God Made of One [Blood]—Not of One Man—Every Ethnic Group of Humans

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Patrick S. Franklin

Theodicy and the Historical Adam: Questioning a Central Assumption Motivating Historicist Readings

Patrick S. Franklin

In this article, I aim to show, first, that theodicy tends to be a major motivating factor grounding biblical-theological arguments in favor of historicity; and second, that a historical Adam/Fall fails to address adequately the questions theodicy raises. I do not argue here for or against the historicity of Adam; nor do I seek to offer a new theodicy. My intended contribution is more modest: to critique the strong impact that theodicy has on the question of the historicity of Adam/the Fall and to open space for nonhistorical interpretations. I conclude by commending Dietrich Bonhoeffer's exposition of Genesis 1–3 as theologically fruitful.

Keywords: theodicy, historical Adam, hermeneutics, evolution, concordism, incarnation anyway, eschatology, Trinity, Bonhoeffer

Theodicy as a Key Motivating Factor

Recently, debates over the historicity or nonhistoricity of Adam/Eve and “the Fall” have become central to faith-science discussions concerning human origins (that is, the implications of evolution), in light of advancements both in science and in biblical scholarship. This question has drawn the attention of the ASA, as evident in two recent annual conferences (2020 and 2021) and in previous issues of *Perspectives on Science and Christian Faith*.¹ A concern that arises is that the understandable desire to align scientific advancements with scripture and theology, especially when accompanied by unexamined biblical and theological assumptions, might press scientifically minded interpreters prematurely to accept concordist readings of scripture. One such assumption is that the biblical figures Adam and Eve are crucial for

addressing theodicy problems raised by evolutionary biology.

A major motivation and impetus for affirming a historical Adam and Eve is the perceived need for a historical Fall. This, in turn, is thought to be necessary to ground and explain (give an account for) the universality of sin and thus also the universal human need for salvation in Christ. Further, it is often argued that “the Fall” must be historical in order to safeguard the goodness and sovereignty of God. If a real, historical Adam and Eve are responsible for abusing their free will and thus introducing sin and evil and death into the world, then God is not responsible for it. God is not the author of

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Article

Theodicy and the Historical Adam: Questioning a Central Assumption Motivating Historicist Readings

evil. So, this doctrine is motivated, in no small part, by *theodicy*.

For example, in a recent book defending the historicity of Adam and the Fall, Michael Reeves and Hans Madueme write,

Traditionally, belief in a historical sin and fall of Adam has been an essential part of Christian theodicy. That is, because Adam and Eve committed the first sin *at a particular point in time* and so fell with all the creation they had been appointed to rule, we can say that God did not create an inherently fallen world. He is not the author of evil.²

On the following page, Reeves and Madueme go on to insist that the consequences of denying the historicity of Adam and the Fall for Christian faith and belief are dire:

Christians can affirm both the absolute sovereignty of God, that he is truly the Lord and creator of all, and the absolute goodness of God, in that he is not himself the source of evil. But if there was no historical Adam and no historical entry point of evil into the world, then those are things we cannot affirm, *and our very Christian confidence must be shaken to its foundations*.³

While this way of stating things is rather extreme (do the *foundations* of Christian faith really rest on *any* position about the historical Adam?⁴), this connection between theodicy and historical Adam/Fall is common and widespread. James K. A. Smith, for example, writes that the doctrine of the [historical] Fall offers “a theological account of human origins that doesn’t jeopardize the goodness of God or human responsibility”⁵ and cites the *Catechism of the Catholic Church* which states that “The doctrine of original sin is, so to speak, the ‘reverse side’ of the Good News ...”⁶ Peter Enns notes that “For many Christians ... it is theologically necessary for there to be some sort of Adam somewhere in human history who is personally responsible for alienating humanity from God.”⁷ Oliver Crisp reports that “historic accounts of the doctrine [of original sin] are usually deployed in order to ... provide a theological explanation of how it is that human beings are in their current vitiated moral condition.”⁸ Donald Macleod considers the historicity of Adam/the Fall to be “a fundamental part of Reformed theodicy” since “God could not be the author of sin; neither, then, could

he be the creator of a depraved creature.”⁹ C. John Collins summarizes: “Christian theologians use the ‘fall’ to explain the need for sacrifice and redemption, and thus the purpose of Christ’s incarnation; they also use it to account for the problem of evil (and some extend that to include all manner of ‘natural’ evil, such as earthquakes and mosquitoes).”¹⁰ This is but a representative sample of the common connection made between historical Adam/Fall and theodicy.¹¹

The Problem with the Theodicy-Historicity Connection Demonstrated

The problem with using the traditional doctrine of original sin in this way is that it fails to provide an effective and convincing solution; *original sin fails as an answer to the theodicy problem*. Before explaining why, allow me to clarify what I mean by “the traditional doctrine of original sin.” By this expression, I mean the idea that an original historical couple—Adam and Eve, as two specific persons in real history, traditionally believed to be the first two human beings that God created—committed the first sin(s), fell from a state of original righteousness, and thereby infected the human race with sin by somehow transmitting a sinful nature or condition to their offspring.¹² While there are variations on the doctrine of original sin, this summarizes the most common traditional elements.¹³

As discussed above, many appeal to the necessity of this doctrine in order to explain why there is sin and evil in the world without attributing their origins to God. Many fear that abandoning belief in the historicity of Adam, Eve, and the Fall, would leave God vulnerable to the charge of being the author of evil: God would be either less than perfectly good or less than perfectly sovereign and powerful. I do not believe that denying historicity necessarily leads to this kind of choice, but the purpose of this article is not to argue that point. Instead, I will focus on why a historical Adam/Fall does not even solve the theodicy problem very well. Please note, I am not suggesting that God is, in fact, responsible for sin and evil. I am instead suggesting that the historical Adam/Fall defense does not succeed, as many assume it does.

Eschatological Considerations That Complexify the Problem

Consider eschatology, specifically our future glorified state.¹⁴ In that state, we will be perfected, fully sanctified, no longer capable of sinning or experiencing a “Fall” like the one depicted in Genesis 3. Otherwise, the pattern of fall and redemption could go on infinitely and Christ would have to be crucified and risen repeatedly. Instead, the redemptive work of the triune God will be truly *finished*; more precisely, what God accomplished decisively in Jesus will be fully consummated, the between-the-times eschatological tension of *already – not yet* will be fully resolved. What we received by our reception of the Spirit as a foretaste, down payment, and shadow will be fulfilled, completed, and made fully and holistically *real* or actualized. The ultimate will take up and transform the penultimate.¹⁵ We will finally see things clearly, as they truly are, and experience the unhindered and unveiled presence of God as never before. We will be remade to be like Jesus in our hearts, minds, relationships, character, motivations, and desires; in short, we will be fully transformed into his image, refashioned perfectly into the image of Christ who is the perfect image of God the Father. Consider the following representative New Testament texts related to our future glorification:

For now we see only a reflection as in a mirror; then we shall see face to face. Now I know in part; then I shall know fully, even as I am fully known. (1 Cor. 13:12)

Listen, I tell you a mystery: We will not all sleep, but we will all be changed – in a flash, in the twinkling of an eye, at the last trumpet. For the trumpet will sound, the dead will be raised imperishable, and we will be changed. For the perishable must clothe itself with the imperishable, and the mortal with immortality. (1 Cor. 15:51–53)

Now the Lord is the Spirit, and where the Spirit of the Lord is, there is freedom. And we all, who with unveiled faces contemplate the Lord’s glory, are being transformed into his image with ever-increasing glory, which comes from the Lord, who is the Spirit. (2 Cor. 3:17–18)

Do not lie to each other, since you have taken off your old self with its practices and have put on the new self, which is being renewed in knowledge in the image of its Creator. (Col. 3:9–10)

But our citizenship is in heaven. And we eagerly await a Savior from there, the Lord Jesus Christ, who, by the power that enables him to bring everything under his control, will transform our lowly bodies so that they will be like his glorious body. (Phil. 3:20–21)

Dear friends, now we are children of God, and what we will be has not yet been made known. But we know that when Christ appears, we shall be like him, for we shall see him as he is. (1 John 3:2)

And I heard a loud voice from the throne saying, “Look! God’s dwelling place is now among the people, and he will dwell with them. They will be his people, and God himself will be with them and be their God. He will wipe every tear from their eyes. There will be no more death or mourning or crying or pain, for the old order of things has passed away.” (Rev. 21:3–4)

Then the angel showed me the river of the water of life, as clear as crystal, flowing from the throne of God and of the Lamb down the middle of the great street of the city. On each side of the river stood the tree of life, bearing twelve crops of fruit, yielding its fruit every month. And the leaves of the tree are for the healing of the nations. No longer will there be any curse. The throne of God and of the Lamb will be in the city, and his servants will serve him. They will see his face, and his name will be on their foreheads. There will be no more night. They will not need the light of a lamp or the light of the sun, for the Lord God will give them light. And they will reign for ever and ever. (Rev. 22:1–5)

In addition to being fully perfected and glorified, we will also be fully free – *freer*, in fact, than ever before. “Losing” the capacity to sin is not actually a loss, but a gain. To be able to sin is not freedom in the fullest sense, because sinning is a negation of our being. It is a closing down and restraining of our potential and possibilities. It causes us to resist loving God and neighbor, enslaves us to spiritual and systemic powers (Rom. 6:17–18; Eph. 6:12; Col. 2:15), and distorts our thinking (Rom. 1:28; 2 Cor. 4:4; Col. 1:21) and acting (Rom. 1:24ff; Gal. 5:16–21). It is a turning-in-on-ourselves, *cor curvum in se* (the heart turned or curved in upon itself) as Bonhoeffer put it, drawing from Luther.¹⁶ The enthronement of self is, ironically, the distortion of self and the captivity of the self to itself. The reason for this is that God created the self to find its meaning, identity, alignment, and

Article

Theodicy and the Historical Adam: Questioning a Central Assumption Motivating Historicist Readings

eschatological completion or consummation beyond itself, in God. As Pannenberg argues, the human self is inherently *exocentric*, centered transcendentally beyond itself (to find completion in God) as an intrinsic structural feature of its being.¹⁷ The capacity to sin does not add anything freeing or liberating to this; rather, it offers a counterfeit “freedom” that ultimately detracts from, distorts, constrains (worse, enslaves), and kills the self’s true being. It offers freedom-*from* (freedom as radical autonomy, ultimately isolation) but not freedom-*for* God and others, or even freedom-*for* being and becoming one’s own true self.¹⁸ In all of this, the temptation to sin is subtle and deceptive: as in Eve’s experience, sin draws us by appealing to what is genuinely pleasing, desirable, and good, but then corrupts by using the good as a means to attaining ungodly and evil ends. It offers to make us “like God” but in such a way as to live without God.¹⁹

Now, in light of this brief consideration of our glorified state, a troubling question arises: If it is possible for us to be made fully free and yet totally incapable of sinning, as our future glorified state revealed in scripture suggests, then *why did God not create us in this state to begin with?* Why create human beings that are vulnerable to sin and evil? Why create us “corruptible,” though not yet corrupted, as Athanasius put it?²⁰ This question, though not in itself insurmountable, reveals the failure of “original sin” (as defined above) as a fully effective theodicy. Original sin is a solution that only pushes the problem back a step, where we confront a larger problem: If God is capable of making us totally good and totally free, if God is capable of renewing us and refashioning us into the image of Jesus Christ such that we are destined to become totally good and totally free in our glorified state, why did God not begin this way and so avoid all the sin, evil, pain, suffering, sickness, corruption, violence, destruction, and all other forms of ungodliness that human beings have caused and experienced?

There seems to be some awareness of this problem in the theological literature. First, many scholars have noticed and pondered the striking fact that in the Genesis narrative, God’s good creation goes off the

rails very quickly – almost immediately, in fact.²¹ This seems rather strange and unlikely, given Christian convictions about God’s absolute goodness, wisdom, and sovereignty (for a skeptic or atheist, it potentially raises questions about God’s competence and/or love for humanity and for creation). Was the immediate intrusion of sin and evil really unavoidable? Yet, the “immediacy” of sin seems to be something that the biblical narratives emphasize, as observable in the way that later revelation draws on Genesis 3 to describe the patterns of sin in Israel’s history. As Gary Anderson notes,

By attending to how the biblical story expanded over time, we can see that the text is more interested in establishing the immediacy of human disobedience than it is in creating a seamless whole that can be read with a minimum of friction. Indeed, “immediacy” may be the best way to define “original sin” in its Old Testament context. As soon as Israel receives the benefaction of her election, she offers not praise and gratitude but rebellion.²²

Second, theological commentators have noticed that there seems to be something inadequate about human beings in Genesis 2–3. For example, Philip Hefner, wrestling with the idea that the first humans would have carried within them certain effects of the history of evolution (including some habits and tendencies that favored survival yet would later – with the emergence of moral consciousness – be viewed as morally problematic, sinful), writes, “The symbols pertaining to the doctrine of Original Sin render the primal experience of being intrinsically inadequate, while that inadequacy is key to the process that makes life possible and enriches it – the *vitium originis*.”²³ James K. A. Smith argues that God’s repeated pronouncement of the *goodness* of creation in Genesis 1 should not be taken to mean *perfection*. Rather, goodness is associated with creation, while perfection is the eschatological goal toward which creation is moving, its *telos*.²⁴ This is a helpful and theologically meaningful distinction to make. However, the question still remains: Why did God not make creation *perfect* to begin with? Moreover, it is not just Christians who struggle to explain the origins of sin and evil and the apparent inadequacy of the original humans to resist. The Jewish rabbinical tradition also speculates on the origins of the good and evil

“inclinations” or “impulses” (Hebrew: *yetzer hatov* and *yetzer hara*) within human beings, troubled by the assumption (which many accept) that God must have created the evil impulse within human beings. Stan Porter summarizes, “The rabbis seem to conceive of the *yetzer hara* as generally a bad influence, placed within individuals by God, and to be treated objectively as a thing to be rejected, although the law is seen as a means given by God of controlling it.”²⁵

Third, the Reformed theologian Donald Macleod offers a theological explanation. He ponders the question: how is it possible that Adam could fall, when we consider that Adam was a holy and righteous man, unaffected by sin, evil, suffering, or oppressive or malevolent social structures and influences, and living in an idyllic paradise with all his needs and desires met? It is an important and difficult question. In my view, it is one that those who appeal to the historicity of Adam/the Fall for the purposes of theodicy tend not to address adequately. Drawing on the historic Reformed tradition, Macleod provides three basic answers. First, the persuasiveness of Satan influences Adam and Eve (the tradition makes an interpretive assumption here, since, as Old Testament scholars often point out, the text does not identify the serpent as “Satan,” though Revelation 12:9 might set an interpretive precedent for this; moreover, attributing sin and evil to Satan succeeds only in pushing the problem back a step). Second, Adam and Eve abuse their free will. Third, and most striking and relevant to the present discussion, *God withheld efficacious or restraining grace*, that is, the grace necessary to enable Adam and Eve to resist temptation to sin. To define efficacious or restraining grace, Macleod appeals to William Ames (a seventeenth-century Reformed theologian) who describes it as “the strengthening and confirming grace by which the act of sinning might have been hindered and the act of obedience effected was not given to him—and that by the certain wise and just counsel of God.”²⁶

While Macleod’s argument succeeds in providing a logical theological rationale to explain how it was possible for Adam and Eve to sin (within his stream of the Reformed tradition), it seems to me to

be inadequate as a theodicy, raising at least as many problems as it solves. God is affirmed to be good, because God grants to Adam and Eve their own free will and seemingly equips them with everything they need to flourish. However, problematically, God withholds the one thing necessary for them to succeed in arguably the most important aspect of being human, theologically speaking: the efficacious or restraining grace required to resist sin and to fully acknowledge and submit to the Creator God as Lord. The problem is not logical (given a compatibilist understanding of freedom), but moral: Why would God do this? I am not suggesting that God lacks sufficiently justified reasons for allowing sin and evil into the world. (While I do not fully understand God’s reasons, God is God and I am not, and I trust him because of his Word, character, saving acts in history, and present guidance, comfort, and calling!) I am simply suggesting that the traditional belief in a historical Adam/Fall does not itself resolve the theodicy problem.

Finally, many acknowledge that the origins of human sin and evil are ultimately veiled in mystery. As Haynes observes, even a theologian as important to the traditional doctrine of original sin as Augustine acknowledges this: “In *De libero arbitrio*, Augustine plainly states that he does not know why Adam would choose a nothing, a *nihil*, like sin. There is not an efficient cause that can explain the choice of disobedience rather than the Good itself. All that he can say is that it must be a kind of *defectious modus*.”²⁷ And while theodicy is central to their argument for a historical Adam/Fall, Reeves and Madueme nevertheless admit, “*Why* the hearts of Adam and Eve should have turned to sin is of course a mystery. There we seem to be dealing with the impenetrable obscurity of darkness, the illogicality of evil.”²⁸ One wonders why it is theologically acceptable to Reeves and Madueme to see this aspect of the problem as being hidden by the “impenetrable obscurity of darkness” but unacceptable to read the Genesis 2–3 narrative as theologically and existentially informative and authoritative though not explanatory in a literal, historical, or causal kind of way. The line they draw to constrain the degree of allowable mystery is arbitrary.

Article

Theodicy and the Historical Adam: Questioning a Central Assumption Motivating Historicist Readings

In addition, the Genesis 3 account itself shows no interest in providing a theodicy to explain the mystery of evil's origins, neither explicitly nor even implicitly. Rather, its concern is to disclose the nature and workings of sin and how God responds to and deals with it. Moreover, its purpose is not simply explanatory but existential-theological: it calls its readers to make a choice in the midst of their own experiences of temptation: to trust and obey God or not. We will return to this theme at the end of this article.

The Difference between Our Present and Future States

So, what accounts for the difference between our present sinful state and our future glorified state? Two things, I suggest.

First, in our glorified state, our union with Christ is perfected. The doctrine of union with Christ is central to Christian soteriology (and to other important doctrines, such as theological anthropology and ecclesiology²⁹) and is closely connected to Trinitarian theology and its emphasis on human participation in God's activity: by the Spirit we are drawn to participate in Christ's relationship with the Father and in Christ's ministry and mission in and to the world.³⁰ This Trinitarian-participatory emphasis transcends problematic dichotomies concerning human agency such as passive vs. active and works righteousness (or Pelagianism) vs. cheap grace (or antinomianism). Instead, God's initiative awakens and empowers human willing, choosing, and doing; our agency is drawn into God's own activity. We can see this dynamic at work in passages such as Philippians 2:12-13, "Therefore, my dear friends, ... continue to *work out your salvation* with fear and trembling, for it is God who works in you to will and to act in order to fulfill his good purpose," and Philippians 3:12, "Not that I have already obtained all this, or have already arrived at my goal, but *I press on to take hold* of that for which Christ Jesus took hold of me" (the underlined text indicating God's initiative and action, italics indicating our participation by the Spirit). Participation flows from union: we participate with/in Christ by the Spirit because we are

united to Christ (and thus also to the Father) by the Spirit.

One key scriptural passage that depicts union with Christ is John 14-17, especially by its use of "in" language (italicized in the following passages).³¹ In John 14:15ff, Jesus promises the disciples that the Father will send the Holy Spirit and this Spirit will "live with you and be *in you*" (v. 17). Then he says, "On that day you will realize that I am *in my Father*, and you are *in me*, and I am *in you*" (v. 20). We see this pattern again in chapter 17, when Jesus is praying for his disciples, specifically for their unity. He prays "that all of them may be one, Father, just as you are *in me* and I am *in you*. May they also be *in us* so that the world may believe that you have sent me" (v. 20). So, to synthesize, the Holy Spirit will come to indwell, be *in*, the disciples; and, by that act of indwelling, the Spirit will thereby place them *in Christ* who is *in the Father*.³² The previous two chapters draw implications from this union leading to Trinitarian participation: first, that only by remaining *in Christ* will disciples bear much fruit (as branches connected to the vine), and second, that the Spirit (who is one with the Son) will remind them of everything Jesus said and guide them into all truth (John 16:13). Importantly, the Spirit does not do this autonomously, but speaks only what the Spirit hears, just as Christ says and does only what he hears and sees the Father saying and doing (John 8:27-28). The Pauline epistles also make frequent use of "in Christ" language, which occurs in different ways about 216 times in Paul³³ (more than any other expression), though I will not survey that material here.³⁴

By our union with Christ, we come to share in some very important qualities, benefits, and experiences that could not otherwise be fully attained or realized. Two are particularly relevant. First, by this union we come to share in God's own Life. To say that Life is an attribute of God is to say more than simply "God is alive," which is rather obvious. It is to say more fundamentally that life is an attribute that belongs characteristically and necessarily to God alone.³⁵ God alone has infinite, eternal, immortal, necessary/noncontingent, underived and self-sustaining Life; all other life is creaturely life, and thus

finite, temporary, mortal, contingent, derived, and dependent on God for its existence and sustenance. In the Garden of Eden, the Tree of Life depicts not the immortality of human beings (their being made from the dust depicts their inherent mortality³⁶) but, rather, their radical dependence upon God—who transcends them—for life: eternal life is a gift that God offers, not a quality that human beings intrinsically possess. And the New Testament reveals that God makes this gift available through Christ in the Spirit such that, as 2 Peter 1:3–4 puts it, we become “partakers of the divine nature.” Trinitarian participation in the divine life is, in this way, the fulfillment of what the Tree of Life symbolizes in the Garden.

Second, by our union with Christ we come to share in God’s own Goodness. Like life, goodness is an attribute of God, a property that is proper to the divine nature. As Jesus says in Mark 10:18 (cf. Luke 18:19), “Only God is good.” We do not become good, in the fullest sense of glorification and total sanctification, simply by imitating God (Pelagianism); rather, we become good by sharing in God’s own Goodness through our union with Christ by the indwelling Good and Holy Spirit. By this indwelling, we are fully sanctified, made holy and complete. We attain fully transformed hearts and wills that overflow into rightly ordered and directed desires and actions. We also gain true wisdom. As Paul writes in 1 Corinthians 2:10–16, “we have the mind of Christ,” an amazing statement! Theologically, what Paul affirms is that we participate by the Spirit in the mind of Christ. Perhaps this is a fulfillment of what Jeremiah prophesied concerning the coming new covenant when God would write his law onto our hearts (Jer. 31:33), a fulfillment by the Spirit’s presence and activity of what the law demanded but could not empower, the law being a preliminary shadow of the real thing to come (Heb. 8:10; 10:16). And perhaps this is the ultimate fulfillment of what the Tree of the Knowledge of Good and Evil signifies in the Garden—namely, access to knowledge and wisdom to live rightly, not in abstract terms but in relationship with God and in alignment with God’s own heart, aims, character, wisdom, and presence.

It is important to affirm that our union with Christ has always been the goal of God’s creation. As

Athanasius once put it, human beings were created “by nature corruptible, but destined, by grace following from partaking in the Word [that is, union with Christ], to have escaped their natural state, had they remained good.”³⁷ This affirmation finds support in so-called “incarnation anyway” theologies, which are currently growing in influence but have important precedents in the historical Christian tradition (for example, Karl Barth in western theology and many in eastern theology, such as Rupert of Deutz, d. 1135, the first to propose incarnation without the Fall according to Georges Florovsky).³⁸ These theologies propose that the incarnation of the Son was always part of God’s plan, because human union with Christ by the Spirit was always God’s goal, irrespective of the Fall. The evangelical theologian Oliver Crisp makes a compelling case for “incarnation anyway” in a recent article in the *Journal of Reformed Theology*. He offers the following summary of the rationale for this view:

God desires to create a world in which there are creatures with whom he may be united, so that they may participate in his divine life. Indeed, participation of creatures in the divine life is a final goal of creation, perhaps even the ultimate goal (though we need not commit ourselves to that claim for present purposes). To that end, God conceives of human beings as creatures ideally suited to such a relationship ... (On the Christological union view I am expounding here it is not possible for sinless human creatures to take the initiative and unite themselves to God independent of an act of divine condescension and accommodation such as that envisaged in the incarnation. Even sinless human beings are not capable of this feat of metaphysical bootstrapping!)³⁹

By means of the incarnation, human beings are first united to Christ and then formed into the image and likeness of Christ, both by means of the Spirit.⁴⁰ Thus, we come to “image God as we are conformed to the prototypical image of God in Christ.”⁴¹ As hinted at above, the Fall is not the primary reason for the incarnation, nor is it even necessary for the incarnation to take place. As Crisp argues,

Union with God is not contingent upon human sin. It is independent of any fall. In fact, it is independent of any creaturely action. On this view, God

Article

Theodicy and the Historical Adam: Questioning a Central Assumption Motivating Historicist Readings

desires union with his creatures so that they may participate in the divine life.⁴²

Of course, given the existence of sin and evil in the world, the incarnation (in conjunction with cross, resurrection, and ascension) does also *necessarily* address the sin problem. But strictly speaking, the incarnation does not require the Fall; rather, its primary purpose is to bring human beings (fallen or not) into union with Christ and make them fit for the kingdom of heaven.

The second feature that accounts for the difference between our present sinful state and our future glorified and perfected state is our transformation via resurrection. In 1 Corinthians 15:35ff, Paul teaches that “flesh and blood cannot inherit the kingdom of God” (v. 50).⁴³ In saying this, Paul is not referring only to our sinful flesh (or sinful nature); he is referring to our earthly nature.⁴⁴ This is made clear by his citation of Genesis 2:7 (note: *before* the Fall) to refer to Adam as a representative of perishable human nature (1 Cor. 15:45, larger context vv. 42–50). In order to inherit the kingdom, we need a new body, one that is neither simply earthly nor ethereal or ghostly, but what Paul calls a “spiritual body” (thus coining the term *sōma pneumatikon*), one—as Gordon Fee puts it—“adapted to the new conditions of heavenly existence.”⁴⁵ Or, as Scott Nash explains, Paul’s point is that “everyone who inherits the kingdom must be transformed into a kind of being appropriate for existence in that realm. Death of the body is not required, but transformation beyond flesh, blood, and corruption is.”⁴⁶ Receiving a new spiritual body requires the transformational work of God to bring about our resurrection.⁴⁷ David Garland stresses that “Paul wants to emphasize that the body that will be raised is radically different from its earthly counterpart.”⁴⁸ Fee explains that, according to Paul, the earthly body (Adam) belongs to the present age while the heavenly body (Christ) belongs to the life of the Spirit in the age to come. Paul thus points to “two orders of existence,” with Adam and Christ as their respective representatives and the two types of bodies as the concrete expressions of existence.⁴⁹ Paul’s point is that “one can assume full *pneumatikos* existence only as Christ did, by resurrection, which includes a *pneumatikos* body.”⁵⁰

Drawing these insights from 1 Corinthians 15 into the argument of this article, I wish to make two connections. First, the transformation of our embodied existence via resurrection distinguishes our present sinful state (and even the innocent but perishable state depicted in Genesis 2–3) from our future glorified and perfected state. Second, I believe that Paul’s reflections on resurrection add further support to the “incarnation anyway” proposal outlined above. Even without sin and the Fall, the incarnation and resurrection of Christ were necessary to transform perishable and corruptible human creatures vulnerable to sin into imperishable and incorruptible beings transformed into the image and likeness of Jesus, sharing in his everlasting Life and perfect Goodness via participation by the Spirit, and therefore invulnerable to sin and death.

Moreover, the reflections I have offered on union, incarnation, and resurrection prompt an alternate narration of scripture’s theological plot. Most often, when Christians narrate the basic theological plot of the Bible, they do so chronologically, or at least diachronically, according to the sequential unfolding of the biblical narrative. In this approach, the basic narrative structure is: Creation → Fall → Redemption → New Creation (fig. 1).

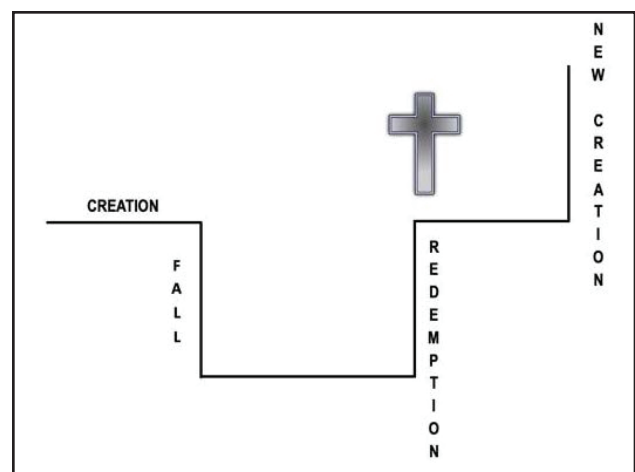


Figure 1. Diachronic or Chronological Narrative

But, following David Kelsey’s suggestion in his magisterial two-volume work on theological anthropology, there is another way to narrate the theological plot of the Bible without losing any of these categories.⁵¹ Let’s call this a *theological narration* of the plot’s narrative: it envisions the whole story

from an eternal or divine perspective, or *synchronically* rather than diachronically (fig. 2).

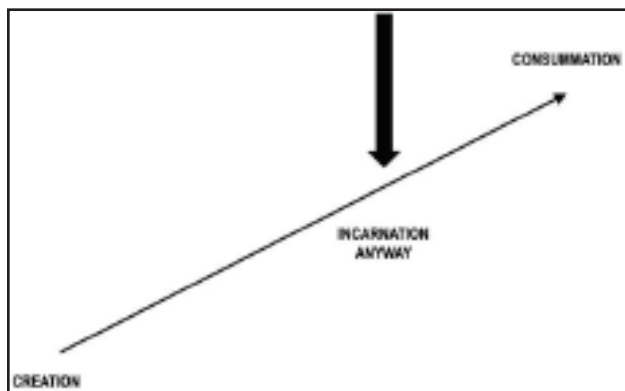


Figure 2. Theological or Synchronic Narrative (Incarnation Anyway)

First, God acts to create all that is not God. Second, God acts to perfect, complete, and consummate all that God has created. Third, when creation (human beings in particular) deviates from God’s plan and sin and evil enter the world with devastating and destructive consequences (fig. 3), God intervenes in

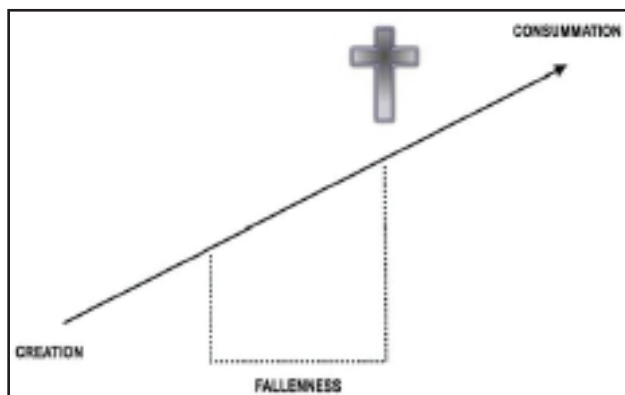


Figure 3. Incarnation Anyway (Intrusion of Sin)

order to redeem, restore, heal, reconcile, and realign creation with its originally intended trajectory, toward eschatological consummation (fig. 4). So, this

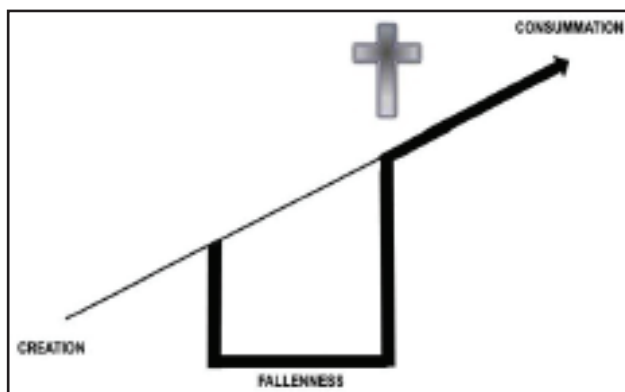


Figure 4. Incarnation Anyway (Sin, Incarnation, and Atonement)

theological/synchronic narrative plot moves from Creation toward Eschatological Consummation, with Redemption as a set of intervening acts culminating in Christ’s saving work by the Spirit, which restores creation on its path toward the New Creation. The theological/synchronic narrative has the advantage of depicting an “incarnation anyway” theological framework while also accounting, secondarily, for sin and redemption. Its primary benefit is to show that human *sin/fallenness* does not drive the logic of *eschatological consummation*; creation does (along with incarnation, the divine assumption of humanity).

Implications for Re-reading Genesis 1–3

I have intentionally limited the scope of this article and sought to keep its intended contribution modest. My primary aim has been to demonstrate that appealing to the historicity of Adam/the Fall to explain the origins of sin and evil does not sufficiently address the theodicy problem. I have not ventured to provide an alternate theodicy or argued in favor of a nonhistorical interpretation of Adam/the Fall. Rather, by challenging the theodicy-historicity connection as unhelpful, I have sought to make space for the possibility of nonhistorical interpretations. Theodicy is not the only reason that people argue for historicity,⁵² but it *is* a significant and widespread motivating factor that influences how and why many interpreters read certain biblical texts in that direction. So, by bracketing out questions of theodicy, I hope to encourage fruitful theological perspectives and readings of scripture.

To conclude, I offer five brief, mutually related suggestions for reading Genesis 1–3 without assuming the historicity of Adam and Eve or the Fall (I recognize that Genesis 1–3 is rich in content and significance well beyond what I can represent briefly here). I have proposed that a fruitful way to read scripture’s plot is to frame it theologically/synchronically, whereby we read the beginning (creation) in light of the end (eschatology) and the center (Christology).

First, within this perspective, it is possible to read Genesis 1–3 as a theological narrative of “creation,

Article

Theodicy and the Historical Adam: Questioning a Central Assumption Motivating Historicist Readings

temptation and sin," rather than as *the* historical Fall of the first two human beings, either alone or at the headwaters of an original human population.⁵³ A nonhistorical reading can still interpret the narrative as affirming that sin and evil are realities that emerge in human history (God does not create or initiate them), while admitting that the details remain mysterious.

Second, in keeping with historic Christian convictions about divine revelation and scripture, we should read Genesis 1-3 as inspired, revelatory, and authoritative narratives that disclose fundamental theological truths about God, human beings, God's intentions for creation (including humans), the problem and consequences of sin, and divine judgment and grace. Careful exegesis and theological reflection will help us to expound the details; but fundamentally, the text's theological concerns should be primary and central to interpretation. While commentators are widely divided over questions of historicity (and related critical matters such as dating, author(s), and sources), there is a remarkable degree of agreement on the *theological* teachings of Genesis 1-3.⁵⁴ Moreover, while the historicity of Adam is unlikely to make much of a difference to Christian life and practice, the theology of the narrative is deeply significant and authoritatively instructive.

Third, Genesis 1-3 teaches that the essence of sin is rebellion against God, the enthronement (via usurpation) of human autonomy, will, cunning, and desire above God's sovereignty, creative and sustaining purposes, wisdom, and love. The latter are meant to be central to human existence, grounding and properly aligning their worship and allegiance, their identity and purpose, and their moral and spiritual discernment; in short, God is the true Source (now hidden and inaccessible by human means alone) of all we are, all we have, all we do, and all we are destined to become. Theologically, the text affirms that sin and evil are an affront to God's character, will, and Lordship. The text does not solve the problem of the ultimate origins of evil, including malevolent inclinations, motivations, and influences, as the serpent's presence and role in the narrative indicates.

Fourth, we should read Genesis 3 as a *diagnosis* of the human sinful condition and state, initially directed at God's people (Israel) but applicable to all humans. Whether or not Genesis 3 intends to indicate an ontological corruption of human nature as a result of the original sin of one man (or couple) is highly contested among theologians, and an idea that many Old Testament scholars reject. What the narrative clearly and vividly depicts is the nature, workings, and consequences of temptation and sin. Thus, the story speaks profoundly into human life, and confronts readers (and listeners) with a fundamental existential-theological choice. It does not set out to explain the causal mechanisms of the origins and spread of sin in a modernist or historicist kind of way. This by no means weakens or softens its message; it is theologically sufficient for God to tell us *that* we are sinful without fully explaining the details of *how* we came to be sinful. *That* we are sinful is a basic revelatory fact, a basic Christian conviction founded upon divine revelation and known to us experientially by its effects. Its truthfulness does not rest on the need for a historical Adam/Fall. Characteristically, scripture itself does not blame Adam and Eve for the sin it exposes and condemns in Israel's later history; rather, it holds *sinner*s *presently committing sin* responsible and exhorts them to repent and seek the Lord.

Some commentators speculate that Genesis 3 is a retrospective narrative, projected back into Israel's primordial past in order to address its present experiences of sin and judgment (that is, during Deuteronomistic history or exilic existence).⁵⁵ As such, the Genesis account "reveals the essential nature of sin so that we shall recognize it clearly when we encounter it in the historical accounts of human actions that are to follow in abundance in the Bible."⁵⁶ One fruitful suggestion that several biblical scholars have made is that Genesis 2-3 performs the function of ancient wisdom literature, inviting us to live in reverence for God and to walk in his ways.⁵⁷ Commentators have noted links with the book of Proverbs (for example, Prov. 3:18 depicts wisdom as a "tree of life") and the New Testament book of James.⁵⁸ Genesis presents us with a choice: choose

God and thus pursue wisdom, love, harmony, and blessing—in short, *life*; or, choose self and thus pursue foolishness, disordered desire, chaos and discord, and judgment/curse—in short, *death*. We see the infectious, distorting, destructive, and debilitating effects of the choice to sin depicted graphically in Genesis 4–11 and reappearing everywhere in scripture.

Fifth, it is important to point out that a nonhistorical reading of Adam/the Fall does not imply or require that we reject or deny any central, classical/orthodox, or even evangelical Christian theological convictions. The historicity issue is a secondary matter which need not be used in foundationalist fashion as a prolegomenon to ground the theological teachings of Genesis 1–3. Embracing a nonhistorical reading does not require a drift into theological liberalism or heterodoxy. As Oliver Crisp rightly notes, “There is no single, agreed-upon definition of original sin in the Christian tradition”; rather, “there are various versions of the doctrine that attend to a common set of theological themes, though they differ amongst themselves about the precise dogmatic shape of original sin.”⁵⁹

An influential theologian whom I would like to commend to my readers—one who was a strong critic of theological liberalism (that is, modernist theology influenced in its methods by Enlightenment assumptions and biases, in the tradition of Kant, Schleiermacher, Harnack, Troeltsch, and others) yet did not hold to a historical view of Adam/the Fall—is Dietrich Bonhoeffer. Reflecting on the use of mythological themes and metaphorical language in Genesis, in his book *Creation and Fall: A Theological Exposition of Genesis 1–3*, Bonhoeffer writes:

Who can speak of these things except in pictures? Pictures after all are not lies; rather they indicate things and enable the underlying meaning to shine through. To be sure, pictures do vary; the pictures of a child differ from those of an adult, and those of a person from the desert differ from those of a person from the city. One way or another, however, they remain true, to the extent that human speech and even speech about abstract ideas can remain true at all—that is, to the extent that God dwells in them.⁶⁰

Elsewhere, when discussing God’s fashioning the Adam (the human) out of clay, Bonhoeffer writes,

Surely no one can gain any knowledge about the origin of humankind from this! To be sure, as an account of what happened this story is at first sight of just as little consequence, and just as full of meaning, as many another myth of creation. And yet in being distinguished as the word of God it is quite simply *the source* of knowledge about the origin of humankind.⁶¹

Bonhoeffer explains, “That the biblical author, to the extent that the author’s word is a human word, was bound by the author’s own time, knowledge, and limits is as little disputed as the fact that through this word God, and God alone, tells us about God’s creation.”⁶² For Bonhoeffer, the theological import of Adam is that by addressing Adam, *God is addressing the reader/hearer of the text*. When the text describes Adam, it is describing us (whether Israel in the past or God’s people in the present); when it is addressing, judging, and holding forth grace to Adam, it is doing all of this to us.⁶³ Repeatedly in *Creation and Fall*, Bonhoeffer speaks of the Bible as an address to God’s people, and not simply one taking place in the past but an address that also speaks to readers and hearers today.⁶⁴

Bonhoeffer’s nonhistorical approach to Genesis 1–3 did not lead him into a drift toward theological liberalism; actually, his existential-theological reading of the text equipped him to challenge and criticize liberalism (indeed, Karl Barth—perhaps the most influential Protestant critic of theological liberalism in the twentieth century—drew inspiration from Bonhoeffer’s *Creation and Fall*, specifically Bonhoeffer’s relational-existential interpretation of the *imago Dei*). Additionally, Bonhoeffer’s theological reading of the text enabled him to see and utilize themes from Genesis 1–3, which are truly central to the text, to criticize Nazi ideology, German nationalism, anti-Semitism, and ecclesial corruption. Indeed, his decision to teach Christian theology via the book of Genesis (a *Jewish* text!) at the University of Berlin in the winter semester of 1932–1933 (*Creation and Fall* is the published form of these lectures) is itself a profoundly prophetic and subversive speech act: Bonhoeffer is not just saying things; he’s *doing things*

Article

Theodicy and the Historical Adam: Questioning a Central Assumption Motivating Historicist Readings

by saying things! Moreover, his approach to the Bible is not merely a minor detail, a feature only incidental to his theology. In fact, his Genesis lectures take place closely after his profoundly evangelical “discovery” of the Bible as God’s Word (Bonhoeffer also mentions his discovery of the Sermon on the Mount and prayer), marking his movement from academic speculation and abstraction toward a more concrete, direct, and literary approach.⁶⁵ His theological insights from this period draw on his earlier academic work (*Sanctorum Communio* and *Act and Being*) but now involve more direct engagement with the biblical text and attention to concrete application; and these insights and themes go on to influence his later works (for example, *Discipleship*, *Life Together*, *Ethics*, and *Letters and Papers from Prison*) and inspire his social activism and political resistance. In sum, while *Creation and Fall* is not a perfect book (its exegesis could be improved with insights from contemporary biblical scholarship), it is a powerful theological, pastoral, and ethical exposition of Genesis 1–3, which draws on themes central to the text and is evangelical in its theological assumptions, yet does not require Adam to be a literal, historical figure.

Conclusion

I began this article by demonstrating the significant and widespread impact that theodicy has in motivating interpreters to press for a historical reading of Adam/the Fall. I then set out to show why the historical Adam/Fall solution fails to address adequately the questions raised by theodicy. Considering our future eschatological glorified state, in which we will be made both completely good (our sanctification perfected) and fully free (both free *from* sin, even the capacity to sin, and free *for* loving God and others perfectly), raises the troubling question: Why did God not make us this way from the beginning and so avoid the sin, evil, suffering, and death that characterizes human history? This question reveals the weakness of the historical Adam/Fall solution as a fully effective theodicy. I then suggested that a theological/synchronic approach to narrating scripture’s theological plot, one that supports an “incarnation anyway” theology, enables an alternate theological reading of Genesis 1–3 that avoids

the problem and that opens space for more fruitful theological engagements with the text. I concluded by commending Dietrich Bonhoeffer’s theological exposition of Genesis 1–3 as an example of such productive theological hermeneutics. ▲

Notes

¹For example, see articles in *Perspectives on Science and Christian Faith* volumes 73, no. 3 (2021); 70, no. 1 (2018); and 67, no. 1 (2015).

²Michael Reeves and Hans Madueme, “Threads in a Seamless Garment: Original Sin in Systematic Theology,” in *Adam, the Fall, and Original Sin: Theological, Biblical, and Scientific Perspectives*, ed. Hans Madueme and Michael Reeves (Grand Rapids, MI: Baker Academic, 2014), 210.

³Reeves and Madueme, “Threads in a Seamless Garment,” 211 [emphasis added]. On the previous page, they also draw the following implications (fallaciously, in my view, i.e., the italicized parts indicate *non sequitur* conclusions): “If we remove a historical Adam and Fall from the theological picture, then sin becomes a side effect of evolution, a part of the natural ontology of created human beings” (p. 210; italics added); “without a fall, human sinfulness is no longer contingent but emerges from the very structure of the material world” (p. 210; italics added).

⁴Oliver D. Crisp points out that the ancient church did not take an official position on the historicity of the Fall; see his article, “On Original Sin,” *International Journal of Systematic Theology* 17, no. 3 (2015): 256, <https://doi.org/10.1111/ijst.12107>. And, as Stephen N. Williams writes in “Adam, the Fall, and Original Sin: A Review Essay,” *Themelios* 40, no. 2 (2015): 209–10, <https://www.thegospelcoalition.org/themelios/article/adam-the-fall-and-original-sin-a-review-essay/>:

It is one thing to argue the exegetical case for the authors’ claim about an ontological link, quite another to argue its theological necessity in this fashion. I confess that I am reminded of the argument that if you deny the historicity of Adam, then belief in the historicity of Jesus Christ is unsafe. As though belief in the historicity of Jesus depended on belief in the historicity of Adam!

⁵James K. A. Smith, “What Stands on the Fall? A Philosophical Exploration,” in *Evolution and the Fall*, ed. William T. Cavanaugh and James K. A. Smith (Grand Rapids, MI: Eerdmans, 2017), 49.

⁶*Ibid.*, 64 (footnote 18).

⁷Peter Enns, *The Evolution of Adam: What the Bible Does and Doesn’t Say about Human Origins* (Grand Rapids, MI: Brazos, 2012), 79–80.

⁸Crisp, “On Original Sin,” 252.

⁹Donald Macleod, “Original Sin in Reformed Theology,” in *Adam, the Fall, and Original Sin*, ed. Madueme and Reeves, 130.

¹⁰C. John Collins, “The Place of the ‘Fall’ in the Overall Vision of the Hebrew Bible,” *Trinity Journal* 40, no. 2 (2019): 165.

¹¹For other examples (where the connection exists, but not necessarily endorsed), see the following: T. D. J. Chappell, “Explaining the Inexplicable: Augustine on the Fall,” *Journal of the American Academy of Religion* 62, no. 3 (Fall 1994): 869–84, <https://doi.org/10.1093/jaarel/LXII.3.869>; Crisp, “On Original Sin,” 252; William Lane Craig, *In Quest of*

- the Historical Adam: A Biblical and Scientific Exploration* (Grand Rapids, MI: Eerdmans, 2021), 4–5; Daniel Haynes, “The Transgression of Adam and Christ the New Adam: St. Augustine and St. Maximus the Confessor on the Doctrine of Original Sin,” *St. Vladimir’s Theological Quarterly* 55, no. 3 (2011): 302; Robert Kolb, “The Lutheran Doctrine of Original Sin,” in *Adam, the Fall, and Original Sin*, ed. Madueme and Reeves, 110; Paul Ladouceur, “Evolution and Genesis 2–3: The Decline and Fall of Adam and Eve,” *St. Vladimir’s Theological Quarterly* 57, no. 1 (2013): 169; Juuso Loikkanen, “Backward Effects of the Fall: On the Plausibility of a Retroactive Theodicy,” *European Journal of Theology* 25, no. 1 (2016): 55–63; Jeffrey K. Mann, “Original Sin in Augustine: An Analysis of Ricoeur’s Essential Three Traits,” *Budhi* 2 (1998): 142; J. Richard Middleton, “Reading Genesis 3 Attentive to Human Evolution: Beyond Concordism and Non-Overlapping Magisteria,” in *Evolution and the Fall*, ed. Cavanaugh and Smith, 86; Henry L. Novello, “Lack of Personal, Social and Cosmic Integration: Original Sin from an Eschatological Perspective,” *Pacifica* 22, no. 2 (2009): 171, <https://doi.org/10.1177%2F1030570X0902200203>; Stanley E. Porter, “The Pauline Concept of Original Sin, in Light of Rabbinic Background,” *Tyndale Bulletin* 41, no. 1 (1990): 30, https://drmsb.com/TheNakedBible/TynBull_1990_41_1_01_Porter_OriginalSin.pdf; and Gordon Wenham, “Original Sin in Genesis 1–11,” *Churchman* 104, no. 4 (1990): 309–28, https://biblicalstudies.org.uk/pdf/churchman/104-04_309.pdf.
- ¹²In the Western Augustinian tradition, the original sin of Adam (and Eve) has a “real” (ontological) effect on all humanity; it is not merely a negative influence, symbol, or example to avoid. Augustinian realism “maintains that there is a real connection between Adam and his offspring such that they together form a metaphysical whole” (Oliver D. Crisp, “Retrieving Zwingli’s Doctrine of Original Sin,” *Journal of Reformed Theology* 10, no. 4 [2016]: 353, <https://doi.org/10.1163/15697312-01004014>). Moreover, for Augustine, original sin carries with it both moral corruption (ensuring that all human beings commit actual sin) and original guilt (the judgment of God that all humanity bears Adam’s guilt because all somehow participated in Adam’s sin). Augustine believed that the practice of infant baptism remits original guilt but does not heal the corruption caused by original sin. Thus, baptized individuals are not condemned for Adam’s sin, but apart from saving grace through Christ, they are condemned for the sins they themselves commit, which they do inevitably because of their sinful nature. It is also important to note the historical context of Augustine’s doctrine of original sin, especially the need to guard Christian harmatology (doctrine of sin) and soteriology (doctrine of salvation) from the Marcionite and Arian heresies. The (Eastern) Orthodox tradition also teaches a version of original sin, one that affirms that all human beings inherit the corruption of Adam (“inherited sin”) but not the guilt of Adam. Inherited sin is akin to a disease that predisposes human beings (unavoidably) to commit sins, which incur death and judgment. Interestingly, Crisp notes that Zwingli held to similar views, rejecting both federalism and Augustinian realism within Reformed theology in favor of the view that original sin involves inherited corruption from Adam but not the imputation of Adam’s guilt (Crisp, “Retrieving Zwingli’s Doctrine,” 352–60). See Oliver D. Crisp, “On Behalf of Augustinian Realism,” *Toronto Journal of Theology* 35, no. 2 (2019): 124–33, <https://muse.jhu.edu/article/751871>; Stephen J. Duffy, “Our Hearts of Darkness: Original Sin Revisited,” *Theological Studies* 49 (1988): 600–604, <https://doi.org/10.1177%2F004056398804900401>; Haynes, “Transgression of Adam,” 308–10, 314; Ladouceur, “Evolution and Genesis 2–3,” 135–76; and Mann, “Original Sin in Augustine,” 144–46.
- ¹³Crisp (“On Original Sin,” 257) cites three core tenets common to traditional doctrines of original sin: “First, that there was an original pair from whom we are all descended; second, that this pair committed the primal sin which adversely affects all their offspring; and third, that all human beings after the fall of the original pair are in need of salvation, without which they will perish.” He later adds, “To my mind it is the third of these claims that is dogmatically most fundamental. Human beings are sinners in need of salvation in Christ” (p. 265).
- ¹⁴In a previous article in *PSCF*, I outlined an eschatological framework for making sense of evolution theologically. See Patrick S. Franklin, “Understanding the Beginning in Light of the End: Eschatological Reflections on Making Theological Sense of Evolution,” *Perspectives on Science and Christian Faith* 66, no. 3 (2014): 154–70, <https://www.asa3.org/ASA/PSCF/2014/PSCF9-14Franklin.pdf>.
- ¹⁵For an exposition of this distinction, see Dietrich Bonhoeffer, *Ethics*, vol. 6 *Dietrich Bonhoeffer Works*, ed. Clifford J. Green, trans. Reinhard Krauss, Charles C. West, and Douglas W. Stott (Minneapolis, MN: Fortress, 2005), 146–70. As a summary statement: “Christian life is the dawn of the ultimate in me, the life of Jesus Christ in me. But it is also always life in the penultimate, waiting for the ultimate” (p. 168).
- ¹⁶Dietrich Bonhoeffer, *Act and Being: Transcendental Philosophy and Ontology in Systematic Theology*, vol. 2 *Dietrich Bonhoeffer Works*, ed. Wayne Whitson Floyd Jr., trans. H. Martin Rumscheidt (Minneapolis, MN: Fortress, 1996), 41, 46, 58, 80, 89, 137. For this theme in Athanasius, see Jonathan Morgan, “The Soul’s Forgetfulness of God in Athanasius’ Doctrine of the Fall,” *St. Vladimir’s Theological Quarterly* 60, no. 4 (2016): 477.
- ¹⁷Wolfhart Pannenberg, *Anthropology in Theological Perspective*, trans. Matthew J. O’Connell (Edinburgh, UK: T&T Clark, 1999), 43–79; cf. F. LeRon Shults, *Reforming Theological Anthropology: After the Philosophical Turn to Relationality* (Grand Rapids, MI: Eerdmans, 2003), 90–91, 236–37.
- ¹⁸Dietrich Bonhoeffer, *Creation and Fall: A Theological Exposition of Genesis 1–3*, vol. 3 *Dietrich Bonhoeffer Works*, ed. John W. de Gruchy, trans. Douglas Stephen Bax (Minneapolis, MN: Fortress, 1997), 62–67, 143–44; Pannenberg, *Anthropology in Theological Perspective*, 80–123.
- ¹⁹Bonhoeffer describes this brilliantly with the distinction he makes between being *sicut Deus* and being *imago Dei* (Bonhoeffer, *Creation and Fall*, 113).
- ²⁰Athanasius, *On the Incarnation of the Word* 5.1, in *NPNF2–04, Athanasius: Select Works and Letters*, ed. Philip Schaff (New York: Christian Literature, 1892), 38.
- ²¹E.g., Haynes, “Transgression of Adam,” 304.
- ²²Gary A. Anderson, “Biblical Origins and the Problem of the Fall,” *Pro Ecclesia* 10, no. 1 (2001): 26, <https://doi.org/10.1177%2F106385120101000102>.
- ²³Philip Hefner, “Biological Perspectives on Fall and Original Sin,” *Zygon* 28, no. 1 (March 1993): 94–95, <https://doi.org/10.1111/j.1467-9744.1993.tb01020.x>.

Article

Theodicy and the Historical Adam: Questioning a Central Assumption Motivating Historicist Readings

For similar reflections on evolutionary influences on the human propensity toward sinning, see Celia Deane-Drummond, "The Birth of Morality and the Fall of Adam through an Evolutionary Inter-species Lens," *Theology Today* 72, no. 2 (2015): 182–93, <https://doi.org/10.1177%2F0040573615581544>.

²⁴Smith, "What Stands on the Fall?," 56.

²⁵Porter, "The Pauline Concept of Original Sin, in Light of Rabbinic Background," 8 (for the broader discussion, see pp. 3–8). Porter goes on to note: "Apparently, at times attribution is taken from God and given more directly to various human sources when this attribution is thought to be theologically out of character with God" (p. 8).

²⁶Macleod, "Original Sin in Reformed Theology," 135–36.

²⁷Haynes, "Transgression of Adam," 307. Haynes notes similarly that Maximus the Confessor "does not answer the 'how' question" in his reflections on the Fall in his *Ad Thalassium*, but "avers that it was due to the trickery of the devil and [human] ignorance, which is an irrational movement of a natural faculty toward its unnatural end" (p. 308).

²⁸Reeves and Madueme, "Threads in a Seamless Garment," 219.

²⁹See Patrick S. Franklin, *Being Human, Being Church: The Significance of Theological Anthropology for Ecclesiology* (Milton Keynes, UK: Paternoster, 2016), 178–86; see also Robert Sherman, *Covenant, Community, and the Spirit: A Trinitarian Theology of Church* (Grand Rapids, MI: Baker Academic, 2015).

³⁰For a good introduction to this theme and its relevance for Christian life and theology, see James B. Torrance, *Worship, Community and the Triune God of Grace* (Downers Grove, IL: InterVarsity Press, 1996); for a practical outworking of the theme of participation for Christian life and ministry, see Henry T. Blackaby and Claude V. King, *Experiencing God: How to Live the Full Adventure of Knowing and Doing the Will of God* (Nashville, TN: Broadman & Holman, 1994). See also Patrick Franklin, "The God Who Sends Is the God Who Loves: Mission as Participating in the Ecstatic Love of the Triune God," in *The Interface of Science, Theology, and Religion: Essays in Honor of Alister E. McGrath*, ed. Dennis Ngien (Eugene, OR: Pickwick, 2019), 29–47.

³¹For further treatment of these themes in John, see Michael J. Gorman, *Abide and Go: Missional Theosis in the Gospel of John* (Eugene, OR: Wipf and Stock, 2018); and Andreas J. Köstenberger and Scott R. Swain, *Father, Son and Spirit: The Trinity and John's Gospel* (Downers Grove, IL: InterVarsity Press, 2008).

³²This union of believers with Christ and with each other mirrors the perichoretic union of Father, Son, and Spirit, but it does so analogically, not literally. Our union is not identical with the hypostatic union of Christ's two natures or with the oneness of the divine essence. As the patristic fathers clarify, the Son shares in the divine essence necessarily by nature, whereas we come to share in the divine life contingently through participation "in Christ" by the Spirit. Jesus is Son of God by nature; we become sons and daughters of God through adoption.

³³Michael Parsons, "'In Christ' in Paul," *Vox Evangelica* 18 (1988): 25, https://biblicalstudies.org.uk/pdf/vox/vol18/in-christ_parsons.pdf.

³⁴For a thorough exploration of these themes in Paul, see Michael J. Gorman's *Becoming the Gospel: Paul, Participa-*

tion, and Mission (Grand Rapids, MI: Eerdmans, 2015) and *Participating in Christ: Exploration in Paul's Theology and Spirituality* (Grand Rapids, MI: Baker Academic, 2019); see also Parsons, "'In Christ' in Paul," 25–44.

³⁵Millard J. Erickson, *Christian Theology* (Grand Rapids, MI: Baker Academic, 1998): 297–98.

³⁶John H. Walton, "Reading Genesis 1 as Ancient Cosmology," in *Reading Genesis 1–2: An Evangelical Conversation*, ed. J. Daryl Charles (Peabody, MA: Hendrickson, 2013), 166.

³⁷Athanasius, *On the Incarnation of the Word*, 38.

³⁸For an overview of historical precedents for "incarnation anyway" theologies, see Georges Florovsky, "Cur Deus Homo? The Motive of the Incarnation," in chap. 6, "Dimensions of Redemption," in *Creation and Redemption*, vol. 3, *Collected Works of Georges Florovsky* (Belmont, MA: Nordland, 1976), 163–70. See also Edwin Christian van Driel, *Incarnation Anyway: Arguments for Supralapsarian Christology* (New York: Oxford University Press, 2008); Marilyn McCord Adams, *Christ and Horrors: The Coherence of Christology* (Cambridge, UK: Cambridge University Press, 2006); and Brooke Foss Westcott, "The Gospel in Creation," in *The Epistles of St. John: The Greek Text with Notes and Essays* (London, UK: Macmillan, 1892), 290.

³⁹Oliver D. Crisp, "Incarnation without the Fall," *Journal of Reformed Theology* 10 (2016): 219–20, <https://doi.org/10.1163/15697312-01003016>.

⁴⁰The early church theologian Irenaeus spoke of the incarnation as the means by which God accustomed human beings to God and God to human beings. As Eric Osborn explains, "The first purpose of the economy was to accustom man to God and to accustom God to man." The incarnation marks a new and particularly significant phase in the process of accustoming, as "in Christ, man is able to see God, to contain God, to accustom himself to participate in God while God is accustomed to live in man" (Irenaeus, *Against Heresies* 2.30.3, in *The Apostolic Fathers with Justin Martyr and Irenaeus*, ed. Philip Schaff [Grand Rapids, MI: Eerdmans, 2001]). See Eric Osborn, *Irenaeus of Lyons* (Cambridge, UK: Cambridge University Press, 2005), 80–81.

⁴¹Crisp, "Incarnation without the Fall," 221. Bonhoeffer articulates a similar view of Christ (not Adam) being the prototype for humanity in *Creation and Fall*, 65, 113.

⁴²Crisp, "Incarnation without the Fall," 225.

⁴³In what follows, I rely on the leading commentary work of Gordon D. Fee, *The First Epistle to the Corinthians*, rev. ed., *The New International Commentary on the New Testament* (Grand Rapids, MI: Eerdmans, 2014), as well as commentaries by Robert Scott Nash, *1 Corinthians*, *Smyth & Helwys Bible Commentary* (Macon, GA: Smyth & Helwys, 2009) and David E. Garland, *1 Corinthians*, *Baker Exegetical Commentary on the New Testament* (Grand Rapids, MI: Baker Academic, 2003).

⁴⁴Nash notes that "Unlike Philo, who saw the Adam of Genesis 1 as the archetype and ideal human being, Paul sees the first Adam as partaking of a nature that is incapable of 'inheriting the kingdom of God'" (Nash, *1 Corinthians*, 422). Similarly, in vv. 39–41, Paul uses the term "flesh" (*sarx*) "in a nonpejorative way to refer to the physicality of earthly bodies—their creatureliness, weakness, and transitoriness" whereas the "substance of heavenly being is 'glory'" (Garland, *1 Corinthians*, comment on 15:39–41).

⁴⁵Fee, *The First Epistle to the Corinthians*, 859, cf. 867.

⁴⁶Nash, *1 Corinthians*, 424.

⁴⁷Fee, *The First Epistle to the Corinthians*, 865.

⁴⁸Garland, *1 Corinthians*, comment on 15:42–44a. This is not to deny that there are also continuities between the earthly and resurrected spiritual bodies.

⁴⁹Fee, *The First Epistle to the Corinthians*, 869, 873, 875.

⁵⁰*Ibid.*, 874.

⁵¹David H. Kelsey, *Eccentric Existence: A Theological Anthropology*, 2 vols. (Louisville, KY: Westminster John Knox, 2009).

⁵²It is important to note that some interpreters believe that Paul's argument in Rom. 5:11ff requires the historicity of Adam. While space precludes a detailed discussion of this passage (as well as scope; this is ultimately within the domain of New Testament scholarship), a few comments in response are in order. First, Paul probably did believe that Adam was a historical person (the first human being that God created), but an evangelical theology of inspiration does not require us to believe everything that Paul believed, only what Paul intended to teach us. For example, as Denis O. Lamoureux points out, Paul's cosmology is outdated in light of modern science, so it not surprising to find that his understanding of biological origins is also obsolete. It is possible to identify and affirm Paul's theological teachings but see them as separable from (not necessarily or intrinsically attached to) his outdated cosmology and biology. See Lamoureux, *The Bible and Ancient Science: Principles of Interpretation* (Tullahoma, TN: McGahan, 2021), 174–75.

Second, Rom. 5:11ff is a difficult and much debated passage in biblical scholarship. A thorough and convincing exposition of Paul's scriptural reasoning must account for (a) Paul's broader aims in Romans and how Adam relates to the argument in Romans 5; (b) Paul's interpretation of the Old Testament more broadly, which is a huge—and contested—area of scholarly discussion; (c) the Old Testament's virtual silence about Adam causing others to sin (and hence Paul's very novel reading of Genesis 3 as compared to the canonical tradition); and (d) the lack of consensus generally in biblical scholarship about historicity in Paul's argument, including New Testament scholarship on Romans 5, Old Testament scholarship on Genesis 1–3, and biblical and hermeneutical scholarship on the relationship between the two.

Third, it seems to me that, in some ways, Paul is adapting the Genesis story to conform to his Christological purposes, rather than simply drawing out the necessary implications of the Genesis text for Christology. At the very least, the strict one-to-one typological correspondence between the two figures seems to be rooted in the uniqueness and particularity of the one Christ, thus moving from Christ to Adam, since Paul ignores the place of Eve in the Genesis story. In Genesis three, the first human being to sin is Eve, followed by Adam; so how can Paul say that sin and death entered into the world through "the one man" when this one man's sin was preceded by his wife's sin? It seems that Paul is reading Genesis theologically in light of Christ, with details about Christ controlling the specifics of the typology, rather than the other way around. As Dunn states, "Indeed, if anything, we should say that the effect of the comparison between the two epochal figures, Adam and Christ, is not so much to historicize the individual Adam as to bring out the more

than individual significance of the historic Christ." Earlier, Dunn writes,

The reference to Adam's failure is for Paul a way of characterizing the condition of humankind in the epoch of human history which has extended from the beginning of the human race till now ... it would not be true to say that Paul's theological point here depends on Adam being a 'historical' individual or on his disobedience being a historical event as such. Such an implication does not necessarily follow from the fact that a parallel is drawn with Christ's single act: an act in mythic history can be paralleled to an act in living history without the point of comparison being lost. So long as the story of Adam as the initiator of the sad tale of human failure was well known, which we may assume (the brevity of Paul's presentation presupposes such a knowledge), such a comparison was meaningful. (James D. G. Dunn, "The New Perspective on God's Righteous Purpose for Humankind" [5:12–21], in *Romans 1–8*, vol. 38A *Word Biblical Commentary* [Grand Rapids, MI: Zondervan Academic, 2018], no pages, http://library.mibckerala.org/lms_frame/eBook/Volume%2038A%20-%20DUNN%20Romans%20%E2%80%93%938.pdf)

⁵³I allude to C. John Collins's proposal that Adam and Eve were the representative heads (King and Queen) of an original human population of perhaps 10,000 or so people. While this scenario is possible, I do not think it fits with the details of the biblical narrative. C. John Collins, *Did Adam and Eve Really Exist? Who They Were and Why It Matters* (Nottingham, UK: InterVarsity Press, 2011); cf. C. John Collins, "Adam and Eve as Historical People, and Why It Matters," *Perspectives on Science and Christian Faith* 62, no. 3 (2010): 159–60, <https://www.asa3.org/ASA/PSCF/2010/PSCF9-10Collins.pdf>.

⁵⁴One can see this, for example, in the multiple "views" book, *Reading Genesis 1–2: An Evangelical Conversation*, ed. J. Daryl Charles (Peabody, MA: Hendrickson, 2013).

⁵⁵Anderson, "Biblical Origins and the Problem of the Fall," 28–29.

⁵⁶Joseph Fitzpatrick, "Original Sin or Original Sinfulness?," *New Blackfriars* 90, no. 1030 (November 2009): 711. See also Phillip G. Camp, "David's Fall: Reading 2 Samuel 11–14 in Light of Genesis 2–4," *Restoration Quarterly* 53, no. 3 (2011): 149–58.

⁵⁷Middleton, "Reading Genesis 3," 79.

⁵⁸For a detailed comparison of Genesis 2–3 with wisdom and folly themes in Proverbs, see Enns, *Evolution of Adam*, 80, 87–91; on James and Genesis, see Joel B. Green, "Adam, What Have You Done? New Testament Voices on the Origins of Sin," in *Evolution and the Fall*, 110–14.

⁵⁹Crisp, "On Original Sin," 256.

⁶⁰Bonhoeffer, *Creation and Fall*, 81.

⁶¹*Ibid.*, 75–76 (emphasis original).

⁶²*Ibid.*, 49.

⁶³*Ibid.*, 89, 100.

⁶⁴*Ibid.*, 29, 30, 43, 82, 83, 89, 100.

⁶⁵See Eberhard Bethge, *Dietrich Bonhoeffer: A Biography*, ed. Victoria J. Barnett, trans. Eric Mosbacher, Peter and Betty Ross, Frank Clarke, and William Glen-Doepel (Minneapolis, MN: Fortress, 2000), 205–6.

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HISTORY OF SCIENCE

FLAT EARTHS AND FAKE FOOTNOTES: The Strange Tale of How the Conflict of Science and Christianity Was Written into History by Derrick Peterson. Eugene, OR: Cascade Books, 2021. xii + 359 pages, including bibliography. Paperback; \$44.00. ISBN: 978153265339.

My interest in Christianity and science first developed more than forty years ago, while I was teaching science and mathematics at a Christian secondary school. After the late Frank Roberts introduced me to the ASA, books by Bernard Ramm, Richard Bube, and others helped refine my thoughts and led me to pursue doctoral work in the history and philosophy of science at Indiana University. There I was mentored by two eminent scholars who shared and encouraged my interest, Richard S. Westfall and Edward Grant. Ironically, they were initially skeptical that a dissertation about the influence of theology on early modern natural philosophy even qualified as history of science—it would be more appropriate for a thesis in religion.

Both later came around to the idea, but their hesitation signaled the prevailing attitude among academics: religious beliefs often conflict with scientific facts, and for millennia religion has held back scientific progress. Although logical positivism was then waning, the philosophers in my department never got that memo. As for Grant and Westfall, like many other scholars of the postwar generation they mainly aligned with the classic view of the Scientific Revolution: modern science arose in the time of Copernicus, Galileo, and Newton, and then only when traditional Christian beliefs were set aside or entirely discarded, as enlightened reason triumphed over blind and obscurantist faith. Years later Grant changed his mind, writing major books and articles about the importance of medieval Christian natural philosophy for the rise of modern science—often cited in this book—but Westfall never budged from his position that science dethroned religion during the Scientific Revolution, and that Newton’s religious beliefs (which Westfall studied more intensely than almost anyone else) were irrelevant to his science.

If only a book like this had been available to me then. Of course, it couldn’t have been—it depends heavily on the best scholarship about the history of science and religion, so much of which was published after I finished graduate school. A freelance writer with graduate training in history, Derrick Peterson explains how history is done, and how historians

created the “conflict” view of religion and science that I encountered on all sides in graduate school, in an accessible manner that I would have found enormously helpful. At that time, only a few historians were taking that bull by the horns, and it had not yet been slain. Coming from a science background, I had not yet developed the ability to read historical literature with a critical eye. It took me several years to learn how historians think. History is not just a pile of facts: it is about how to assemble those facts into a coherent narrative that is faithful to the ideas, activities, and beliefs of the historical actors themselves, while taking care not to impose on them modern viewpoints and attitudes. As novelist L. P. Hartley famously wrote, “The past is a foreign country: they do things differently there.” Until I understood this, I could not begin to dismantle the conflict view and begin to delve more deeply into the real history of Christianity and science, which had long been obscured by false rumors of warfare.

Many ASA members today are probably where I was then. As Christians trained in science, not history, they recognize the cultural significance of the conflict view and instinctively reject it, but lack the historical tools to critique it effectively. *Flat Earths and Fake Footnotes* functions well as a primer for non-specialists on the ideological origins of the conflict view and how badly it misled scholars in earlier generations, leading them to write many things that would not pass muster today; the book explains how the conflict view was eventually deconstructed. That is its main value—despite the annoying absence of an index—but the book is much more than a primer. The latter half of the book examines numerous bogus stories of conflict that are still often repeated, starting with the notion (referenced in the title of the book) that most Christians before the rise of modern science believed on biblical grounds that the earth is flat. I found his debunking of the modern myth-makers Catherine Nixey and Stephen Greenblatt, authors of award-winning books advancing the conflict view, particularly on point. All lovers of truth should applaud this material. More importantly, Peterson has read widely in the history of ideas, enabling him to contextualize the history of science itself—which became an academic discipline in the twentieth century, substantially by embracing nineteenth-century versions of the conflict view. Nor are nonspecialists the only readers who will learn from this book. To cite just two (of many) examples, I did not realize the extent to which Leonardo da Vinci was wrongly presented as a secular saint by scholars opposed to traditional religion; nor did I know that John Tyndall was a pantheistic naturalist rather than a pure secularist.

Unfortunately, *Flat Earths and Fake Footnotes* contains at least a few fake footnotes of its own. Certain quotations are either misattributed, or wrongly cited. The most glaring instance involves a lengthy passage supposedly from Westfall, crucial to the argument at that point, which is not actually in the work identified in the footnote (pp. 52–53). Although it sounds authentic (and might be), I cannot identify the source. Some statements are also erroneous, such as the description of Goethe, Humboldt, and Haeckel as “contemporaries” (p. 262). All scholars make errors from time to time (myself included), but we should keep in mind that this is not an original work of scholarship; it is rather a popularization of conclusions reached by other scholars—and more reliable than many other popular-level works about the history of science, especially considering the complex historical ideas it relates. Readers who appreciate economy of expression may also be somewhat frustrated. Certainly, the author could have greatly reduced the number of quotations and cut some other information, without losing any real substance or nuance. A stern editorial hand would have helped. Partly for this reason, I rank this book lower than *Galileo Goes to Jail and Other Myths about Science and Religion* (2009), edited by Ronald L. Numbers, and *Unbelievable: 7 Myths about the History and Future of Science and Religion* (2019), by Michael Newton Keas. However, all three belong in the libraries of ASA members who want a better understanding of the conflict thesis and its fatal shortcomings.

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COSMIC QUERIES: StarTalk’s Guide to Who We Are, How We Got Here, and Where We’re Going by Neil deGrasse Tyson and James Trefil. Washington, DC: National Geographic Society, 2021. 309 pages. Hardcover; \$30.00. ISBN: 9781426221774.

Neil deGrasse Tyson is a well-known popularizer of science; the StarTalk podcast he hosted for years is both a fun and educational resource for countless science subjects. He has teamed up with James Trefil, a prolific science writer and popularizer in his own right, to produce a book trying to summarize a vast array of human discoveries about our place in the cosmos for a primarily nonscientific audience. The book attempts to mimic the style of StarTalk in using humor and even a bit of goofiness at times to keep it light.

Two observations are worth starting off with. First, the authors have attempted to summarize and

simplify a huge amount of science, and no reviewer could possibly do justice by attempting to summarize their summary. There is no central thesis or question which is under debate. An overview of topics and some high points discussed below will suffice.

But secondly, and more importantly, given the full title including the subtitle, these are questions which humans have wrestled with for millennia, and especially as they engage with personal considerations of meaning, purpose, and destiny. The ancient Greek philosophers asked similar questions, and surely humankind had pondered them for millennia before that. Yet the book settles for a response with a rather casual and unfortunate scientism. The science is wonderful, but apparently the publisher thought the book would sell better by choosing a philosophical title for a purely scientific discussion.

It may be a sign of the times that the 1982 cult movie *Blade Runner* engages more directly and significantly with those title questions than this 2021 book does. Recall the scene near the end of the movie in which Deckard asks, “All he’d wanted were the same answers the rest of us want. Where did I come from? Where am I going? How long have I got?” That is an extremely important tone and context in which those subtitle questions belong! But the essential philosophical side of those questions is utterly ignored in the book, except perhaps for a few times they poke fun at common straw man views of the church (they could at least acknowledge that the Christian worldview provided a foundation for the beginning of science as we know it). For example, the authors casually dismiss important questions when they say, “The emergence of galaxies, stars, and human intelligence all followed from this event” (p. 216). Excuse us? Human intelligence did what? Followed from galaxies and stars? Like water downhill? Is there no hard problem of human consciousness? Unfortunately, obvious categories of ideas are avoided as if they do not exist. This is clearly not accidental.

The chapter “Are We Alone in the Universe?” provides a great opportunity to characterize the book. Tyson and Trefil neatly and enjoyably summarize the history of the search for extraterrestrial intelligence starting with Lowell’s “canals” on Mars and proceeding through modern day SETI. The writing is light, fast-paced, and even includes a “Dad joke.” They present the Drake equation, of course, and even try their hand at a calculation of the odds, ending up as most do with a range of from one to possibly millions of intelligent races in the Milky Way. But then there is the meat—or lack thereof. They mention the Fermi Paradox that asks, “If aliens exist, where are they?” But the authors do not consider the question

Book Reviews

of why the cumulative SETI effort, after surveying over 60 million stars, has found no evidence of other intelligent races out there. The authors mention the Rare Earth hypothesis, that the odds strongly favor very few if any other intelligent races, but dismiss it with, "This scenario is popular with religions that favor Earth as God's unique and special place in the universe" (p. 208). This slap against *Rare Earth's* authors Brownlee and Ward is made although the word "God" does not appear in their book. Indeed, many scientists who, like Brownlee and Ward, have no apparent religious motivation, have entertained the question of whether intelligent life is common or rare. For example, consider the 2021 paper published in the peer-reviewed *Astrobiology Journal* with the title "The Timing of Evolutionary Transitions Suggests Intelligent Life Is Rare" by astronomer Andrew Snyder-Beattie et al. at the University of Oxford. In a YouTube video, physicist Sabine Hossenfelder, who is herself an atheist, states that in her experience scientists who are believers are better at keeping religion out of their work than scientists who are atheists.

One more example: the last chapter discusses the subject "before the beginning," and the fine-tuning problem is brought up briefly, but according to the authors, "The multiverse saves the day" (p. 282). First, no, it doesn't. And second, that is hardly a scientific claim! Later in the chapter they comment that when the science becomes too difficult, "philosophers step in and give it a go" (p. 286). Apparently, according to Tyson and Trefil, it is nice to have those philosophers around to engage with the insignificant questions, like who we are, how we got here, and where we're going. Oh wait, that's the book's subtitle! Yet it disingenuously ignores or disparages the deeper human questions it claims to consider and settles "merely" for amazing facts and discoveries.

This is, either accidentally or on purpose, an anti-philosophy book. Despite all of the fascination with the science, this black-and-white view of the world painfully downplays the color of our genuine deepest questions. Indeed, it has been stated that scientists often make lousy philosophers. Very bright minds can make indefensible statements, as when Stephen Hawking wrote "philosophy is dead," oblivious to the fact that this was a philosophical statement.

Ah well, enough on that theme for now. The science in the book is quite fascinating. A more appropriate subtitle for the overall work would be, "What can science alone tell us about ourselves and our universe?" But that probably would not sell the same.

The book begins with Newton and Aristotle watching an object fall, and discusses how the two would see it differently, tracing some of the history of scientific views of Earth and the cosmos. It is good to see the authors point out that the Greeks, as far back as the third century BC, knew that the world was round. Eratosthenes measured the length of the shadow of an obelisk in Alexandria at the same time the sun touched the bottom of a well in Syene, and he calculated from the angle of the shadow and the distance between the cities the size of the Earth. The authors here introduce the "distance ladder," how observations on a smaller scale can then be used to estimate much larger things. They use this several times to explain how we know some of what we think we know, especially about the size of our universe. This is well done.

After a history of views of our physical placement in the cosmos follows the history of tools of discovery – from telescopes, through radio waves, and reaching above our atmosphere to access the full electromagnetic spectrum.

Next, they look at our universe in the macro, along with its age and materials, leading to stars, planets, and solar systems, including, of course, our own. Further detail about the beginning follows, including the Cosmic Microwave Background (CMB), Inflation, and so-called Dark Energy and Matter.

After a look at chemistry for elements, particles, and quarks, and also a look at life and biochemistry, they turn to the very beginning and end of the universe, and conclude with a brief but unsatisfying chapter that explores before the beginning.

On the positive side, the book is a good basic primer to the science behind our universe. It will leave any serious student of science, professional or not, unsatisfied. Very few new ideas are presented, breadth over depth is preferred, and controversial views are omitted or minimized.

In the end, *Cosmic Queries* is an easy read and might be fine for a person just becoming interested in science and the universe, such as perhaps a high school student or a person with little or no science background. Some disclaimers are warranted regarding the utter lack of engagement in the philosophical side of the questions in the subtitle. At least the science is solid. However, a person even somewhat well read in science will find little new or exciting in it. If you need a gift for that well-read person, or if that describes you, the reviewers suggest you pick up the richer and more nuanced *Welcome to the Universe*

(2016) which Tyson cowrote with Richard Gott and Michael Strauss.

Reviewed by Marty Pomeroy, ASA Member and Software Engineer, and C. David Seuss, Founder and CEO of Northern Light, Boston, MA 02129.

EVERY LIFE IS ON FIRE: How Thermodynamics Explains the Origins of Living Things by Jeremy England. New York: Basic Books, 2020. 272 pages. Hardcover; \$28.00. ISBN: 9781541699014.

Physicist Jeremy England's unique book on the latest developments in origin-of-life research is scientifically fascinating and refreshingly devoid of the typical faith/science antipathy that plagues much work in this field. What England offers is essentially a down-to-earth primer on statistical thermodynamics which enables the nonphysicist reader to understand current developments in non-equilibrium thermodynamics, such as "dissipative adaptation," that have much to say about what life is and what needs to occur for life to start naturally (i.e., spontaneously from natural precursors).

England discusses at length the precariousness of life and the improbability of a living organism being thrown together at random, but contra the Intelligent Design (ID) movement, he takes this as evidence not of its impossibility but, rather, that non-equilibrium thermodynamics must be involved in any scientific explanation. England directly addresses ID only once in a footnote:

... of course, whenever we do not yet understand something, we always have the option of throwing up our hands and declaring that intelligent contrivance is the only way things could be this way, but we also have the option of trying harder to understand, often with a successful result ... (p. 245)

Far from offering a mechanism for how life began, however, England instead examines the necessary prerequisites for what we instinctively call "life," including energy consumption, replication, and anticipating changes in the environment, and stresses that these distinctive aspects of life cannot all come from one mechanism. Through variegated collections of matter responding to flows of energy impinging on them, non-equilibrium states can be created and sustained in a manner that looks for all the world like intelligent design but can be explained by new ideas in non-equilibrium thermodynamics. The ability for an organism to live in a high-energy, non-equilibrium state without being consumed by the "fire" of energy surrounding it is not necessarily related to an organism's ability to reproduce, and

neither stability nor self-replication necessarily guarantees an ability to predict environmental variables and respond to them in a self-preserving fashion. England argues that having multiple mechanisms operating and evolving in parallel for the somewhat independent qualities that constitute life makes the natural emergence of living things less improbable than hitherto imagined.

While non-equilibrium thermodynamics can help us better understand how living things may have arisen naturally from inanimate matter, the book also argues that we still need to look beyond science for why a living pile of molecules has more meaning than a pile of ashes. England, who states his personal commitment to the Jewish faith, looks to the Hebrew Bible for grounding and inspiration when wrestling with the questions of "What is life?" and "How did life begin?" He finds in the signs God gives to Moses on Mt. Horeb (Exodus 3), including his staff turning into a snake, a rich treasure-trove of wisdom regarding life, its meaning, and its intimate connection with the natural world. Thus, while the book is mostly an explication of recent insights from physics regarding what it means to be alive, it is woven together in a fascinating way with biblical wisdom gleaned from the Torah. The rich allusions and connotations England impressively draws from the Mt. Horeb signs provide another example of the deep wisdom that scripture offers in its timeless narratives.

What especially sets this book apart from other faith-based origin-of-life discussions is the fact that England himself is a leading researcher in the current science of non-equilibrium thermodynamics. He was a physics prodigy who has now established a career bridging academia and industry, and much of the book is based on his own groundbreaking work. In this regard, he carries a distinctly authoritative voice that is perhaps best compared to Francis Collins or John Polkinghorne—leading scientists whose scientific work directly overlaps the theological waters they wade into. There is some risk that the nonphysicist may feel bogged down by the detailed scientific lessons and explanations, but England does an impressive job of explaining things in everyday terms, including balls rolling down hills, springs, and snowflakes. He is also careful to include helpful summaries along the way. The accessibility of the scientific ideas and the originality of the theological reflections make Jeremy England's *Every Life Is on Fire* a must-read for anyone interested in origin-of-life issues.

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WHY SCIENCE AND FAITH BELONG TOGETHER: Stories of Mutual Enrichment by Malcolm A. Jeeves. Eugene, OR: Cascade Books, 2021. 294 pages. Paperback; \$35.00. ISBN: 9781725286191.

Many sense tension between modern science and Christian faith. Malcolm Jeeves, however, intends to show how the two are quite complementary. As Emeritus Professor (University of St. Andrews), past-President of the Royal Society of Edinburgh, Fellow of both the Academy of Medical Sciences and the British Psychological Society, and a prolific author in the arena of science and faith, he is supremely qualified to write this book.

The Preface reveals his motives: emails from distraught students despairing over a faith that seems incompatible with modern science, and polls showing the mass exodus of young people from faith for the same reason. The emails come from those appealing desperately to believing experts for help to hang on to faith, while the polls represent those making the opposite choice by voting with their feet. Scripture has much longer roots than modern science: the written texts go back two or three millennia, and the oral traditions underlying them another several millennia, whereas modern science is very new. So, when these two divinely inspired searches for truth seem to come into conflict, the tendency for some is to favor the tried-and-true, whereas others feel it necessary to favor what is seen as the “new-and-improved.” Jeeves’s goal is to show how these two books actually complement one another even when they appear to conflict.

The book is divided into three sections. The first looks at how science and cultural changes seem to keep shrinking and changing God, while introducing new alternative gods. God had long been the explanation for many previously unanswerable questions (the origin of the universe and of life, for example), but as modern science made more and more discoveries and filled in knowledge gaps, God grew smaller and smaller. At the same time, changes in societal values prompted some to re-define God to conform to more modern thinking. Essentially, we started making God in our own image using insights gleaned through science (psychology, psychoanalysis [pp. 35–38]) and theology (Augustine, Aquinas, Jonathan Edwards, Karl Rahner [pp. 38–41]). A plethora of substitute gods came into view, chief of which is technology. Social media and the internet seemed to facilitate the erosion of belief. However, Jeeves closes

out this section looking at how science and technology can also expand our view of God. From studies of the very small (including DNA and the genetic code) to the very large (the known universe expanding from an estimated radius of 100,000 light years in 1917 to the present day estimate of 46 billion light years), there is now greater reason to be in awe of the Creator God.

The second section explores five major questions: (1) human origins; (2) human nature; (3) miracles of nature; (4) healing miracles; and (5) the nature of faith. For each, there is a pair of chapters: one subtitled “evidence from scripture,” and a complementary chapter subtitled “evidence from science.” Those subtitles might be misconstrued to imply that evidence would be proffered to explain or answer the question. Sometimes, that is the case. More often, distinct lines of evidence are cited to raise thought-provoking questions, provide divergent perspectives, add a bit of color or fill gaps, and call for more careful nuancing of the data. They serve more to stimulate questions and reflection than to provide an overview or explanation. I eventually came to see that the two sources of human evidence, when brought together within the mind of the reader, become a three-dimensional stereoscopic hologram.

In chapters 4 and 5, on human origins, Jeeves opens with the challenge, voiced by other secular scientists, that genetics does not explain everything about humanity, such as the emergence of personhood and consciousness, our moral values and ethical sense, and language. Therefore, standard evolutionary theory is too limited in scope and needs a “re-think.” Equally true, however, theological explanations of these also need a “re-think.” The scientific data clearly shows that humans are not starkly different from other animals, and in fact that it is almost certain that we evolved from them. We humans are, though, much more than genes, tissues, and organs.

In chapters 6 and 7, on human nature, nonscholars (both believing and not) are in nearly unanimous agreement that Christianity is critically tied to substance dualism—the idea that humans comprise a material body and an immaterial soul/spirit. In contrast, many scholars, across the spectra of belief (belief/nonbelief) and knowledge (science/theology/philosophy), see major problems with such dualism. Can science explain the soul? Is the case of a child with nearly normal cognitive abilities but lacking a major proportion of brain mass, evidence for a nonmaterial soul (p. 101)? Does Libet’s experiment say anything about free will (p. 102)? If humans do not exhibit categorical differences from animals, how are we created in the image of God?

In chapters 8 and 9 (on miracles of nature), Jeeves asks a number of questions. Do miracle claims constitute proof of God? Is God a divine upholder, or occasional gap filler? Do attempts to explain miracles “[explain] them away” (pp. 140–41)? What exactly do we mean by words such as “miracle” and “supernatural”? What does the Bible mean by “signs” and “wonders”? Is there merit in trying to normalize biblical phenomena that appear to be miraculous, using modern scientific explanations? Or do such attempts only raise other problems?

Chapter 10 addresses healing miracles. If someone claims an experience/event which can be shown to have a probability of one-in-a-million, is that a miracle ... given that those odds predict that roughly 7,500 such events will occur within the present global human population? Do religious people tend to live healthier or longer lives than their secular counterparts? Studies that look at cognitive variables (depression; optimism) might suggest “yes,” while those that look at biological variables (cancers; cardiovascular events) say “no” (p. 171). Do prayers become cosmic-vending machines? Do miracle claims stand up to medical/scientific scrutiny? Do they need to?

Chapters 11 and 12 concern the multifaceted nature of faith. Jeeves describes faith as involving “credulity,” “intellectual assent,” and “the psychological processes involved in the act of believing” (p. 178), and then compares faith with belief, doubt, trust, certainty, action, and discipleship (pp. 178–82). Jeeves recounts fascinating evidence from patients suffering various forms of brain disease (Alzheimer’s, Parkinson’s), discussing how such biological injuries degrade their enjoyment of faith because they rob them of the ability to focus attention, feel emotion, or keep track of a sermon or a passage of scripture (which, Jeeves points out, is another argument against substance dualism). He also looks at how brain dysfunction affected many well-known people of faith, including Martin Luther, John Bunyan, John Wesley, William Cowper, Gerard Manley Hopkins, Lord Shaftesbury, and Christina Rossetti.

The third section focusses on a central theme in this book: that of God interacting with creation in general, and humans in particular. God does this by creating all things, including humans, in his image (as the divine creator), by constantly upholding that creation through natural laws which he has set in place to maintain it (as the divine sustainer), and by putting off his divinity and embodying himself within creation (divine self-emptying or kenosis). Here, Jeeves unpacks divine kenosis, as well as the evolutionary origins and emergence of kenotic behavior in

his creatures (otherwise commonly known as altruism, love, compassion, and empathy).

The book concludes with a valuable resource for self-reflection and group study. For each of the thirteen chapters, he provides a few relevant scripture passages, a variety of short paragraphs to review and reflect upon, a number of specific questions for discussion, and suggestions for further readings (books, articles, web-links).

The book is written at the level of a well-read and informed lay-person. No formal training in science or religion is needed, although a keen interest in both is essential. Overall, I found the book very useful, and I highly recommend it. But actions speak louder than words. My first thought upon reading it was to suggest it to my own church pastor for a small group book study; he read the book, then promptly and convincingly made the sales pitch to our church leaders.

Reviewed by Luke Janssen, Emeritus Professor in the Faculty of Health Sciences, McMaster University, Hamilton, ON.

STANLEY JAKI: Science and Faith in a Realist Perspective by Alessandro Giostra. Rome, Italy: IF Press, 2019. 144 pages. Paperback; \$24.24. ISBN: 9788867881857.

The subject of this short introduction—Father Stanley L. Jaki (1924–2009), a giant in the world of science and religion—is more important than this book’s contents, a collection of conference papers and articles published between 2015 and 2019.

Readers of this journal should recognize Jaki, a Benedictine priest with doctorates in theology and physics, 1975–1976 Gifford lecturer, 1987 Templeton Prize winner, and professor at Seton Hall University, for his prolific, valuable work in the history of the relations between theology and science. He sharply contrasted Christian and non-Christian/scientific cosmologies and unfortunately, often slipped into polemics and apologetics. The title of Stacy Trasanco’s 2014 examination of his work, *Science Was Born of Christianity*, captures Jaki’s key thesis. Science in non-Christian cultures was, in Jaki’s (in)famous and frequent characterizations, “stillborn” and a “failure” (e.g., see Giostra, pp. 99, 113). Incidentally, Giostra seems unaware that various Protestant scholars shared Jaki’s key thesis and arguments.

The Introduction begins with a quotation from Jaki that so-called conflicts between science and religion “must be seen against objective reality, which alone has the power to unmask illusions.” Jaki continued, “There may be clashes between science and religion, or rather between some religionists and some

Book Reviews

scientists, but no irresolvable fundamental conflict” (p. 15).

This raises two other crucial aspects of Jaki’s approach: his realist epistemology and his claim that, properly understood, science and Christian theology cannot be in conflict. Why? Because what Jaki opposed was not science itself—which he saw as specific knowledge of the physical world that was quantifiable and mathematically expressible—but ideologies that were attached to science in the eighteenth and nineteenth centuries, that is, materialism, naturalism, reductionism, positivism, pantheism, and atheism.

For Jaki, the real problem for Christian approaches to the natural world was the scientism which dismissed theology, especially Catholicism, as superstition, dogmatism, and delusion. Jaki followed the groundbreaking work of Pierre Duhem in arguing that the impetus theory of the fourteenth-century philosopher John Buridan was the first sign of the principle of inertia, the first law of Newtonian physics. One of the foundational shifts in the birth of a new “revolutionary” science in the Christian West was a post-Aristotelian understanding of bodies in motion (both uniform and uniformly accelerating: see chapter three for more details).

The first chapter is a bio- and bibliographical essay by an admiring Antonio Colombo that traces and situates Jaki the historian as a man of both science and faith. Chapter two lays out Jaki’s critical realism and theses about the history of science and theology, in contrast to scientisms past and present that claim scientific reason as the sole trustworthy route to legitimate knowledge. The roles played by the doctrine of creation *ex nihilo* and the Christology of the pre-existent Logos in Jaki’s cosmological thinking are also outlined.

Many readers will be most interested in the third chapter which surveys Jaki’s writing about the notorious case of Galileo, condemned by the church in 1633 for defending Copernicus. Jaki detected scientific and theological errors in the positions of both Galileo and the church. For instance, Galileo did not provide proof of the motion of the earth around the sun. Nor did the church understand errors in Aristotelian science. Galileo was right, however, in arguing that the Bible’s purpose was not to convey scientific knowledge; while the church’s rejection of heliocentric cosmology was correct, given the dearth of convincing evidence for it.

Chapter four is of wider interest than its title, “The Errors of Hegelian Idealism,” might suggest. Jaki’s

belief that only Christian theology could give birth to the exact sciences is reviewed, along with his rejection of conflict and concord models of faith and science. His critiques of Hegelian and Marxist views of the world are thoughtfully discussed.

Jaki was unrelentingly hostile to all types of pantheism, and Plato was the most influential purveyor of that erroneous philosophy. Chapter five outlines Jaki’s objections to Platonism, as well as to Plotinus’s view of the universe as an emanation from an utterly transcendent One, and to Giordano Bruno’s neo-Platonic animism and Hermeticism.

Jaki’s interpretation of medieval Islamic cosmologists is the subject of the fifth chapter, in which the Qur’an, Averroes, and Avicenna are examined and found wanting. Monotheism by itself could not lead to science. Incorrect theology blinded those without an understanding of the world as God’s creation or of Christ as Word and Savior from seeing scientific truth. This chapter is curious in several respects. On page 98, Giostra equates Christ as the only begotten Son with Jesus as the only “emanation from the Father.” Emanationism is a Gnostic, Manichaeic, and neo-Platonic concept; it is not, to my knowledge, part of orthodox Catholic Trinitarian discourse. On pages 101–2, the presence of astrology in the Qur’an disqualifies it as an ancestor of modern science. But astrology then was not yet divorced from astronomy. Astrological/astronomical imagery and terminology were integral to ancient cosmologies and apocalypses, including Jewish, Christian, and Muslim ones. Lastly, pages 104–5 feature quotations in untranslated Latin.

Chapter seven is a review of the 2016 edition of Jaki’s *Science and Creation*; this is one more example of content repeated elsewhere in the book. “Benedict XVI and the limits of scientific learning” is the eighth and final chapter. The former pope is presented as a Jaki-like thinker in his views of science and faith. Strangely, Benedict does not cite Jaki; this absence weakens Giostra’s case somewhat.

Jaki—whose faith was shaped by the eminent French theologian and historian of medieval thought, Etienne Gilson—was a diehard Roman Catholic, wary of Protestant thought, defender of priestly celibacy and of the ineligibility of women for ordination. On the other hand, his study of both Duhem and Gilson probably sensitized Jaki to ideological claims made by scientists.

As a historian of science, Jaki was meticulous and comprehensive in his research with primary documents. His interpretations of historical texts were as

confident and swaggering as his critiques of scientists and scientism were withering. Among Jaki's more interesting and helpful contributions to scholarship are his translations and annotations of such important primary texts as Johann Heinrich Lambert's *Cosmological Letters* (1976), Immanuel Kant's *Universal Natural History and Theory of the Heavens* (1981), and Bruno's *The Ash Wednesday Supper* (1984).

Personally, I have found much of value in Jaki's *The Relevance of Physics* (1966); *Brain, Mind and Computers* (1969); *The Paradox of Olbers' Paradox* (1969); *The Milky Way* (1972); *Planets and Planetarians* (1978); *The Road of Science and the Ways to God* (1978); *Cosmos and Creator* (1980); *Genesis 1 through the Ages* (1998); *The Savior of Science* (2000); *Giordano Bruno: A Martyr of Science?* (2000); *Galileo Lessons* (2001); *Questions on Science and Religion* (2004); *The Mirage of Conflict between Science and Religion* (2009); and the second enlarged edition of his 1974 book, *Science and Creation: From Eternal Cycles to an Oscillating Universe* (2016).

Jaki also published studies of figures whose life and work most impressed him personally. These include three books (1984, 1988, 1991) on the Catholic physicist and historian of cosmology, Pierre Duhem, author of the ten-volume *Système du Monde*, and studies of English converts to Catholicism, John Henry, Cardinal Newman (2001, 2004, 2007) and G. K. Chesterton (1986, new ed., 2001).

Among Jaki's books not mentioned by Giostra but of interest to readers of this journal are *The Origin of Science and the Science of its Origin* (1979), *Angels, Apes, and Men* (1988), and *Miracles and Physics* (2004). For a complete Jaki bibliography, see <http://www.sljaki.com/>.

No translator is identified in the book under review; my guess is that Giostra, an Italian, was writing in English. Although generally clear and correct, the book contains enough small errors and infelicities to suggest that the services of a professional translator were not used. Not counting blank, title, and contents pages, this book has but 128 pages, including lots of block quotations.

For those unfamiliar with Jaki's work and not too interested in detailed studies in the history and philosophy of science and religion, this introduction is a decent start—and perhaps an end point as well. I strongly encourage curious readers to consult Jaki's own books, including his intellectual autobiography *A Mind's Matter* (2002). For other scholarly English-language perspectives on his work, see Paul Haffner, *Creation and Scientific Creativity: A Study in*

the Thought of S. L. Jaki (2nd ed., 2009); *Science and Orthodoxy* [special issue of the *Saint Austin Review* on Jaki], vol. 14, no. 3 (2014); and Paul Carr and Paul Arveson, eds., *Stanley Jaki Foundation International Congress 2015* (2020).

Reviewed by Paul Fayter, a retired pastor and historian of Victorian science and theology, who lives in Hamilton, Ontario.



TECHNOLOGY

ATLAS OF AI: Power, Politics, and the Planetary Costs of Artificial Intelligence by Kate Crawford. New Haven, CT: Yale University Press, 2021. 336 pages. Hardcover; \$28.00. ISBN: 9780300209570.

Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence is Kate Crawford's analysis of the state of the AI industry. A central idea of her book is the importance of redefining Artificial Intelligence (AI). She states, "I've argued that there is much at stake in how we define AI, what its boundaries are, and who determines them: it shapes what can be seen and contested" (p. 217).

My own definition of AI goes something like this: I imagine a future where I'm sitting in a cafe drinking coffee with my friends, but in this future, one of my friends is a robot, who like me is trying to make a living in this world. A future where humans and robots live in harmony. Crawford views this definition as mythological: "These mythologies are particularly strong in the field of artificial intelligence, where the belief that human intelligence can be formalized and reproduced by machines has been axiomatic since the mid-twentieth century" (p. 5). I do not know if my definition of artificial intelligence can come true, but I am enjoying the process of building, experimenting, and dreaming.

In her book, she asks me to consider that I may be unknowingly participating, as she states, in "a material product of colonialism, with its patterns of extraction, conflict, and environmental destruction" (p. 38). The book's subtitle illuminates the purpose of the book: specifically, the power, politics, and planetary costs of usurping artificial intelligence. Of course, this is not exactly Crawford's subtitle, and this is where I both agree and disagree with her. The book's subtitle is actually *Power, Politics, and the Planetary Costs of Artificial Intelligence*. In my opinion, AI is more the canary in the coal mine. We can use the canary to detect the poisonous gases, but we cannot blame the canary for the poisonous gas. It risks missing the point. Is AI itself to be feared? Should we no longer teach or learn AI? Or is this more about

Book Reviews

how we discern responsible use and direction for AI technology?

There is another author who speaks to similar issues. In *Weapons of Math Destruction*, Cathy O’Neil states it this way,

If we had been clear-headed, we all would have taken a step back at this point to figure out how math had been misused ... But instead ... new mathematical techniques were hotter than ever ... A computer program could speed through thousands of resumes or loan applications in a second or two and sort them into neat lists, with the most promising candidates on top. (p. 13)

Both Crawford and O’Neil point to human flaws that often lead to well-intentioned software developers creating code that results in unfair and discriminatory decisions. AI models encode unintended human biases that may not evaluate candidates as fairly as we would expect, yet there is a widespread notion that we can trust the algorithm. For example, the last time you registered an account on a website, did you click the checkbox confirming that “yes, I read the disclaimer” even though you did not? When we click “yes” we are accepting this disclaimer and placing trust in the software. Business owners place trust in software when they use it to make predictions. Engineers place trust in their algorithms when they write software without rigorous testing protocols. I am just as guilty.

Crawford suggests that AI is often used in ways that are harmful. In the *Atlas of AI* we are given a tour of how technology is damaging our world: strip mining, labor injustice, the misuse of personal data, issues of state and power, to name a few of the concerns Crawford raises. The reality is that AI is built upon existing infrastructure. For example, Facebook, Instagram, YouTube, Amazon, TikTok have been collecting our information for profit even before AI became important to them. The data centers, CPU houses, and worldwide network infrastructure were already in place to meet consumer demand and geopolitics. But it is true that AI brings new technologies to the table, such as automated face recognition and decision tools to compare prospective employment applicants with diverse databases and employee monitoring tools that can make automatic recommendations. Governments, militaries, and intelligence agencies have taken notice. As invasion of privacy and social justice concerns emerge, Crawford calls us to consider these issues carefully.

Reading Crawford’s words pricked my conscience, convicting me to reconsider my erroneous ways. For big tech to exist, to supply what we demand,

it needs resources. She walks us through the many resources the technology industry needs to provide what we want, and AI is the “new kid on the block.” This book is not about AI, per se; it is instead about the side effects of poor business/research practices, opportunist behavior, power politics, and how these behaviors not only exploit our planet but also unjustly affect marginalized people. The AI industry is simply a new example of this reality: data mining, low wages to lower costs, foreign workers with fewer rights, strip mining, relying on coal and oil for electricity (although some tech companies have made strides to improve sustainability). This sounds more like a parable about the sins of the tech industry than a critique about the dangers of AI.

Could the machine learning community, like the inventors of dynamite who wanted to simply help railroads excavate tunnels, be unintentionally causing harm? Should we, as a community, be on the lookout for these potential harms? Do we have a moral responsibility? Maybe the technology sector needs to look more inwardly to ensure that process efficiency and cost savings are not elevated as most important.

I did not agree with everything that Crawford classified as AI, but I do agree that as a community we are responsible for our actions. If there are injustices, then this should be important to us. In particular, as people of faith, we should heed the call of Micah 6:8 to act justly in this world, and this includes how we use AI.

Reviewed by Joseph Vybihal, Professor of Computer Science, McGill University, Montreal, PQ H3A 0G4.

SYSTEM ERROR: Where Big Tech Went Wrong and How We Can Reboot by Rob Reich, Mehran Sahami, and Jeremy M. Weinstein. New York: HarperCollins Publishers, 2021. 352 pages. Hardcover; \$27.99. ISBN: 9780063064881.

Remember when digital technology and the internet were our favorite things? When free Facebook accounts connected us with our friends, and the internet facilitated democracy movements overseas, including the Arab Spring? So do the authors of this comprehensive book. “We shifted from a wide-eyed optimism about technology’s liberating potential to a dystopian obsession with biased algorithms, surveillance capitalism, and job-displacing robots” (p. 237).

This transition has not escaped the notice of the students and faculty of Stanford University, the elite institution most associated with the rise (and sustenance) of Silicon Valley. The three authors of this

book teach a popular course at Stanford on the ethics and politics of technological change, and this book effectively brings their work to the public. Rob Reich is a philosopher who is associated with Stanford's Institute for Human-Centered Artificial Intelligence as well as their Center for Ethics in Society. Mehran Sahami is a computer science professor who was with Google during the startup years. Jeremy Weinstein is a political science professor with experience in government during the Obama administration.

The book is breathtakingly broad, explaining the main technical and business issues concisely but not oversimplifying, and providing the history and philosophy for context. It accomplishes all this in 264 pages, but also provides thirty-six pages of notes and references for those who want to dive deeper into some topics. The most important section is doubtless the last chapter dealing with solutions, which may be politically controversial but are well supported by the remainder of the book.

Modern computer processors have enormous computational power, and a good way to take advantage of that is to do optimization, the subject of the first chapter. Engineers love optimization, but not everything should be done as quickly and cheaply as possible! Optimization requires the choice of some quantifiable metric, but often available metrics do not exactly represent the true goal of an organization. In this case, optimizers will choose a proxy metric which they feel logically or intuitively should be correlated with their goal. The authors describe the problems which result when the wrong proxy is selected, and then excessive optimization drives that measure to the exclusion of other possibly more important factors. For example, social media companies that try to increase user numbers to the exclusion of other factors may experience serious side effects, such as the promotion of toxic content.

After that discussion on the pros and cons of optimization, the book dives into the effects of optimizing money. Venture capitalists (VCs) have been around for years, but recent tech booms have swelled their numbers. The methodology of Objectives and Key Results (OKR), originally developed by Andy Grove of Intel, became popular among the VCs of Silicon Valley, whose client firms, including Google, Twitter, and Uber, adopted it. OKR enabled most of the employees to be evaluated against some metric which management believed captured the essence of their job, so naturally the employees worked hard to optimize this quantity. Again, such a narrow view of the job has led to significant unexpected and sometimes unwanted side effects.

The big tech companies are threatened by legislation designed to mitigate some of the harm they have created. They have hired a great many lobbyists, and even overtly entered the political process where possible. In California, when Assembly Bill 5 reclassified many independent contractors as employees, the affected tech companies struck back with Proposition 22 to overturn the law. An avalanche of very expensive promotion of Proposition 22 resulted in its passage by a large margin.

It is well known that very few politicians have a technical background, and the authors speculate that this probably contributes to the libertarian leaning prominent in the tech industry. The authors go back in history to show how regulation has lagged behind technology and industrial practice. An interesting chapter addresses the philosophical question of whether democracy is up to the task of governing, or whether government by experts, or Plato's "philosopher kings" would be better.

Part II of the book is the longest, addressing the fairness of algorithms, privacy, automation and human job replacement, and free speech. The authors point out some epic algorithm failures, such as Amazon being unable to automate resumé screening to find the best candidates, and Google identifying Black users as gorillas. The big advances in deep learning neural nets result from clever algorithms plus the availability of very large databases, but if you've got a database showing that you've historically hired 95% white men for a position, training an algorithm with that database is hardly going to move you into a future with greater diversity. Even more concerning are proprietary black-box algorithms used in the legal system, such as for probation recommendations. Why not just let humans have the last word, and be advised by the algorithms? The authors remind us that one of the selling points of algorithmic decision making is to remove human bias; returning the humans to power returns that bias as well.

Defining fairness is yet another ethical and philosophical question. The authors give a good overview of privacy, which is protected by law in the European Union by the General Data Protection Regulation. Although there is no such federal law in America, California has passed a similar regulation called the California Consumer Privacy Act. At this point, it's too soon to evaluate the effect of such regulations.

The automation chapter is entitled "Can humans flourish in a world of smart machines?" and it covers many philosophical and ethical issues after providing a valuable summary of the current state of AI.

Book Reviews

Although machines are able to defeat humans in games like chess, go, and even Jeopardy, more useful abilities such as self-driving cars are not yet to that level. The utopian predictions of AGI (artificial general intelligence, or strong AI), in which the machine can set its own goals in a reasonable facsimile of a human, seem quite far off. But the current state of AI (weak AI) is able to perform many tasks usefully, and automation is already displacing some human labor. The authors discuss the economics, ethics, and psychology of automation, as human flourishing involves more than financial stability. The self-esteem associated with gainful employment is not a trivial thing. The chapter raises many more important issues than can be mentioned here.

The chapter on free speech also casts a wide net. Free speech as we experience it on the internet is vastly different from the free speech of yore, standing on a soap box in the public square. The sheer volume of speech today is incredible, and the power of the social media giants to edit it or ban individuals is also great. Disinformation, misinformation, and harassment are rampant, and polarization is increasing.

Direct incitement of violence, child pornography, and video of terrorist attacks are taken down as soon as the internet publishers are able, but hate speech is more difficult to define and detect. Can AI help? As with most things, AI can detect the easier cases, but it is not effective with the more difficult ones. From a regulatory standpoint, section 230 of the Communications Decency Act of 1996 (CDA 230) immunizes the platforms from legal liability due to the actions of users. Repealing or repairing CDA 230 may be difficult, but the authors make a good case that “it is realistic to think that we can pursue some commonsense reforms” (p. 225).

The final part of the book is relatively short, but addresses the very important question: “Can Democracies Rise to the Challenge?” The authors draw on the history of medicine in the US as an example of government regulation that might be used to reign in the tech giants. Digital technology does not have as long a history as medicine, so few efforts have been made to regulate it. The authors mention the Association for Computing Machinery (ACM) Software Engineering Code of Ethics, but point out that there are no real penalties for violation besides presumably being expelled from the ACM. Efforts to license software engineers have not borne fruit to date.

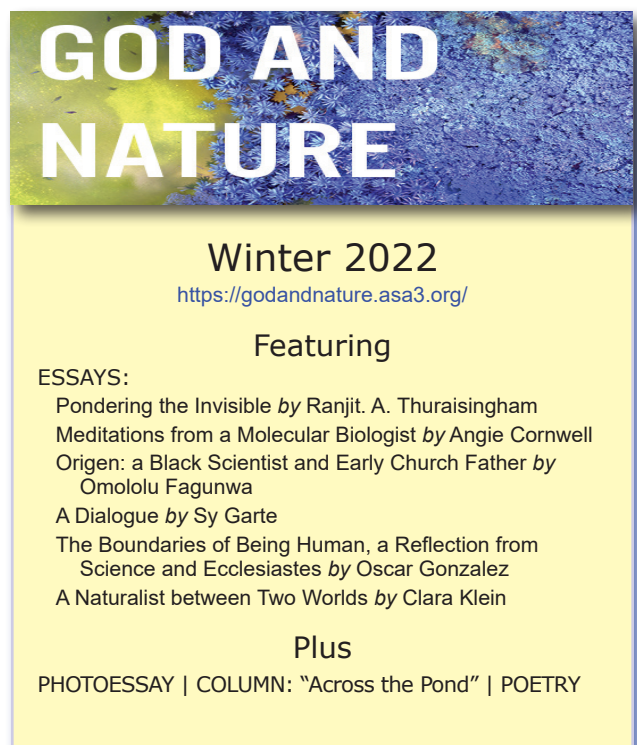
The authors argue that the path forward requires progress on several fronts. First, discussion of values must take place at the early stages of development

of any new technology. Second, professional societies should renew their efforts to increase the professionalism of software engineering, including strengthened codes of ethics. Finally, computer science education should be overhauled to incorporate this material into the training of technologists and aspiring entrepreneurs.

The authors conclude with the recent history of attempts to regulate technology, and the associated political failures, such as the defunding of the congressional Office of Technology Assessment. It will never be easy to regulate powerful political contributors who hold out the prospect of jobs to politicians, but the authors make a persuasive case that it is necessary. China employs a very different authoritarian model of technical governance, which challenges us to show that democracy works better.

This volume is an excellent reference on the very active debate on the activities of the tech giants and their appropriate regulation. It describes many of the most relevant events of the recent past and provides good arguments for some proposed solutions. We need to be thinking and talking about these issues, and this book is a great conversation starter.

Reviewed by Tim Wallace, a retired member of the technical staff at the MIT Lincoln Laboratory, Lexington, MA 02421. ▲



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Editorial

- Why Anonymous Peer Review Is the Professional Standard 1 James C. Peterson

Acknowledgment

- 2021 Peer Reviewers 2

Articles

- Science and Theology as Gifts to the Church: How Creation Allows Scientists and Theologians to Work Together 3 Lydia Jaeger
- Acts 17:26: God Made of *One [Blood]*—Not of *One Man*—Every Ethnic Group of Humans 19 Fred S. Cannon
- Theodicy and the Historical Adam: Questioning a Central Assumption Motivating Historicist Readings 39 Patrick S. Franklin

Book Reviews

- Flat Earths and Fake Footnotes: The Strange Tale of How the Conflict of Science and Christianity Was Written into History* 54 Derrick Peterson
- Cosmic Queries: StarTalk’s Guide to Who We Are, How We Got Here, and Where We’re Going* 55 Neil deGrasse Tyson and James Trefil
- Every Life Is on Fire: How Thermodynamics Explains the Origins of Living Things* 57 Jeremy England
- Why Science and Faith Belong Together: Stories of Mutual Enrichment* 58 Malcolm A. Jeeves
- Stanley Jaki: Science and Faith in a Realist Perspective* 59 Alessandro Giostra
- Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence* 61 Kate Crawford
- System Error: Where Big Tech Went Wrong and How We Can Reboot* 62 Rob Reich, Mehran Sahami, and Jeremy M. Weinstein