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## Creation, Origins, and Interpretation

**2** **Editorial: Stephen J. Wellum**  
 The Doctrine of Creation Matters

**4** **Kurt P. Wise**  
 What Science Tells Us about the Age of the Creation

**16** **G. K. Beale**  
 A Surrejoinder to Peter Enns's Response to G. K. Beale's *JETS* review Article of His Book, *Inspiration and Incarnation*

**38** **Jeremy Royal Howard**  
 The Copenhagen Interpretation of Quantum Mechanics: An Introduction and Worldview Assessment

**64** **John Mark Reynolds**  
 Intelligent Design and the Contemporary Christian

**78** **The *SBJT* Forum: "In the Beginning..."**

**92** **Book Reviews**

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# Editorial: The Doctrine of Creation Matters

Stephen J. Wellum

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It is hard to overestimate the importance of the doctrine of creation. In Scripture, God first identifies himself as the sovereign Creator and, thus, the Lord of his universe. Many Christians are naturally interested in the doctrine of salvation, but without the God of creation and providence, there is no Christianity as the Bible describes it. Not only does the storyline of Scripture begin with creation, it also establishes a number of key theological points, not least, who God is and the entire God-world relationship; the proper interpretation and place of human beings in God's world; as well as the goodness of God's original creation (which sets us up for what eventually goes wrong with us in Genesis 3). In this important way, the Bible's doctrine of creation both establishes the beginning of history as well as an entire linear/eschatological presentation of history that unfolds the plan of God in terms of the biblical categories of creation, fall, redemption, and new creation. That is why the theological underpinnings for soteriology (as well as every other doctrine of Christian theology) are first grounded in the fact that the God who is there, the sovereign-personal Triune Lord who has existed from all eternity, at a moment, created this universe, and, as such, everything and everyone is utterly dependent upon him and responsible to him. Without the Bible's presentation of God as Creator and all that affirmation entails, the rationale and foundation for biblical Christianity

is non-existent.

Furthermore, to affirm that God is the Creator, Christian theology stresses at least three truths. First, we are underscoring the fact that God created the universe *ex nihilo*. Scripture begins by affirming that "in the beginning God created the heavens and the earth" (Gen 1:1). Before God began to create the universe, nothing existed except the Triune God himself. However at a moment, the eternal God spoke and brought this space-time universe into existence *ex nihilo*, that is, without the use of any previously existing materials. It is because of this fact that Scripture and Christian theology affirms that matter is not eternal, but only a created reality. Second, we are affirming that God created the universe freely. Scripture never presents God as needing to create out of some kind of necessity either outside of him or internal to him. Rather, he, as the Triune God, who is self-existent and self-sufficient, freely decides to create. In this important sense, God did not have to create a universe. Rather, due to his own sovereign choice and for his own good pleasure, he purposed to create (Rev 4:11). That is why Scripture affirms that God does not need the world, but that the world and all that is in it is absolutely dependent upon him. Third, to say that God is the Creator is to affirm that it is a Triune act. Creation is not only the work of the Father (Gen 1:1; Ps 19:1-2; Isa 40:28; Acts 17:24-25; Rev 4:11), it is also the work of the Son (John 1:1-3; Col 1:15-17; Heb

1:2), and the activity of the Spirit (Gen 1:2; Job 33:4; Ps 104:30). And as an act of the Triune God, the reason for the universe's existence is ultimately and finally for God's own glory.

Given the importance of the doctrine of creation for Scripture and theology, it should not surprise us that it is one of the first doctrinal areas routinely attacked by fallen human beings. Whether it is the ancient, modern, or postmodern world, this reality has not changed. That is why the church must always be vigilant in expounding and defending what the Scripture teaches regarding creation and origins. This is especially the situation in our own day given the fact that the reigning view is the theory of evolution. Ever since 1859 and the advent of Charles Darwin, the great alternative to the doctrine of creation and the Scriptural presentation that human beings are *created* in the image of God has been the metanarrative of evolution. It is certainly not an understatement to say that the evolutionary theory literally changed the way people viewed God, the world, and human beings, and, as such, it has served as a competing worldview set over against orthodox Christianity, even to this very day.

With that in mind, we devote this edition of *SBJT* to the theme of creation and origins. Knowing that the issue is huge, our articles and forum pieces can only begin to nibble away at the edges of the issue, but it is important that we continually provide reflections on this important subject. Kurt Wise, who is trained in the field of science, provides some very helpful reflections on the limitations of science and how Christian theology must interact with such issues as origins and the date of the universe. Jeremy Howard provides an excellent critique of the oft

cited indeterminacy theory which is viewed as support for a chance view of the universe. John Mark Reynolds gives some helpful reflections on the important "Intelligent Design" movement, which constantly is in the news as Christians attempt to critique and penetrate the scientific establishment's endorsement of the evolutionary theory of origins.

In addition to our above articles and forum pieces, we are publishing Greg Beale's surrejoinder to Peter Enns's response to Beale's review of *Inspiration and Incarnation* (Baker, 2005). Over the last year, there have been a number of articles written that have provided a constructive critique and evaluation of Enns's proposals that have direct impact on how we view the OT, its relation to the Ancient Near East (ANE), as well as its use by the NT authors. Many of the issues raised by Enns are directly tied to how Christians should understand and interpret the Genesis creation accounts vis-à-vis other ANE origin stories. Obviously these issues are not new, but Enns has brought them to the forefront once again. Beale's careful critique is must reading for everyone who is concerned to reflect on these important issues from a faithful biblical and theological perspective.

As always, it is our prayer that this edition of *SBJT* will lead us to reflect on these issues better, not only for our own good, but ultimately for the glory of our Triune Creator-Redeemer God, so that we may be found faithful preachers and teachers of God's Word in the generation God has called us to serve.

# What Science Tells Us about the Age of the Creation

Kurt P. Wise

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## Methods of Modern Science

Science is one of those human activities that is usually easy enough to identify, but very difficult to actually define.<sup>1</sup> In its most basic form, however, science seeks to understand the physical world—i.e., the object of science’s attention is the physical creation. Towards that end, the standard of truth is the physical world itself. The veracity of any theory of understanding is measured by how well the theory corresponds to the data (the observed characteristics) of the physical creation.<sup>2</sup>

The actual methods employed by scientists to develop or evaluate the theories are diverse and have varied substantially over the centuries.<sup>3</sup> Some methods were rejected by most scientists at their inception, others became popular before falling out of favor, and still others have persisted. In the study of the past, what is currently most popular is to study the *modern* world and apply to the past what has been learned about the modern world. It has proven to be very successful to assume that the regularities (i.e., natural laws) and the physical processes of the world do not change across all of space and across all of time. The assumption that the world operates in a consistent, unchanging manner is called “methodological uniformitarianism.”<sup>4</sup> Another related methodological rule that, because of its success, is currently popular in studies of history, is to appeal to *known* processes rather than unfamiliar process. This methodology is called “actualism.”

To believers, methodological uniformitarianism and actualism are appealing because they are each consistent with the physical creation being sustained by an unchanging God.

Applying these simple methods of science to the study of the creation, however, poses difficulties. Among these difficulties is the problem of created history.

## The Problem of Created History

When children are told the story of the creation they are often told that God spoke the word and suddenly, whatever God spoke simply appeared. What was not there one moment was there the next. Let us suppose for a moment that creation *did* occur in just this simple fashion. At some point on Day 3 of the Creation Week (and not true one moment before), rivers would be cascading over boulders and meandering among sand bars and about the roots of water plants, and the wind would be rustling the leaves of trees, and fruits would be dangling ripe from tree branches. At some moment on Day 4 (but not one moment before) the sky would be dappled with the lights of thousands of stars. At some moment on Day 5 (unlike the previous moment), fish would be swimming in the sea and birds flying in the sky. The next day butterflies would suddenly appear fluttering over flowers in full bloom, and so it goes.

Let us say that a mere moment after one of these creations we (unnaturally, of course) introduced a modern scientist into

the scene and let him do what he normally does. But, let us say that although he uses methods current to modern science, he is not made privy to the fact that the creation had occurred just a moment before. What would such a scientist deduce? The scientist would begin by collecting data about the physical world before him. Then, having deduced the nature and behavior of the creation before him, the scientist would apply the principles of uniformitarianism and actualism to infer what had happened before the scientist began observing—i.e., before the creation itself. The cascading river water and rustling wind, for example, would be traced back along a course to pre-creation positions farther and farther upstream and upwind. Likewise, the fruits and leaves of trees would be traced back to earlier times—again before both the scientist’s first observation and their actual creation. Starlight would be traced back light seconds, light minutes, and light hours, days, and years to distant pre-observation and pre-creation positions in the universe. Fish and birds and butterflies would be traced back along hypothetical flight paths pre-dating observation and creation.

Further studies by the scientist would lead to the discovery of natural processes of development, which would, in turn, allow for the inference of even more pre-creation history. The careful observer of river water might discover that that water is sourced in precipitation, which in turn arises from condensation from water vapor in the sky, sourced in turn from the evaporation of ocean water many miles distant. From these discoveries, just-created cascading river water would be traced back to precipitation, clouds, water vapor, and ocean water in ever more distant pre-creation times

and places. The study of wind might lead to the discovery of great trends in air motion from higher pressure zones to lower pressure zones and thus long-scale inferences about pre-creation winds. The study of plant growth and development would lead to inferences of pre-creation ripening of fruit from pollinated flowers and the development of both flowers and leaves from buds on limbs and successive tree structures ultimately from seeds. The study of light might lead to theories of starlight arising from fusion in the center of stars, millions of years before the creation. The study of animals would lead to pre-creation inferences of fish and birds maturing from their respective eggs and butterflies progressively backwards from cocoons, caterpillars, and even eggs before that.

Even further studies would lead to the discovery of natural cyclical processes. River water would be discovered to be part of a cyclical process of water evaporating, condensing, precipitating, and collecting—only to return again to repeat the process over and over again. The study of great trends in wind would lead to the discovery of giant convection cells of surface air warming by the sun’s heat and rising, then cooling and sinking, and warming again in an ever-repeating cycle. Plants and animals would be seen to be birthing, developing, maturing, and producing young that, in turn, would go through the same process over and over again. Stars might even be discovered to be formed from gas clouds and generate light until they self-destruct to produce gas clouds that start the process over again. Being cyclical, these processes allow for the continued maintenance of the creation and they are quite consistent with an unchanging Creator and

Sustainer. But being cyclical, they also provide no hint of where they actually began or where they might ultimately terminate. In fact, if they were created to sustain an everlasting creation<sup>5</sup> there would be no termination point. Just as James Hutton famously concluded about the soil and rock cycle, there would be “no vestige of a beginning and no prospect of an end.”<sup>6</sup> Our scientist in that situation would infer a fully functioning creation reaching countless millions and billions of years—and more—back into pre-creation times. Our scientist would infer both *deep time* and *deep history*<sup>7</sup>—neither of which were actually true.

If God did speak a creation into being which was fully functional and provided with provisionary cycles it would not only appear to be very old (already showing evidence of deep time which had never elapsed), but it would also appear to record a long series of historical events (i.e., already showing evidence of deep history that had never occurred). In similar fashion, the same Creator, when He created wine from water in the midst of the Cana marriage feast, formed wine looking older than it really was (the emcee of the feast inferred that it had been there for at least the full duration of the feast) and, presumably, with apparent history that never occurred (bottling following pressing, following harvesting of grapes, following the development of grapes from flowers, following pruning, following years of grape vine growth, etc.). A modern scientist following such a creative event would entirely miss the creation event, and, in fact, infer that “all things continue as they were from the beginning of the creation” because, in fact, that is exactly what modern scientists assume. Add a bit of misplaced certainty, and one

has a scoffer who concludes that *because* there was no creation, there was also no judgment to come.<sup>8</sup> In short, the modern scientist—either in the present or even in the garden soon after the Creation—*cannot* infer the truth about the creation. In fact, the methods of modern science might be totally blind to the creation because of the problem of created history.

### **The Catastrophic Failure of Modern Science**

Modern science cannot infer *how* the creation occurred because God utilized processes in creation that we do not observe in the present. Since God claims to have *ended* all the works of the Creation on the seventh day,<sup>9</sup> science would fail to deduce the mode, the tempo, and the order of creation. In general, modern science will fail to infer the correct process when that process is unobserved by humans in the present. Because of this, modern science will certainly err in its study of such things as the conception and resurrection of Christ—because we do not observe fatherless human conception or humans rising from the dead. In fact, since miracles and wonders are, by definition, outside normal human experience, at least the vast majority of the miracles and wonders—and possibly all of them—cannot be understood by modern science. Science is not the right method to study miracles.

But we have already seen that science’s failure is even more substantial than that. Science not only fails properly to understand the *process* of creation, it is also blind to the fact or event of creation itself. The scientist infers an unbroken history *through* the creation event, as if it had never occurred. This is not only because the process of creation is outside the experience

of a scientist, it is also because God wove into the creation various processes that were intended to maintain the creation indefinitely into the future. These cyclical processes effectively make the creation event invisible to the eyes of science. In general, if provisional cycles were either instituted (such as in the creation) or re-instituted after a cycle-breaking event, many aspects of the event itself would be invisible to scientists using assumptions of uniformitarianism and actualism. The more localized the event, the more invisible the event will be. The more the history of the universe was designed to continue seamlessly through a given event, the less one would expect science to notice the event at all. Thus, not only would modern science fail to understand the nature of the conception or resurrection of Christ, it would—like most of the world at the time—not even infer that either event had ever happened at all. The same can be said for a vast percentage of the miracles and wonders recorded in Scripture. In fact, even though many of them were global, most of the events of Genesis 1-11 are invisible to science.

For example, consider first the world before the Fall of man. Certain elements of the Genesis account such as the tree of life and a talking serpent are clearly outside of modern experience and would never be deduced from modern science. Neither the identity of the tempter, nor the cause of man's Fall nor the nature of the curse could be inferred from science. But that is only the beginning. Before the Enlightenment,<sup>10</sup> the church believed the pre-Fall world was not only without carnivory<sup>11</sup> but, in fact, lacked animal death altogether.<sup>12</sup> It was a world that not only could have persisted forever, but it was without thorns and thistles<sup>13</sup>

and a world without suffering.<sup>14</sup> Such a world is so unfamiliar (and unthinkable) to us today, that modern science cannot (and would not) infer anything like this as part of earth history. And, since God intended the cursed creation to persist through time—at least until the final judgment—after the curse he established (and/or re-established) cyclical processes for the preservation of the creation in this fallen state. The scientist projects modern cycles of provision through the curse in the same way he projects those same cycles through the creation. In both cases he presumes the existence of the *present* world and its processes when they did not exist—in one case (pre-Creation) when there was no world at all, and in the other case (pre-Fall, post-Creation) when the world existed, but in an uncursed state with processes of preservation designed to preserve that world forever. If the cursed world did change as radically as the Scripture suggests, the modern scientist not only fails to understand what happened in the Fall, but fails to deduce that it ever happened at all. He not only fails to recognize specific elements of the world between the Creation and the Fall, he in fact fails to recognize that that world ever existed at all.

The antediluvian world poses similar difficulties. First, modern science would be blind to specific elements such as cherubims yielding swords, humans living in excess of 900 years or generating young at 500 years of age or walking directly into the presence of God rather than dying. Science would not be able to infer the nature of the antediluvian world, the structure of the human genealogical tree, or the provision through this time of seed and sacrifice. But then there is also the fact that God promised to never again

repeat the flood.<sup>15</sup> Neither the reason for the flood, nor the nature of the Flood, nor the means of salvation through the flood would be inferable. But God also promised to never again interrupt the day/night and seasonal cycles.<sup>16</sup> This indicates that not only did the flood involve processes outside of human experience, but the flood somehow interrupted the normal provisional cycles. Not only, then, would science be unable to infer the nature of the flood—and in fact potentially miss its place in earth history altogether—but err also in the projection of provisional cycles of the *present* back through the flood into the antediluvian world. The Bible alludes to unfamiliar geography before the flood. Eden's location on the modern earth is elusive because of the absence of Eden itself, the curiously unfamiliar nature of Eden's rivers (one great river dividing into four<sup>17</sup>), and the mismatch between the biblical description of Eden's surroundings and the geography of the modern world.<sup>18</sup> But there are hints of an even greater difference in the global distribution of fountains of water<sup>19</sup> and antediluvian oceans and continents.<sup>20</sup> Combined with the possibility of a different climate,<sup>21</sup> different geology,<sup>22</sup> and different biology,<sup>23</sup> it may be that the pre-flood world had different provisional cycles than were established after the flood's interruption of such cycles. If so, modern science would—just as in the case of the Creation and the Fall—not only fail to understand or even recognize the flood, but also incorrectly deduce the nature of the world before it. With just a little bit of hubris the modern scientist could easily say that “all things continue as they were from the beginning of the creation”<sup>24</sup> and be ignorant, as the Bible says, not just of the creation, but also of the flood.

And, if the patriarchs between Noah and Abraham lived as long as the Bible indicates, and the confusion of tongues was as abrupt as the narrative suggests, modern science would also fail to deduce the Babel event and the correct nature of human history between the flood and Babel. In short, if the events of Genesis 1-11 are correct as presented in Scripture, modern science would not be able to infer *any* of them on its own. Without Scriptural revelation modern science would catastrophically fail to deduce anything like an accurate earth history before the time of Abraham. If the reading of the Bible that is popularized in children's bible stories is true, science would be unable to infer a single truth about earth history before Abraham as it is given in Scripture. Its success rate would be zero percent!

And it is not just modern science that would so fail. If methodological uniformitarianism and actualism were applied by people living in any segment of earth history, there would be catastrophic failure in deducing the remainder of earth history. Adam using this methodology before the Fall would not have seen the Creation, and he would not have predicted anything like the curse would ever occur. He would also have projected pre-Fall conditions into both pre-creation and post-curse times. Likewise, antediluvians would be blind to the Creation and the curse, and would have been able to predict neither the flood nor the world following. Thus judgments such as the curse, the flood, and the judgment still to come are unpredictable to the people living before them. Without divine revelation, divine judgment comes upon everyone unawares.

Beginning with Genesis 12, the biblical narrative focuses on particular human lineages and leaves behind global earth

history—not picking up global history again until the last book of the Bible. Science fails in this vast intermediate section of Scripture as well, but since the Scriptural account is more localized and focusing more on human history than on the history of the physical world, science can cover up its failure by claiming that the Bible is addressing different issues from modern science. But the failure of science is just as catastrophic. The God of Scripture is an intervening God. He consistently and constantly operates in a fashion different from the “natural” course of the creation. Humans do not by nature seek God (John 15:16; Eph 1:4; 2 Thess 2:13); God draws us to Him. Humans cannot by nature save themselves (Matt 19:25-26; Mark 10:26-27; Luke 18:26-27); God has to save us. Humans cannot by nature please God (Heb 11:6); God has provided the gift of faith so that we can please Him. Humans cannot in their own power escape the power of sin (John 8:34); God provides the power over sin. Whereas natural law and process *might* be sufficient to generate the bodies of humans and animals,<sup>25</sup> there may be no natural process capable of generating the souls of either. An “intervening” God would frustrate science’s attempts to study any of those interventions. In fact, most people’s understanding of a prayer-answering God would frustrate the ministrations of science. Considering all this, it seems somewhat surprising that any believer in the living God of Scripture would accept the ubiquity of science’s success. The high view of science held by the church may be a sad measure of how much the church really does *not* believe in a prayer-answering God.

### **The Necessity of Special Revelation**

To make sure that we would correctly infer the events at the Cana feast, we have been given divine revelation of the event.<sup>26</sup> This is not only because we would incorrectly infer these events because they happened so long ago, this is also because we would incorrectly infer the events even if we had been there! In fact, because the official of the feast would most certainly incorrectly infer the event, Jesus performed the miracle immediately before the servants of the feast and sent them to the very feet of the official. Jesus asked the servants to fill the water purification jugs with water. The servants *knew* that the jugs were full of water because they labored to fill the jugs with water with their own hands. Then, Jesus told those same servants to draw from those jugs and bring what they drew directly to the official. As the text specifically clarifies, the servants *knew* that what they gave to the official had been water. Jesus sent eye-witnesses of the truth to the feet of the official. Although the servants were silent, the official could have consulted with the servants, but did not. Jesus sent eye-witness testimony of the truth about the wine that the official failed to consult. Without that testimony, the official deduced a reasonable, but incorrect, history of the wine.

In a similar way, the same Jesus—creator of all things—also provided us with eye-witness testimony of the creation—and, in fact, eyewitness testimony of the Fall, the flood and Babel as well. The Triune God was not only the best possible eye-witness (being the most honest, the most correct, the most capable of communicating, and having the most understanding and the best perspective), but was also the *only* eyewitness before any

other observer had yet been created. At least one of the reasons for the account—given first probably orally to Adam before it was given by inspiration to Moses—was because humans would deduce an *incorrect* history if they lacked the information. Without that information, the best human attempts would catastrophically fail to deduce even one fact related in Genesis 1-11. Not only was every single word of Genesis 1-11 correct (as we believe when we accept the inerrancy of Scripture), and not only was every single word of Genesis 1-11 profitable for spiritual purposes (as we deduce from 2 Tim 3:16), but every word was *necessary* for man to infer correctly the actual history of the creation. Without it (or by ignoring it) humans not only cannot infer the correct history of the world, they will certainly deduce an incorrect history of the world.

Truly, then, the Bible is *not* a textbook of science. This is because without using the Bible, no textbook of science can arrive at the truths Scripture provides. The Bible is thus greater and more foundational than any textbook of science could ever be. If a person desires to know the truth about the origin of things, it is *mandatory* that they *first* consult with the Bible and adopt the claims Scripture makes. We *must* start with the Bible or we *will* certainly err about earth history. We must *not* change the meaning of the biblical text to fit the conclusions of modern science, for science *cannot* be correct whenever it studies a situation where God uses (or used) processes other than those observed by scientists in the present.

According to 2 Tim 3:16, Scripture is both necessary and sufficient for man's spiritual development. If the biblical data is also necessary for inferring the correct history of the creation, then perhaps the

biblical data is also sufficient. Whereas the information we have been given in Scripture cannot be deduced by humans on their own, perhaps the remainder of the story *can* be inferred by careful human study. It might be part of the dominion mandate given to man to start with God's special revelation and carefully study the physical world to deduce the rest of the story. If so, the brevity of the Genesis 1-11 account might suggest just how much responsibility God gave to man in the execution of his dominion role.

### **How Old Is the Creation?**

Science can potentially determine the age of things, and thus could be applied to the question of the creation's age. However, given what has already been said, we must first examine the Scriptures to see if God has revealed anything in his Word relevant to that question. If so, that information must provide the framework within which we determine the actual age of things. And, in fact, the Bible does provide important information on the age of the creation.

First, working back from the time of Abraham, the genealogies of Genesis 5 and 11 allow us to reckon time from Abraham back to the flood and the Creation of Adam before that. The human longevities related in these passages are well outside the experience of modern science. In fact, modern science not only finds these ages uninferable, but also impossible. The genealogies of Genesis 5 and 11 are either erroneous or they are correct, as can only be known by divine inspiration. Furthermore, the unique genealogical formulae and unique chronological information (e.g., paternal ages) of Genesis 5 and 11 suggest these genealogies are not only designed differently from other genealo-

gies in Scripture but that they are specifically designed for chronology. This in turn suggests that these genealogies were provided to us without gaps and with reliable numbers.<sup>27</sup> With this working hypothesis, the creation of Adam is only about 2000 years before the birth of Abraham.

Second, there is the length of the Creation Week. If, as the Bible claims, God really did create by the word of his mouth and God really did end the works of his creation at the end of Day 6 of the Creation Week, then modern science can deduce neither the mode nor the tempo of his Creation. As indicated above, without divine revelation we would not be able to even infer the creation occurred, let alone when it happened, how long it took, what order it was in, or how it happened. If God created in the manner indicated in the Creation account, we would be able to infer nothing that is related to us in the Creation account! We are entirely indebted to God's eye-witness account for how and when the creation occurred. A natural reading of that account leads to the same conclusion held almost universally by Jews and Christians all the way up to the Enlightenment<sup>28</sup>—that creation occurred in a week of six earth-rotation days. Exceptions to this conclusion came from inferences *outside* Scripture (e.g., Augustine concluding the creation was instantaneous based on theological reasoning;<sup>29</sup> Grosseteste and Descartes and Rosenmüller<sup>30</sup> and others after them based on scientific reasoning).

Given two millennia in the Adam-to-Abraham genealogies and a week from the beginning of creation to the creation of Adam, the creation dates to about 2000 years before the birth of Abraham, or approximately 6000 years ago. From

this we conclude that the actual age of the universe as a whole—including the contained galaxies, stars, planets, and earth—is approximately 6000 years.

### **Science to the Rescue?**

Following the reasoning presented above, one would expect that if it ignored the claims of Scripture, modern science would deduce deep history and deep time before the actual beginning of things. And, truly, modern science deduces ages for the universe, for the most part, *millions* of times older than the Bible suggests. Again, by the reasoning presented above, science would also be expected to reconstruct incorrectly the mode, tempo, and order of creation. And, again, none of the objects listed in Genesis 1 (the earth, the sun, the moon, the stars, plants, animals, humans, etc.) are suggested by modern science to have been formed instantaneously by anything approaching the word of God. Nor does modern science deduce the order of origin given in Genesis 1. Modern science reverses the earth-before-sun, plants-before-animals, and flying-before-land animals order given in Genesis 1. As we concluded above, modern science is not the place to begin to determine the age or nature of creation.

Can we use science to determine anything about the age of things? Perhaps. When we turn to the biblical account we learn not only about the creation, but also the Fall and God's response in the form of the curse. The pre-Fall world was designed to persist forever and might—because of the provisional cycles embedded within it—appear infinitely old. With the curse, however, we are told that the universe was made subject to corruption (Rom 8:19-21), groans and travails in pain (Rom

8:22), and “waxes old like a garment” (Ps 102:25-26). Whereas it might not be possible to determine how old things really are, it might be possible to determine how long things have been decaying.

An example might be the decay of DNA. Deleterious mutations accumulate in organismal DNA, increasing what is called the mutational genetic load of organisms. Although we are not quite able to measure this mutational load directly, we can measure some related phenomena. In human DNA, for example, new mutations of all types (neutral, deleterious, and presumably advantageous) accumulate at a rapid rate (on the order of one to ten mutations per generation per person). The number of mutational differences between all humans seems roughly consistent with what would be accumulated in the 6000 years since Adam’s Fall going through the population bottlenecks of the flood and Babel.<sup>31</sup> Another example concerns the earth’s magnetic field—an important protector of life on earth. It seems that the magnetic field of the earth is decreasing in intensity, dropping half of its strength every 1400 years or so. It does not seem possible for that decay to have been occurring for as long as even 10,000 years—i.e. quite consistent with an earth-impacting Fall only about 6000 years ago.<sup>32</sup> Similarly, the loss of material by some comets as they orbit the sun suggests they have been losing material like this for less than 10,000 years (consistent with a solar-system-impacting Fall only 6000 years ago).<sup>33</sup> Even the absence of supernovae remnants in our vicinity of the galaxy older than several thousands of years suggests stars may have been blowing up in this region for less than 10,000 years (possibly consistent with a galaxy-impacting Fall only 6000 years ago).<sup>34</sup>

The time before the Fall is quite unfamiliar to us. It seems quite impossible to imagine human DNA which does not mutate, or magnetic fields which do not lose energy, or comets which do not lose matter, or stars which do not blow up. As a result, modern science would not only not deduce such a pre-Fall world, it would deny its existence. In fact, modern science would argue that DNA, the earth’s magnetic field, comets, and exploding stars have been around for billions of years. Yet, there does seem to be evidence that the modern fallen world has only been decaying for only about 6000 years of time—just as the Bible claims. In fact, instantaneous creation of a creation initially designed to exist forever, which began decaying only about 6000 years ago explains not only the evidence of only thousands of years of decay, but also evidence for deep time.

If one wishes to determine how long it would take modern laws and processes to create something, then science probably supplies the best possible estimate. If one wants to determine how old something *really* is, one needs to consult a reliable witness. The only reliable witness for the age of the universe and the earth is the Bible. As a scientist I am convinced that the Bible—and not science—is the correct place to begin to determine the age of things. I also believe that the Bible is very clear about the creation being only about 6000 years old. And, because of its critical importance in understanding the world, I would suggest that this means that the creation really is only about 6000 years old. And, although much of modern science deduces a very different history for the creation, the authority and importance of Scripture not only indicates that the creation is thousands of years old, but also explains why modern science arrives

at the wrong conclusions it does *and* why some data seems to be quite consistent with a creation only thousands of years old. This is because God created a fully-functioning, mature world only about 6000 years ago.

## ENDNOTES

<sup>1</sup>Consider, for example, the many volumes which have been written on the definition of science, and which not only define it in different ways, but also define it in contradictory ways. See, e.g., J. P. Moreland, *Christianity and the Nature of Science* (Grand Rapids: Baker, 1989); and Delvin Lee Ratzsch, *Science and its Limits: the Natural Sciences in Christian Perspective* (2<sup>nd</sup> ed., Downers Grove, IL: InterVarsity, 2000).

<sup>2</sup>Science studies the physical world and values the data of the physical world in the process. Analogously, conservative Christian theology studies God and values the data of Scripture in the process.

<sup>3</sup>Unlike what we are taught in school, there is no singular “scientific method” that defines science. See Philip Kitcher, *The Advancement of Science: Science Without Legend, Objectivity With Illusions* (Oxford: Oxford University, 1993); C. John Collins, *Science and Faith: Friends or Foes?* (Wheaton, IL: Crossway, 2003); E. David Cook and Robert C. O’Connor, “What are the Philosophical Implications of Christianity for the Natural Sciences?” in *Not Just Science: Questions Where Christian Truth and Natural Science Interact* (eds. Dorothy F. Chappell and E. David Cook; Grand Rapids, MI: Zondervan, 2005), 48-60.

<sup>4</sup>Methodological uniformitarianism is not the same as uniformitarianism in general. Methodological uniformitarianism

includes the uniformity of natural law and uniformity of natural process, but not such things as uniformity of rate or natural conditions (see, e.g., Steven A. Austin, “Uniformitarianism: A Doctrine that Needs Rethinking,” *The Compass of the Sigma Gamma Epsilon* 56, no. 2 (1979): 29-45; Stephen Jay Gould, “Uniformity and Catastrophe,” in *Ever Since Darwin: Reflections in Natural History* (ed. Stephen Jay Gould; New York, NY: W. W. Norton & Co., 1977), 147-52.

<sup>5</sup>A possible meaning in Ps 78:69; 104:5; 148:4-6; Eccl 1:4. A probable inference made from the fact that if Adam had taken of the tree of life he would have lived forever (Gen 3:22).

<sup>6</sup>The last sentence in James Hutton, “Theory of the Earth; Or, An Investigation of the Laws Observable in the Composition, Dissolution, and Restoration of Land upon the Globe” [based upon a paper read March 7 and April 4, 1785], *Transactions of the Royal Society of Edinburgh* 1, no. 2 (1788): 299-304 and James Hutton, *Theory of the Earth, with Proofs and Illustrations* (Edinburgh, 1795).

<sup>7</sup>John McPhee (*Basin and Range* [New York: Farrar, Straus, and Giroux, 1981]) and Stephen Jay Gould (“Deep Time and Ceaseless Motion,” in *An Urchin in the Storm: Essays About Books and Ideas* [ed. Stephen Jay Gould; New York: W. W. Norton & Co., 1987], 93-103) popularized the phrase “deep time” to refer to the concept of millions and billions of years—especially in the eighteenth century as it gradually replaced the Bible-based concept of a universe originating at approximately 4000 B.C. I am using the phrase “deep history” to refer to the concept of many, many successive historical events.

<sup>8</sup>2 Pet 3:6-8.

<sup>9</sup>Genesis 2:2.

<sup>10</sup>E.g., Gregory of Nyssa's fourth century *On the Origin of Man*; Peter Lombard's twelfth century *Sententiarum*; Luther's sixteenth century commentary on Genesis.

<sup>11</sup>Genesis 1:29-30. Also suggested by the lack of carnivory in the new heavens and earth (Isa 11:6-9; 65:25).

<sup>12</sup>The application of Rom 5:12 not just to humans, but also to the entire creation (as the curse is suggested to be global in Rom 8:19-22). Suggested also by the new heavens and new earth being without natural evil and curse (Isa 11:6-9; 65:17-25; Rev 21:1-4 with 22:3).

<sup>13</sup>Genesis 3:18.

<sup>14</sup>Isaiah 11:19, 65:25; Rev 21:4.

<sup>15</sup>Genesis 8:21.

<sup>16</sup>Genesis 8:22.

<sup>17</sup>Genesis 2:10. Except at deltas where large rivers fragment into smaller unnamed river courses, rivers most typically unite rather than divide as they flow downstream. Although lakes on topographic divides can source more than one major river, there are no known examples of one major river dividing into even two major rivers, let alone four.

<sup>18</sup>Neither the four rivers nor the four lands of Gen 2:11-14 are certainly identified with any four rivers or lands known in the present. The river names most naturally apply to rivers on different continents (Gihon as the Nile in Africa; Tigris and Euphrates with the large rivers in Asia; Pison as a minor river of the same name in European Turkey). The land names also most naturally apply to lands on different conti-

nents (Ethiopia in Africa; Assyria in Asia).

<sup>19</sup>The globally-distributed "fountains of the great deep" which were broken up at the beginning of the flood (Gen 7:11) were stopped up later (Gen 8:2). This suggests a different distribution of springs in the antediluvian world than is observed today.

<sup>20</sup>On day three of the creation week God commanded the waters to be "gathered together into one place" and let the dry land appear (Gen 1:9). With the exception of a few large lakes, a single ocean could describe the current earth. Nonetheless, some have seen reason to believe that the distribution of continents in the original creation was significantly different than in the present (e.g., Antonio Snider-Pellegrini, *La Création et ses Mystères Dévoilés* [Paris: A. Franck & E. Dentu, 1859]).

<sup>21</sup>The fact that something other than rain watered the garden before the creation of Adam (Gen 2:5-6) and Adam and Eve were comfortable without clothes might be explained by a tropical location for the garden of Eden. Nonetheless, some have suggested the pre-Flood world experienced a very different climate from the present (e.g., Thomas Burnet, *Telluris Theoria Sacra* (London: Kettilby, 1681); John C. Whitcomb, Jr., and Henry M. Morris, *The Genesis Flood* (Phillipsburg, NJ: Presbyterian & Reformed, 1961); Joseph C. Dillow, *Waters Above* (Chicago, IL: Moody, 1981). Tree ring evidence led Kurt P. Wise ("Were there Really no Seasons? Tree Rings and Climate,"

*Creation Ex Nihilo Technical Journal* 6, no. 2 (1992): 168-72) to suggest that the pre-Flood world was warmer than the present.

<sup>22</sup>Evidences that suggest a very different geology before the flood include: (a) a different distribution of continents (see above); (b) a different distribution of springs around the world (see above); (c) Edenian geography which does not correspond to any modern locale (see above); (d) the flood beginning with a "breakup" of the rocky openings of pre-flood springs (Gen 7:11—see David M. Fouts and Kurt P. Wise, "Blotting Out and Breaking Up: Miscellaneous Hebrew Studies in Geocatastrophism" in *Proceedings of the Fourth International Conference on Creationism* [Pittsburgh, PA: Creation Science Fellowship, 1998], 217-28); and (e) a huge thickness and worldwide distribution of fossil-bearing sediment some people believe to have been deposited in the flood. Various of these evidences have led some to suggest a very different geologic structure for the world before the flood (e.g., Thomas Burnet, *Telluris Theoria Sacra* [London: Kettilby, 1681]; William Kirby, *On the Power, Wisdom, and Goodness of God as Manifested in the Creation of Animals, and in their History, Habits, and Instincts* [London: Pickering, 1835]; Walt Brown, *In the Beginning...* [self-published, 1989]).

<sup>23</sup>Fossils suggest that animals of the past were very different than animals of the present.

<sup>24</sup>2 Pet 3:6-8.

<sup>25</sup>Given all that biologists know about living things, biology has never

really understood what life itself is. In sections of biology texts labeled "What is Life?" there are lists of what living things *do*, but never a characterization of life. It is entirely possible that life is not physical, does not follow natural law and process, and cannot even be studied by science. It is not clear how much else about living organisms cannot be understood by natural law and process; thus, it cannot be known for sure that natural law and process alone really *can* generate a new generation of offspring.

<sup>26</sup>John 2:1-11.

<sup>27</sup>See, e.g., Travis Richard Freeman, *The Chronological Value of Genesis 5 and 11 in Light of Recent Biblical Investigation*, (Ph.D. diss., Southwestern Baptist Theological Seminary, 1998).

<sup>28</sup>E.g. *Jubilees*; Josephus's first century *Antiquities of the Jews*; second century *Epistle of Barnabas*; Clement of Alexandria's third century *The Miscellanies*; Ephrem Syrus's fourth century *Genesim Commentari*; Bede's eighth century *Hexameron*; Peter Lombard's twelfth century *Sententiarum*; Vincent of Beauvais' thirteenth century *Speculum Quadruplex*; Melancthon's and Luther's and Calvin's commentaries on Genesis.

<sup>29</sup>E.g. Augustine, *De Genesi ad Litteram*.

<sup>30</sup>Robert Grosseteste, *Hexaëmeron* (c 1230); René Descartes, *Principia Philosophiae* (Amsterdam: Ludovicum Elzevirium, 1644); Johan Georg Rosenmüller, *Antiquissima Telluris Historia a Mose* (Ulm, 1776).

<sup>31</sup>The time has been calculated to

be up to 600,000 years (common female origin argued by Rebecca L. Cann, Mark Stone King, and Allan C. Wilson, "Mitochondrial DNA and Human Evolution," *Nature* 325 (1987): 31-36 which research was redone by Max Ingman, Henrick Kaessmann, Svante Pääblo, and Ulf Gyllensten, "Mitochondrial Genome Variation and the Origin of Modern Humans," *Nature* 408 (2000): 708-13; common male origin argued by R. L. Dorit, H. Akashi, and W. Gilbert, "Absence of Polymorphism at the AFY Locus on the Human Y Chromosome," *Science* 268 (1995): 1183-85), but this is a maximum time based upon extreme assumptions and it assumes no population bottlenecks (times such as the flood and Babel when human population was reduced to very small values). Using more reasonable assumptions and considering population bottlenecks such as the Bible describes, human history can be included within the last 6000 years.

<sup>32</sup>E.g., Thomas G. Barnes, *Origin and Destiny of the Earth's Magnetic Field* (ICR Technical Monograph 4; El Cajon, CA: Institution for Creation Research, 1983) updated by D. Russell Humphreys, "Reversals of the Earth's Magnetic Field During the Flood," in *Proceedings of the First International Conference on Creationism* (vol. 2; Pittsburgh, PA: Creation Science Fellowship, 1986), 113-26; and D. Russell Humphreys, "A Physical Mechanism for Reversals of the Earth's Magnetic Field During the Flood", in *Proceedings of the Second International Conference on Creationism* (Pittsburgh, PA:

Creation Science Fellowship, 1990), 129-42.

<sup>33</sup>E.g., Danny Faulkner, "Comets and the Age of the Solar System," *Creation Ex Nihilo Technical Journal* 11, no. 3 (1998): 264-73.

<sup>34</sup>E.g., Keith Davies, "Distribution of Supernovae Remnants in the Galaxy," in *Proceedings of the Third International Conference on Creationism* (Pittsburgh, PA: Creation Science Fellowship, 1994), 175-84.

# A Surrejoinder to Peter Enns's Response to G. K. Beale's *JETS* Review Article of His Book, *Inspiration and Incarnation*

G. K. Beale

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I thank Peter Enns for responding to my review article<sup>1</sup> of his book, *Inspiration and Incarnation*.<sup>2</sup> It has been the policy of the *Journal of the Evangelical Theological Society (JETS)* not to allow surrejoinders, so I was not able to write one in that journal. I am thankful to the editor of *SBJT* for accepting this surrejoinder to be published.<sup>3</sup> *SBJT* readers ideally should consult my original review of Enns's book in *JETS* and Enns's response to me there. But, for those unable to consult *JETS*, the substance of my original review and of Enns's response will be summarized in this review.

For those readers who go back and read my review and Enns's reply to my review, I think most will see that he has not advanced the argument much beyond what I said in my review nor has he responded to some of the specific evidence that I adduced. I have in mind, for example, the evidence that he holds various significant narratives in Genesis to be "myth" according to its classic definition, and that he acknowledges that the biblical writers mistakenly thought such "myths" corresponded to real past reality.

I will respond to what I consider to be some of Enns's major critiques of my review of his book.<sup>4</sup>

(1) Enns contends that I misread the genre of his book and that I reviewed it as a scholarly book instead of a popular

book. He says that, as a result, though I cite his statements "at length," "citations, no matter how lengthy, will not contribute to bringing clarity to an author's intention" and might cause "obscurity" of it, if such citations are "founded on a faulty reading strategy."<sup>5</sup> He says I reviewed the book as if it were "an academic treatise" or "a systematic theology" or "an introduction to Scripture," whereas "its [real] aim is to reach a lay evangelical audience for which the human element of Scripture . . . presents an obstacle to confessing that the Bible is God's word."<sup>6</sup> He says that his "primary audience" is "evangelical and non-academic" and that the "book's purpose is specifically apologetic" in that it is "intended to help the faithful deal with threats to their faith."<sup>7</sup> This "aim" is not only "announced explicitly, but its popular focus is implied throughout the book, as indicated by the absence of footnotes, annotated bibliographies at the end of each chapter, and a glossary of terms at the end."<sup>8</sup> He continues by saying that,

the fact that my aim is evangelical, non-academic, and apologetic accounts for the rhetorical strategy I adopt throughout the book, which is to lay out a few examples of things that are universally accepted as demonstrations of the human situatedness of Scripture—the very thing that is causing readers problems—and to present these

examples unapologetically, in as stark and uncompromising a manner as that of hostile commentators, be it in a book, on cable TV, or in a classroom. As part of this apologetic, it is crucial that the non-scholarly reader understand that nothing in principle has been withheld; no data has been covered over as too damaging or problematic for consideration; no special pleading has been employed against the data themselves, because these data have positive value in helping us understand how Scripture—by God’s design—bears perfect witness to the wisdom and glory of God.

To present the matter this way is to attempt to pull the rug out from under the perceived strength of the opposing argument, that for the Bible to be God’s word it cannot possibly look the way it does.<sup>9</sup>

Enns asserts that not to review the book according to its popular aims is to criticize him for not writing a book that he never intended to write, an error he feels that I committed in reviewing the book: “Beale seems to read the book alternatively as a failed academic treatise, an ambiguous systematic theology, or a dangerous introduction to Scripture. None of these descriptions are valid, but they form Beale’s starting point, which leads him to draw unwarranted conclusions.”<sup>10</sup> Yet he acknowledges that I “flag various topics for high-level discussion,” and in doing so I have “correctly discerned . . . that in addition to the primary purpose, there is a secondary purpose [of the book] as well: to foster further theological discussion among evangelical scholars regarding the implications of the human element of Scripture for how we think about our Bibles, and for how we are equipping our students to do the same.”<sup>11</sup>

A number of responses to Enns’s reply need to be made here. I am going to elaborate a bit on this issue, since we are dealing with the important subject of how

Christian scholars should communicate important and very debated interpretative and theological issues to a more popular readership, especially in the church. I am also going to elaborate, since Enns is attempting to use this objection to deflect quickly my criticisms of his book. First, I clearly noted in my review article the exact dual purpose of the book that Enns has laid out, and which he acknowledges (above) that I perceived correctly: I say

Indeed, why write a lengthy review article of a book that is designed primarily to address a more popular audience and only secondarily a scholarly readership?<sup>12</sup> The reason is that the issues are so important for Christian faith, and popular readers may not have the requisite tools and background to evaluate the thorny issues that Enns’s book discusses. But I have also written this review for a scholarly evangelical audience, since the book appears to be secondarily intended for them,<sup>13</sup> and, I suspect, there will be different evaluations of Enns’s book by such an audience.<sup>14</sup>

In point of fact, I reviewed the book with these primary and secondary audiences in mind: at the beginning of my review article, I said, “the book is designed more for the lay person than the scholar but is apparently written with the latter secondarily in mind.” And, how could citing quotations from Enns at length in order to understand what he says in context be a misreading of the popular genre, as he contends? Are popular readers to be kept from the contextual meaning of his statements? This critique by Enns would seem to be an attempt to say that no one should give serious scrutiny to the cogency and validity of his arguments. So I am mystified by his response here.

So, why does Enns think that I misjudged the popular genre of his book?

Enns thinks that his book is at such a popular level that he need not discuss alternative views of major explosive issues that he addresses in the book nor should such issues be footnoted, even in a brief representative manner. But one must ask whether or not it is appropriate to address such important interpretative and theological issues and give only one side. To give alternative viewpoints does not necessitate heavy footnoting but only a brief representation of sources supporting various sides, and these could be put in the form of end notes at the end of chapters or at the end of the book, which one typically finds in more serious *popular* kinds of books (here, for example, I think of John Piper's and J. I. Packer's books, as well as those by Don Carson). Moreover, Enns should have done this because he considers part of his popular audience to be "graduate students" and "college students" (though he states this negatively: the popular audience "is not restricted to" such students<sup>15</sup>). But, since Enns acknowledges that the book's primary readership, a popular audience, includes undergraduate and graduate students, and its formally intended secondary readership is scholars, does this not make entirely appropriate, even necessary, that the best of representative positions be presented and lightly footnoted? I have taught both on the undergraduate and graduate level, and when I order textbooks that address major interpretative and theological issues, I consider it normal for such books to have brief though representative footnoting of alternate sides of debated topics.

But, even if footnotes were judged not to be appropriate, is it not incumbent in such crucial discussions, at least, to lay out the main sides of the debate and the

primary evidence supporting each side, and then to argue for the view the author prefers? But, by his own admission, Enns has not even done this: his popular "rhetorical strategy adopted throughout the book . . . is to lay out a few examples of things that are universally accepted as demonstrations of the human situatedness of Scripture" and "present these examples unapologetically, in as stark and uncompromising a manner as that of hostile commentators."<sup>16</sup> Any reading of Enns's book will reveal that a number of the issues that he discusses are of crucial theological significance and vigorously debated by scholars of varying theological perspectives—indeed, to say the least, these are matters about which there is no "universally accepted" position, especially if one is comparing traditional non-evangelical, neo-evangelical, and traditional evangelical positions (though, if one has in view that the only viable positions to survey are non-evangelical positions, then one might be able to say there is "universal acceptance" within this restricted community on such issues). But he has chosen to present only one side on these issues, and, strikingly, it is the side that has been traditionally held by non-evangelical scholars. Specifically, let us review what are some of these major issues. I summarized the major points of my critique in the following eight-fold manner, the first four of which elaborate on specific interpretative and theological issues of great import:<sup>17</sup>

- He affirms that some of the narratives in Genesis (e.g., of creation and the flood) are shot through with myth, much of which the biblical narrator did not know lacked correspondence to actual past reality.
- Enns appears to assume that since biblical writers, especially, for example, the Genesis narrator,

were not objective in narrating history, then their presuppositions distorted significantly the events that they reported. He appears too often to assume that the socially constructed realities of these ancient biblical writers (e.g., their mythical mindsets) prevented them from being able to describe past events in a way that had significant correspondence with how a person in the modern world would observe and report events.

- Enns never spells out in any detail the model of Jesus' incarnation with which he is drawing analogies for his view of scripture.
- Enns affirms that one cannot use modern definitions of "truth" and "error" in order to perceive whether or not scripture contains "truth" or "error." First, this is non-falsifiable, since Enns never says what would count as an "error" according to ancient standards. Second, this is reductionistic, since there were some rational and even scientific categories at the disposal of ancient peoples for evaluating the observable world that are in some important ways commensurable to our own.
- Enns does not follow at significant points his own excellent proposal of guidelines for evaluating the views of others with whom one disagrees.
- Enns's book is marked by ambiguities at important junctures of his discussion.
- Enns does not attempt to present to *and* discuss for the reader other significant alternative viewpoints other than his own, which is needed in a book dealing with such crucial issues.
- Enns appears to caricature the views of past evangelical scholarship by not distinguishing the views of so-called fundamentalists from that of good conservative scholarly work.

It is astounding to me that Enns would say that there "are universally accepted" positions on these issues. This is just as true of Enns's last chapter on the use of the Old Testament in the New, though

he does start by giving four basic viewpoints taken on the subject, but when he addresses specific passages, he treats their interpretation as if his view were the only reasonable or probable one (but I will not comment further on this, since I have done so elsewhere<sup>18</sup>). Furthermore, note that only one of my eight above points concerns Enns's complaint about "footnoting," and actually this point only demands that Enns presents the various major competing views on these debated issues, even if footnotes are excluded. Now, he does present only in passing and very briefly typically another viewpoint, but it is usually a "fundamentalist" view, which does not represent the mainline evangelical position on the matters that he addresses. I do not see how the other seven above points are inconsistent with a popular book, which includes serious laypeople, undergraduate students, and graduate students. The first four points involve substantive issues that need well-balanced discussion. Instead, Enns appears to have approached his discussion rhetorically like a preacher who wants to persuade a congregation by presenting only one side of a biblical or theological issue.

There is, however, one area in which Enns affirms that he has been as thorough as he could be within the parameters of the aims of his book. Note again that he says,

As part of this apologetic [in the book], it is crucial that the non-scholarly reader understand that nothing in principle has been withheld; no data has been covered over as too damaging or problematic for consideration; no special pleading has been employed against the data themselves, because these data have positive value in helping us understand how Scripture . . . bears perfect witness to the wisdom and

glory of God.<sup>19</sup>

Should not Enns have been just as careful in presenting the best of traditional evangelical positions on the controverted issues as he has been in laying out the non-evangelical critical viewpoint? He likely would respond by saying that the difficulties he adduces should be recognized by all evangelical scholars. And, this is the very nub of the problem: many, if not most, evangelical scholars, I dare say, do not consider the difficulties as problematic as does Enns (though he will sometimes say that not to recognize the problems the way he does is to be guilty of “special pleading” and refusing to recognize the reality of the biblical data.).

Let me repeat from my review article that the reason that alternative views should be carefully explained in such a popular book “is that the issues are so important for Christian faith, and popular readers may not have the requisite tools and background to evaluate the thorny issues that Enns’s book discusses.” As scholars, I believe that we should be as careful when writing for non-scholars as for scholars and distill difficult scholarly issues and debates in a way understandable to laypeople, which includes, of course, the level of communication not employing scholarly jargon or Greek or Hebrew or other technical language. But the concepts should be there for them, including concepts representing the best of both sides of an argument. Accordingly, the vast majority of my review article, as can be seen from my above eight-point summary critique, dealt with substantive issues that Enns was discussing and was not primarily a critique of the fact that he did not include footnotes.

Consequently, Enns and I disagree

about whether or not he should have engaged with the best of representative positions on various significant interpretative and theological matters. I believe he made an infelicitous choice in adopting the rhetorical strategy that he did, since it can and likely will mislead the typical lay reader, despite the fact that he repeatedly says that he wants to help lay readers better understand how ancient Near Eastern (ANE) parallels relate to the Bible. In particular, recall that he says that the purpose of his book “is specifically apologetic, that is, intended to help the faithful deal with threats to their faith.”<sup>20</sup> But the reality is that only a very small percentage of laypeople have the kinds of problems with the Bible that Enns sets forth. Ironically, the likelihood is that most of what Enns discusses lay readers will confront for the first time (I do find that graduate students sometimes have these problems and questions). Furthermore, most of the problems that he poses are not that hard to solve, though he gives the impression that they are difficult to square with a traditional view of inerrancy. Indeed, this is partly why I felt a burden to write the review that I did. Instead of helping people in the church gain confidence in their Bibles, Enns’s book will likely shake that confidence—I think unnecessarily so.

(2) Enns says that I call into question (by insinuation) his “basic conviction” that “the Bible is from God—that every bit of it, no matter how challenging or troublesome, is precisely what God wanted us to have and perfectly formed to do what God has designed it to do.”<sup>21</sup> Enns has misread me, so I will repeat precisely what I said about Enns’s view of inspiration:

Therefore, the most probable assessment of his view so far is that *concep-*

*tually*, at the least, he affirms that the biblical writers imbibed myths at significant points, recorded them and, though they were not essentially historical, they naively affirmed such myths as reliable descriptions of the real world because they were part of their socially constructed reality. Furthermore, divine inspiration did not restrain such social-cultural osmosis.<sup>22</sup>

And in the very beginning of my article, I say this about Enns's discussion of "myth" and history in scripture:

he says that the Old Testament contains what he defines as "myth" (on which see his definition later below), but, he affirms, this should not have a negative bearing on the Old Testament's divine inspiration. God accommodates himself to communicate his truth through such mythological biblical accounts. Chapter 3 discusses what Enns calls "diversity" in the Old Testament. He believes that the kinds of diversity that he attempts to analyze have posed problems in the past for the doctrine of "inerrancy." He asserts that this "diversity" must be acknowledged, even though it poses tensions with the inspiration of scripture. This diversity is part of God's inspired word.<sup>23</sup>

And, again, I say, that,

indeed, Enns wants to "emphasize" that "such a firm grounding [of Genesis] in ancient myth does not make Genesis less inspired" (pp. 56)! Thus, uncritical and unconscious absorption of myth by a biblical author does not make his writing less inspired than other parts of scripture.<sup>24</sup>

Thus, it is clear that I do not call into question Enns's own *conviction* that *all* of "the Bible is from God," but I do question the viability of his attempt to hold to plenary inspiration while at the same time affirming that biblical writers unconsciously imbibed mythical stories

and mistakenly thought that they corresponded to past historical reality. I do not think I have misunderstood him on this matter. He holds to a fully inspired scripture, though this inspired scripture contains "myths" (unbeknownst to the biblical writers themselves) at various significant points in describing redemptive-historical events. Consequently, I believe that Enns holds to a fully inspired Bible, but I do not think his view of the nature of inspiration is persuasive.

Thus, according to Enns, biblical writers were consciously intending to be understood as writing a historical genre, *but, in fact, we now know such events are myth*. Enns says that, though such accounts do not convey historical truth they still have important theological truth to tell us: that we are to worship the God of the Bible and not pagan gods. Enns even differs here from Robert Gundry, who contended that some narratives by gospel writers, which traditionally had been taken to be history, in fact are not, since they were intentionally and consciously employing a midrashic method that added significant non-historical but interpretative features. But Enns is saying much more than this: the biblical writers thought they were recording history but they were wrong, since we now know they were unaware that they were recording myth. This is a conclusion that does not appear to pay due hermeneutical respect to the conscious historical genre signals by biblical writers, however interpretative they may be.

Thus, one problem with his view of inspiration is that he ends up with a completely inspired Bible in which the biblical authors narrate what they thought was history, but now we know they were wrong. This is tantamount to saying that the biblical writers made mistakes, but

these mistakes were divinely inspired. His affirmation of inspiration, thus, dies the death of a thousand qualifications.

(3) Enns has several responses to my discussion of his section on “myth and history.” First, he affirms that a “potentially misleading impression” could result from my “claim that his concern is that ‘conservatives have not sufficiently recognized ANE parallels with the Bible,’ when in fact the entire chapter is based on the opposite assumption that these things have been duly recognized by evangelicals”;<sup>25</sup> rather, Enns says that his concern is “to bring to the forefront the implications of these parallels for how evangelicals can think of Genesis as historical, authoritative, and inspired.”<sup>26</sup>

But Enns does not present the full picture of what he has said and of what I have said. Here is what I say:

In particular, he [Enns] is concerned that conservatives have not sufficiently recognized ANE parallels with the Bible, particularly the parallels with the Babylonian myth of creation and the Sumerian myth of the cataclysmic flood (pp. 26-27). Enns says that “the doctrinal implications of these discoveries have not yet been fully worked out in evangelical theology” (p. 25). For example, he says that if the Old Testament has so much in common with the ancient world and its customs and practices, “in what sense can we speak of it as revelation?” (p. 31). But, as he acknowledges, these discoveries were made in the nineteenth century, and evangelical scholars have been reflecting on their doctrinal implications ever since the early nineteenth hundreds.<sup>27</sup>

It is true that Enns is most concerned with the implications of ANE parallels for the doctrine of scripture (Genesis in this case) as inspired and historical, and he does not feel that evangelicals have reflected on this sufficiently. My above

quotation focuses on this very point (this focus is observed by noting that my first sentence is contextually explained by the following two sentences). But Enns also believes specifically that evangelicals *have not sufficiently recognized the ANE parallels* because of their commitments to a traditional view of scriptural inspiration (and this is part of what I have in mind in the first sentence of my above quotation): in his book he says, “it is also ill advised to make such a sharp distinction between them [ANE and OT parallels] that the clear similarities are brushed aside [which, from the context of this chapter, he thinks conservatives have too often done].”<sup>28</sup> Again he says, “the conservative reaction . . . tends to minimize the ancient Near Eastern setting of the Old Testament, at least where that setting poses challenges to traditional belief,”<sup>29</sup> and again, “conservative Christian scholars, particularly early on, have tended to employ a strategy of selective engagement of the evidence: highlighting extrabiblical evidence that conforms to or supports traditional views of the Bible, while either ignoring, downplaying, or arguing against evidence to the contrary.”<sup>30</sup> Thus, my statement that Enns believes “that conservatives have not sufficiently recognized ANE parallels with the Bible” is part of what Enns is saying; I was not saying that Enns believes that evangelical scholars have been ignorant about the existence of these parallels but that they have not “sufficiently recognized” their bearing on scriptural inspiration. Indeed, I explicitly note at the end of my above quotation that Enns acknowledges that “these [ANE] discoveries were made in the nineteenth century, and evangelical scholars have been reflecting on their doctrinal implications ever since the early

nineteen hundreds.”

Second, he says in his book that there are biblical texts that presuppose the real existence of other gods, arguing that God led Israel slowly but surely from partial knowledge (i.e., from revealing to them that other real gods in addition to himself did actually exist) to fuller monotheistic knowledge of himself.<sup>31</sup> I refer to this as a developmental view and say that “some would call it ‘evolutionary.’” Enns considers my use of “evolutionary” as a pejoratively “visceral” expression of his view, but it is unclear why he says this.<sup>32</sup>

Third, Enns is concerned about my use of the phrase “essential historicity” in my discussion of his analysis of the “myth-history issue” in Genesis, for which he says I have “lack of appreciation” of the complexities of this topic.<sup>33</sup> He notes that a phrase that I use to “capture this problem is ‘essential historicity.’” Enns says that I “err in thinking that such an affirmation is crucial to addressing the very difficult but real myth-history problem in Genesis,” and that “the phrase amounts to little more than a slogan that obscures the issue when further explanation is not given to how, in what way, and to what extent Genesis is essentially historical.”<sup>34</sup>

But I have chosen to use this phrase to summarize the problem because it is the phrase that Enns himself used to contrast the problem of the records of “the previous periods of Israel’s history,” from the historical record of the “monarchic period, when it began to develop a more ‘historical consciousness;’”<sup>35</sup> similarly, he says that “it is precisely the evidence *missing* from the previous periods of Israel’s history [e.g., the Pentateuch] that raises the problem of the *essential historicity* of that period” (italics mine).<sup>36</sup> Enns appears to assume a typical definition of “essential

history;” otherwise his statement about monarchic and pre-monarchic history would not make good sense; and I take the same, fairly normal definition of the phrase: that writers record events that correspond with real past events (of course, as I said in my review article, though historians certainly interpret history, such interpretations do not necessarily distort the historical actions and events being recorded, as I would hold in the case of biblical writers).

It bears repeating from my review article that Enns does not include “essential historicity” in his definition of “myth,”<sup>37</sup> which he sees present in Genesis, and that he does not see the pre-monarchic biblical accounts to contain “essential historicity.”<sup>38</sup>

Enns asserts in his “Response” that he “would have liked to have been clearer” about his “affirmation of the basic historical referential nature of the opening chapters of Genesis.”<sup>39</sup> But he really says no more to clarify this very brief statement, which is also ambiguous. First, what does he mean by “the opening chapters of Genesis” (Genesis 1-3 or Genesis 1-9), and, second, his very use of “referential” is open to interpretation: e.g., the Encarta World English Dictionary gives two definitions: (1) “relating to references or in the form of reference;” (2) “used to describe a work of art that imitates other works or contains oblique references or homages to them, often at the expense of original content or style.” Does Enns affirm here that there is a correspondence between the Genesis 1 narrative, for example, and actual events that happened or is he using “referential” with the second meaning in mind, especially the comparison of Genesis 1 to ANE mythical works? Is this merely a tantalizingly coincidental

ambiguity?

One reason that one might not think it is an accidental ambiguity is that Enns has used the analogy of an artist painting a portrait or a mere painting to describe how the event of the Exodus might be understood. After acknowledging that some have compared the Exodus to a portrait, he qualifies the comparison by saying, “in Exodus the whole question is, ‘are we dealing with a life-like portrait such as that of Norman Rockwell or are we closer to the impressionism of a Monet or even the abstract art of a Picasso or Jackson Pollock?’”<sup>40</sup> (the reader should go on-line and look at some of the abstract art of Picasso and, especially, Pollock to visualize the kind of comparison that Enns appears implicitly to be posing as a possibility for understanding the event of the Exodus). Accordingly, Exodus appears to be a work of literary art that in significant ways indirectly imitates other ANE mythical works to depict something that is historical, but it may be difficult to discern how much of the actual historical kernel of the event is present in the narrative “painting.” According to one of Enns’s above analogies (abstract art), the event of the Exodus may be hardly discernible at all. At best, this may merely be another of the several ambiguities that I discussed in my *JETS* review article.

Though Enns contends that he is among those “evangelicals [who] would generally affirm” that “Genesis ‘appears to be a historical genre’ and therefore is ‘true history’ and records ‘real’ events of the past,”<sup>41</sup> he immediately back-tracks and asks “what type of historical genre does Genesis appear to be, and how does the ANE evidence affect how we formulate such a definition? What constitutes ‘true’ history or ‘real’ events?”<sup>42</sup> The sharp edge

of the problem for him is that “Genesis shares the cosmology of its ancient analogs, even while it contests their theology,” and this “cannot help but affect how we think about the ‘essential historical’ nature of Genesis.”<sup>43</sup> He sees the polemical contrast between the pertinent Genesis narratives and their ANE analogues to be only in the area of “theology,” i.e., the God of Genesis is the only God that deserves worship (Enns would not say at this point that the polemic is that the God of Genesis is the only real God, since, as we have seen, he affirms that God’s revelation at this point did not deny the existence of other real gods). But why does the polemic not also involve a contrast with history, in the sense that the God of the patriarchs really does work in history as opposed to the unreal ANE gods? I would say that the biblical account gives the record that corresponds with what God actually did in space-time history in contrast to the ANE accounts of false gods who really did not act in history.

Thus, though Enns claims to hold to some kind of “general affirmation” of the historicity of Genesis 1-11, the way he specifically fleshes this out is quite different than other evangelical Old Testament scholars. He gives so many qualifications that it is unclear what he really affirms. In my review article I went to great lengths to cite Enns’s very words (indeed paragraphs) to show that he “affirms that the Pentateuch positively adopts mythical notions in the essentially normal sense of the word (i.e., non-historical and fictitious narrative).”<sup>44</sup> Of course, Enns must see some actual history in Genesis (perhaps the core of the patriarchal narratives), though he never spells out for the reader what narratives he sees to be narratives corresponding to actual past

events and to what degree he sees them as “historical.” In fact, the problem for him is significant, since he says that all pre-monarchic historical narratives face the problem of “essential historicity” in contrast to monarchic history writing.<sup>45</sup> In this respect, recall that he says that “it is questionable logic to reason backward from the historical character of the monarchic account, for which there is some evidence, to the primeval and ancestral stories, for which such evidence is lacking.”<sup>46</sup>

Enns’s fairly clear answer to his question regarding the genre of Genesis is that it is a “mythic” genre, explaining “myth” to be “an ancient, premodern, pre-scientific way of addressing questions of ultimate origins and meaning in the form of stories: Who are we? Where do we come from?”<sup>47</sup> Note, again, that Enns’s definition does not include a reference to recording history that corresponds to an actual past state of affairs. I labored to show in the review article that Enns’s definition of “myth” is normal in that it refers for him to “stories [that] were made up” especially about “origins.”<sup>48</sup> Thus, he says that “myth is the proper [genre] category for understanding Genesis.”<sup>49</sup>

Enns says that V. P. Long’s discussion in his *Art of Biblical History* gives an excellent beginning point about genre considerations and especially to our concern about “what role ANE literature should play in ‘calibrating’ our genre discussions” about Genesis.<sup>50</sup> But Long is much more cautious than Enns; one of his main points is that while genre categories derived from study of ancient extra-biblical and cultural contexts can be helpful, “it is important to bear in mind that genre categories that have been developed through study of literatures outside the Bible may not be fully applicable to the biblical texts.”<sup>51</sup> Again,

Long says, especially with respect to ANE mythological parallels, that “the temptation must be avoided either to insist that only those biblical genres are possible that find analogies outside the Bible . . . or to assume that whatever genres are attested outside the Bible may without qualification find a place in the Bible.”<sup>52</sup> And once more, “the Ancient Near East, then, offers little that can compare to the larger discourse units of the Old Testament, or of the Old Testament.”<sup>53</sup> At points in the same chapter, Long says that smaller discourse units in the Bible also contain unique genres that have no parallel in the ancient literary world<sup>54</sup> or they contain mixed or blended genres,<sup>55</sup> and extrabiblical genre categories are merely “descriptive” and must never become “prescriptive” for the Bible,<sup>56</sup> and some “might be deemed unacceptable.”<sup>57</sup> In contrast, even in his response, Enns remains unnuanced in his understanding of how ANE mythic genre relates to Genesis. Part of the upshot of Long’s chapter is about how difficult it is to define genre both theoretically and specifically.

It is striking that Enns affirms that “the biblical account, along with its ancient Near Eastern counterparts, assumes the factual nature of what it reports. They did not think, ‘We know this is all “myth” but it will have to do until science is invented to give us better answers.’”<sup>58</sup> Thus, the biblical writers absorbed mythical world-views unconsciously, reproduced them in their writings, and believed them to be reliable descriptions of the real world and events occurring in the past real world (creation account, Flood narrative, etc.) because they were part of their socially constructed mythical reality.<sup>59</sup>

Enns presents the problem of Genesis 1 as a classic case of the problem about

which he is concerned:

What, for example, is “essentially historical” about Genesis 1? Is it the bare affirmation that God did “something” in space/time history? Or, at the other end of the spectrum, is it the affirmation that Genesis 1 describes creation in literalistic terms (literal 24-hour days, canopy of water, etc.)? If the former, are the specific form and content of Genesis 1 just decorative flourishes (which leaves one wondering why God put them there in the first place)? If the latter, are we to say that Genesis 1 can be safely understood at arm’s length from the ancient world in which the texts were intended—by God—to speak? What precisely about Genesis 1 needs to be affirmed as “accurate, true, real” (to use Beale’s terms), and how does one even begin to make these judgments, given the antiquity and foreignness of Genesis vis-a-vis modern historical standards? These are the kind of things that can and do trouble lay readers.<sup>60</sup>

In reply, there are several possible well-known interpretations of Genesis 1 that can be quite consistent with a notion of “essential historicity”: (1) a literal creation by God during a literal six days (composed of 24-hours for each day); (2) a literal creation of God over a long period of time (understanding the “days” to be ultimately figurative for a long period); (3) a creation that is to be seen as a literal description of a chaotic, non-functional cosmos followed by a description of God “setting up the functions that will establish an ordered, operational cosmos,”<sup>61</sup> which is conceived of as a temple for himself and his people in which to dwell.<sup>62</sup> There are, of course, sub-categories of these basic views, some of which hold to theistic evolution and some of which do not. Thus, both of the above views that Enns cites, and the third also cited above, would be within the range of correspondence to “essential historicity.” Varying interpretations of the creation

narrative (as well as the flood narrative) do not necessitate a different view of the narrative’s “essential historicity.” A view that would not be consistent with “essential historicity” is one that holds to the depiction of God’s creative activity to be merely a reflection of other ANE mythical creation narratives, and that the only point being made by the Genesis writer is that the God of Genesis is the God to be worshipped instead of the various other ANE gods who purportedly participated in the creation of the cosmos.

The following quotations (that I repeat from my review article<sup>63</sup>) are virtually explicit statements by Enns that these biblical accounts are not essentially history but myth.

*We might think that such a scenario [that which Enns has presented] is unsatisfying because it gives too much ground to pagan myths . . . (p. 53; my italics).*

*. . . God adopted Abraham as the forefather of a new people, and in doing so he also adopted the mythic categories within which Abraham—and everyone else—thought. But God did not simply leave Abraham in his mythic world. Rather; [sic] God transformed the ancient myths so that Israel’s story would come to focus on its God, the real one (pp. 53-54; my italics).*

*. . . The biblical account, along with its ancient Near East counterparts, assumes the factual nature of what it reports. They did not think, “We know this is all ‘myth’ but it will have to do until science is invented to give us better answers” (p. 55, my italics).*

*. . . The point I would like to emphasize, however, is that such a firm grounding in ancient myth does not make Genesis less inspired . . . (p. 56, my italics).*

Significantly, the third above citation asserts that biblical writers “assumed the factual nature” of their “reports,” even though they were really not factual but “myth.” And, remember that Enns affirms that God’s revelation in early Israelite

history did not deny the true existence of other gods, which Israel later came to understand were mythical.

I must stop here and refer readers back to my *JETS* review article. Enns has not addressed the specific evidence that I lay out there that he, indeed, affirms that significant narratives in the Pentateuch are shot through with “myth,” which I concluded that he understands “in the essentially normal sense, that is stories without an ‘essential historical’ foundation.”<sup>64</sup> Since he has not distanced himself from the evidence that I laid out for his view in this respect or disagreed with my conclusions about his view, then I must assume that he holds what I concluded about the mythical nature of accounts in Genesis. And, as I pointed out in the review article, he holds the same thing about references in the New Testament to Jewish traditions that are mythical (e.g., Paul’s reference to the “rock that followed” in 1 Cor 10:4 he calls a “legend,” though, according to Enns, Paul believed the tradition corresponded with real past events in Israel’s history, when in fact they did not).<sup>65</sup>

How is Enns’s view different from that of Gerhard Von Rad’s perspective that Old Testament writers wrote what appeared to be historical accounts, which were theologically true on a “salvation-historical” plane, but which possessed no essential connection with true, past historical reality?<sup>66</sup> I mentioned this in my initial review, but Enns never addresses it in his response.

Consequently, when Enns challenges me and others about our simplistic view of “essential history,” what he wants us to agree with is that Genesis is shot through with a mythic genre, though the writer, and those who passed on the early tradi-

tion which the writer received, thought they were passing on accounts that corresponded with true past historical events. For myself, I am unconvinced by Enns’s challenge.

(4) Enns is also troubled by my discussion of inerrancy as it is related to his view of “myth” and “theological diversity.” First, in responding to Enns’s dichotomy in his book between the pre-scientific world and the scientific world, I pointed out in my review that there are significant overlaps between modern mathematics and astronomy. Enns responds by saying that he fails to see how such overlaps help with understanding “the relationship between Genesis 1 and Enuma Elish, or any other ANE analog.”<sup>67</sup> But the very reason that I made the point is that Enns repeatedly in his book made the unqualified distinction between the purported pre-scientific and scientific ages: e.g., “ancient peoples were not concerned to describe the universe in scientific terms . . . scientific investigation was not at the disposal of ancient Near Eastern peoples;”<sup>68</sup> “Are the early stories in the Old Testament to be judged on the basis of standards of modern historical inquiry and scientific precision, things that ancient peoples were not at all aware of?;”<sup>69</sup> the historical context of Genesis “was not a modern scientific one but an ancient mythic one.”<sup>70</sup>

My point about the existence of ancient mathematics and astronomy that overlaps with modern notions of these areas is relevant, at least, because it qualifies Enns’s sweeping generalizations and reductionisms about an absolute gap between the two worlds. Furthermore, these overlaps are specifically significant for the present discussion, since Enns himself relates “modern historical inquiry and scientific precision.”<sup>71</sup> He immediately elaborates

on “modern historical inquiry and scientific precision” by referring to “modern standards of truth and error.” Without any further qualification, I assume that he includes scientific precision in describing the cosmos and such things as scientific precision in measurements, calculations, etc., which may sometimes form part of historical narrative reports. Indeed, that he does have in mind descriptions of the cosmos is apparent from his above reference to ancients not “describing the universe” in scientific terms and from the context, where he includes reference to ancient perceptions of how the sun and the moon travel<sup>72</sup> and the ancient view of the cosmos.<sup>73</sup> Certainly, to some significant degree the overlap that I mention between astronomy is relevant here. Furthermore, what is also relevant is that ancient and modern peoples also share strikingly similar phenomenological portrayals of the cosmos (e.g., see Don Carson’s experience with his father about referring to the newspaper’s official notice about the sunrise).<sup>74</sup>

Lastly, while it is true that there are unusual portrayals of the cosmos in the ANE and Old Testament, according to modern standards, which some might be tempted to call pre-modern, the reason is likely theological. For example, it is clear in the ANE and Old Testament that temples were designed to be symbolic representations of the cosmos. Why? There is evidence in both the ANE and in the OT that the cosmos was conceived of as a huge temple. The earthly temples were little models of God’s entire creation as a macrocosmic temple in which he was present in a much grander way than in the small architectural sanctuaries.<sup>75</sup> Since the temples were symbolic of God’s heavenly dwelling, it is unlikely that the Israelites

actually believed that the cosmos was literally structured like a giant temple merely on a bigger scale than Israel’s earthly temple, though there is not space to elaborate on how this so.<sup>76</sup> There is even a notion in Egypt and Israel that the little sanctuaries pointed symbolically to God’s creation at the end of time as a huge dwelling place of God.<sup>77</sup> I also do not have room within the constraints of this article to explain possible relationships between ANE and Israelite temples, but suffice it to say that it is unlikely that Israel merely unconsciously modeled their temple on the temples of the foreign false, mythical gods around them.<sup>78</sup> The reason for the cosmic symbolism of Israel’s temple in the divine design is that it would be a unique redemptive-historical pointer to the consummated new heavens and earth as God’s temple and eternal dwelling place. Thus, Israel’s temple was meant to be a non-repeatable pointer to a greater divine reality in the latter days. One must be cautious in setting up other symbolic cosmic perspectives purportedly shared by the ANE and Israel and calling them “pre-modern.”<sup>79</sup> In the case of Israel, what some may call pre-modern or pre-scientific is a specific symbolic entity pointing to some greater reality in the new age to come.

In connection again to inerrancy, Enns is uncomfortable with my effort to show that there are certain universal categories of rational thought by which truth is discerned. He is responding, for example, to my following assertion in my *JETS* review article:

These issues that Enns discusses touch on epistemology. I cannot enter into a full-orbed view of epistemology to which I ascribe and how this relates to logic and the modernist-post-modernist debates.

Suffice it say the following. The laws of contradiction (or non-contradiction) and identity would seem to be part of the faculties of all human beings, as a result of their creation by God in his image. Without these abilities humans would not be able to communicate with one another or perceive correctly (not exhaustively but definitely in part) the created world. Enns seems to have confused the use of reason, which is an aspect of general revelation, with certain kinds of purported modern history writing and precise kinds of modern scientific knowledge. But these most basic laws of logical thought are quite operable for both modern and pre-modern people. Indeed, people could not communicate without assuming the truth of these foundational notions of logic (if I say something is red, it means that it is red and not green; or if I say the Chicago White Sox won the world series last year, I mean they won it and not the New York Yankees [here I would add that when Exodus says that God defeated the Egyptians that the text means he defeated the Egyptians and not the Babylonians]). When people do not presuppose these most basic laws of thinking, then they have difficulty communicating and living in the world. The same is true with ancient communication.<sup>80</sup>

Enns responds to this by saying that, “even though there are certainly categories of thought that are universally and timelessly part of the human condition, the Bible, precisely because it is a product of God’s self-revelation *in history*, has, by God’s design, a local, timely dimension to it.”<sup>81</sup> But Enns never tells us what human categories of thought are universally and timelessly applicable, so that the concession is a platitude without content. Essentially, I am merely saying that ancient peoples had categories of thought “at their disposal for assessing” the observable world “that are in some regards commensurable to our own.”<sup>82</sup> Furthermore, if the

categories of thought that I offer above are not applicable, then how can we make any sense of scripture? It would merely become so much gibberish.

Despite the fact that Enns says that this is an outside criterion by which I am defining the nature of scripture, it is quite evident that scripture reflects and presupposes this notion, since scripture itself often uses the word “true/truth” to affirm that ancient people could make descriptive statements that corresponded, not exhaustively but truly to actual reality; likewise scripture uses words like “know” to indicate that the ancients could know things sufficiently that corresponded to the reality around them.<sup>83</sup>

In fact, to turn the tables on Enns, it appears to be Enns who is allowing extra-biblical sources to define the nature of scriptural inspiration, since he affirms that the genre of Genesis is best defined as “myth.” And why does he define the genre of Genesis in this way? Because there is such a close conceptual similarity between the opening chapters of Genesis and Mesopotamian myth.<sup>84</sup> So do we let the mythical genre of the ANE stories determine the genre of Genesis or do we let Genesis itself determine its own genre and then go outside to the ANE environment to see how it is related to it and vice versa.<sup>85</sup> In the initial part of my review article, I contended that on its own, Genesis portrays itself as a historical genre (of course with interpretation interspersed, as is true with any ancient or modern history writing). Then as one attempts to see the relationship between this genre in Genesis and other ANE writings, there are at least five ways that one can perceive of such a relationship,<sup>86</sup> the last of which, unconsciously imbibed myth, favored by Enns, is the least probable. Among the

most viable suggestions are that Genesis alludes to ANE religious myth in order to conduct polemic against it or it reflects, along with the ANE myths, general revelatory truth or a common ancient tradition, both of which are only rightly interpreted by the divine scripture. Any of these perspectives could be applicable to understanding the example of cosmic temple symbolism discussed above. This is not forced harmonization nor special pleading but a reasonable evaluation of the evidence.

Interestingly, Enns makes the same mistake in starting points in his chapter on the use of the Old Testament in the New, where he affirms that one first must understand second temple Jewish hermeneutics and then one can only understand New Testament hermeneutics through the lens of early Judaism. As I argue elsewhere, Enns's approach must be turned on its head or radically altered: start first with examining the interpretative approach of Jesus and the apostles, and then study Judaism to see the relationship between the two or, at least, study the various sectors of Judaism and the NT, and then compare and contrast them.<sup>87</sup> Enns's typical approach appears to be to interpret special revelation by general revelation (e.g., extra-biblical tradition) rather than vice-versa. In other words, with regard to OT issues, he wants to "calibrate our genre discussions" by letting the ANE literature play a more dominant role than the biblical literature.<sup>88</sup>

Enns says that "some of our differences can be attributed to my [Enns] Reformed, specifically presuppositional, theological and epistemological starting point."<sup>89</sup> I doubt that this is helpful, since I cut my teeth early in my graduate studies on the presuppositional viewpoints of such

Reformed theologians as John Calvin, Abraham Kuyper, and Cornelius Van Til, and the biblical-theological approach of Geerhardus Vos, perspectives which I still hold.<sup>90</sup>

In relation also to the issue of inerrancy, Enns says I affirm that recognition of diversity in scripture is close to denial of inerrancy.<sup>91</sup> He says that I "seem to suggest that the choice is between 'complementary viewpoints' and 'irreconcilable perspectives,'" though he says it is "more complex" than this.<sup>92</sup> Actually what I say is that "his definition of 'diversity'" in the book "is not clear: does it refer to various but complementary viewpoints or to irreconcilable perspectives on a given topic?" His answer: it is a "more complex matter than this." In reality, much of what Enns discusses is not difficult to relate or "harmonize" (if I may use such a worn word), which Don Carson has well discussed in his review of Enns.<sup>93</sup> After reading Carson and Enns again, I think readers will discern a penchant in Enns to make "diverse molehills" into "irreconcilable hermeneutical mountains." Like Carson, I just do not see the problem in a number of "diverse" examples that Enns gives. Part of Enns's concern is excellent: let us not jump immediately to trying to "harmonize" before we have *fully* explored on the exegetical level each particular text of concern, seeing its role within its own literary and historical context. He is afraid that people with "inerrancy on their brain" will too quickly start trying to "harmonize." His caution in this respect is outstanding.

On the other hand, he does not appear to see a role for rigorous analysis of how the two "diverse" texts may relate (I have the same commendation yet criticism of Enns with respect to the Old Testament

in the New, which I have commented on elsewhere<sup>94</sup>). This is really part of the work of biblical theology, not merely a knee-jerk reaction by those preoccupied to solve scriptural problems. Enns himself says that a biblical-theological approach should be used in the face of the diversity, not so much to solve it but to recognize that such diversity (for example, in the case of the Law) “is not ultimate, but are steps along the way leading up to Christ . . . helping us to see that the Law is not meant to be an ultimate unchanging statement of God’s will but penultimate, awaiting the coming of Christ who . . . fulfills the law.”<sup>95</sup> This particular example with respect to the Law I find very interesting, though Enns would have to flesh it out more for it to be persuasive. Nevertheless, he has offered here an ultimate redemptive-historical rationale that actually does have great potential to resolve the problem of diversity, which Enns most of the time denies can be done. Indeed, I think it would be difficult to use this particular christocentric (or christotelic, as Enns prefers) rationale to understand other kinds of diversity that Enns sees throughout the Bible, since it is very vague how such diversity (e.g., diversity in historical parallel accounts, apparent mistakes in numbers, place names, etc.) relates to Christ’s eschatological coming, a critique also offered in Don Carson’s review.

But it is clear that Enns does see that, at least, some of what he discusses involves such radical diversity that it cannot be resolved according to “modern standards of rationality,” and we must leave such diversity to stand as it is. Now, in part, I agree that when “diversity” appears irresolvable on the literary or biblical-theological level, then we let it stand, and

we do not foist some precarious harmonization onto the text. What we philosophically label such “irresolvable diversity” will differ with the presuppositions of the individual interpreter: some will call it “error,” some “difficulty,” and some, like Enns, just “diversity,” since “error” for him is an anachronistic modern word that is inapplicable to ancient thought. My final assessment of Enns’s view of “diversity” in my review article has not changed, despite his further response:

Thus, Enns insists on the term “diversity,” since he opposes judging ancient writers by the modern standards of truth and error. Does Enns imbibe too much post-modern relativity about truth or has he been “chastened” properly, so that he has been affected by some of the strengths of post-modernism? Readers will make different judgments about this. For myself, I think he has been too influenced by some of the extremes of post-modern thought.<sup>96</sup>

Enns does not like my application of “postmodern” to his view, since he thinks it is “a loaded, emotive” term.<sup>97</sup> I do not mean it in any emotive sense, only in the sense that modern standards of rational thought are inapplicable to judging ancient expressions of thinking, a typical trait of even those who would refer to themselves as evangelical postmodernists and do not see it as a negative term.<sup>98</sup>

(5) Enns’s last major concern is with my evaluation of his incarnational analogy. In my review I questioned the validity of the way Enns uses this analogy with respect to understanding scripture as both a divine and a human word, since he was ambiguous about what parts of the analogy apply and which do not. He admits that, if he were writing the book again, he would be clearer about how the incarnational analogy applies to scripture: he

says he would elaborate on how just “as there is no sin in the God-man Jesus, so too there is no error in Scripture. The human situatedness and diverse nature of Scripture, then, are not to be understood as errors corresponding to some putative sin on Christ’s part, but rather as the condescension of God corresponding to Christ’s humanity.”<sup>99</sup>

Enns admits that the analogy is large enough to drive a hermeneutical truck through it, since he can see how some would use it to disallow “myth” in scripture, yet he believes that he can use it to see “that such culturally laden expressions” of myth “are what one would expect.”<sup>100</sup> Enns appeals to some wonderful quotations by Bavinck, Green, Warfield, and Gaffin on the incarnational analogy with scripture (with which I agree), but the question remains how to flesh out further what they say. It is in the attempt to flesh out that the disagreements arise. He tries to give concrete filling out of the details of his view: “does Genesis 1, bearing strong similarities to ANE myth, correspond to Jesus ‘sinning’ or to the fact that he had olive skin, wore leather sandals, and spoke Aramaic?’ I am of the latter opinion.”<sup>101</sup> But, this kind of alternative incarnational example does not get to the heart of the matter of Enns’s proposals. Enns wants to see that “myth” can be naturally though unconsciously woven into God’s revelation in its human situatedness. So the better incarnational question should be formulated in this manner, which I commented on in the review article:

Some evangelical theologians speculate that while the human Jesus was perfect morally, he was still imperfect in such things as mathematical computation or historical recollection (e.g., some say, could not

Jesus have made a “B” on his fifth grade math test? Or could he not have cut a board wrongly from the instructions of his human father?). On analogy with this conception of Jesus’ incarnation, scripture is God’s absolutely faithful word about morals and theology (e.g., the way to salvation) but not about minute points of history or scientific facts.<sup>102</sup>

So, to get more at the heart of the issue for Enns’s proposals, it would seem that his above question should have been reformulated as follows: “does Genesis 1, bearing strong similarities to ANE myth, correspond to Jesus unconsciously in his human nature accommodating himself to the mythical or non-historical traditions of Jewish culture,<sup>103</sup> which would not be moral sin, or does the Genesis 1 - ANE relationship correspond more to the fact that Jesus had olive skin, wore leather sandals, and spoke Aramaic?”<sup>104</sup>

Now, I wonder, which option Enns would choose with this new alternative. I posed the same question in my review article, but Enns has chosen not to address it, even though it is the most pertinent aspect of the incarnational paradigm that would seem to have most relevance for supporting his argument about myth. Of course, it would mean holding to a lower Christology than the church has dominantly held to throughout her existence. In my review article, I gave my critique of this kind of incarnational understanding. If Enns holds to an unconscious accommodation to myth by Old Testament writers and by Paul (e.g., recall his view of 1 Cor 10:4), then it would appear that he likely holds the same view about Jesus. This is pointed to further by recollecting that Enns explicitly affirms that Jesus’ use of the OT in the NT was a complete accommodation to Judaism’s uncontrolled and non-contextual use of the OT. Thus,

Jesus was not concerned with the original meaning of OT authors, and he read in meanings that had nothing to do with such original meaning.<sup>105</sup> Recall also that Enns later includes in “Second Temple techniques” that Jesus purportedly uses an interpretative method that involves the unconscious absorption of myth, though he discusses this aspect of Jewish exegesis only in relation to Paul (as in the case, e.g., of 1 Cor 10:4). Thus, my objection is not that the incarnational analogy cannot be validly used but that, if it is used, it must be carefully defined, which Enns still does not do in his response.

Enns concludes his response on this topic by saying that “the precise nature of this analogy . . . cannot and need not be worked out with the kind of precision he [Beale] seems to demand before the analogy can be used to benefit lay readers who confess by faith the mystery of the incarnation . . . .”<sup>106</sup> But this is an insufficient response, since the way he has defined the incarnational analogy is very general and, by his own admission, is susceptible of widely varying applications, so that, as it stands, it is not a very helpful model for trying to resolve the kinds of problems that Enns has set up throughout his book. To appeal to “the mystery of the incarnation” at this point would appear to be special pleading.

### Conclusion

Enns concludes his response by reflecting upon why there is so much controversy over his “little book, written in a popular style for a popular audience.” His answer: the controversy tells as much about “the reviewers themselves” and “the current state of evangelical thinking as it does the book itself.”<sup>107</sup> While this is an obviously very generally correct statement, it

is virtually a truism. Speaking for myself, part of the fuel that fired my motivation to write the review was to give lay people and students another perspective on the issues that Enns addresses, especially since I believe there are people who will be disturbed and have their faith *unnecessarily* unsettled by a writer who comes from what has been a very traditionally orthodox theological seminary, as Westminster Theological Seminary has been. Contrary to Enns’s view, I have written partly because I do not want lay people to have the impression that Enns has laid out all the relevant evidence on both sides of the debate and then to think that Enns’s conclusions, based on such selective evidence, are viable for evangelical faith.

The last sentences of Enns’s response are a plea not to perpetuate a “climate of fear, suspicion and posturing” that produces “a climate [that] does not honor Christ” (326). I completely agree, as long as this does not mean that vigorous critique of one another’s views is disallowed.

### ENDNOTES

<sup>1</sup>G. K. Beale, “Myth, History, and Inspiration: a Review Article of *Inspiration and Incarnation* by Peter Enns” *Journal of the Evangelical Theological Society* 49 (2006): 287-312.

<sup>2</sup>Peter Enns, “Response to G. K. Beale’s Review Article of *Inspiration and Incarnation*,” *Journal of the Evangelical Theological Society* 49 (2006): 313-26.

<sup>3</sup>I am also grateful to the editors of the “reformation21” online magazine for accepting this surrejoinder for publication.

<sup>4</sup>I have also reviewed the fourth chapter of Enns’s book, which concerns the use of the OT in the NT (see G. K. Beale, “Did Jesus and the Apostles Preach the Right

Doctrine from the Wrong Texts? Revisiting the Debate Seventeen Years Later in the Light of Peter Enns's Book, *Inspiration and Incarnation*," *Themelios* 32 (2006): 18-43; see also Enns's response to that review in the following issue of *Themelios* and my surrejoinder to that in the same following *Themelios* issue.

<sup>5</sup>Enns, "Response to G. K. Beale's Review," 313.

<sup>6</sup>Ibid., 313-14.

<sup>7</sup>Ibid., 314.

<sup>8</sup>Ibid.

<sup>9</sup>Ibid.

<sup>10</sup>Ibid., 315.

<sup>11</sup>Ibid.

<sup>12</sup>Note where Enns indicates his purpose in addressing a more popular audience in *Inspiration and Incarnation* (Grand Rapids: Baker, 2005), e.g., 13, 15, 168, though these statements do not exclude a scholarly audience.

<sup>13</sup>E.g., the publishers distributed complimentary copies to biblical scholars at the November 2005 Institute for Biblical Research meeting.

<sup>14</sup>Beale, "Review Article," 312. In addition to the reviews noted in my review article now see D. A. Carson, "Three More Books on the Bible: A Critical Review," *Trinity Journal* 27 NS (2006): 1-62; Paul Helm, review of Peter Enns, *Inspiration and Incarnation*, reformation21. Online: [http://www.reformation21.org/Life/Shelf\\_Life/Shelf\\_Life/181?vobId=2938&pm=434](http://www.reformation21.org/Life/Shelf_Life/Shelf_Life/181?vobId=2938&pm=434); and Susan Wise Bauer, "Messy Revelation," *Books and Culture* (May/June 2006), 8-9 (Available Online: <http://www.christianitytoday.com/bc/2006/003/3.8.html>). The

first two reviews are negative and the latter positive, though the latter is not written by a practicing exegete or theologian.

<sup>15</sup>Enns, "Response to G. K. Beale's Review," 314.

<sup>16</sup>Ibid.

<sup>17</sup>Beale, "Review Article," 311.

<sup>18</sup>See Beale, "Revisiting the Debate Seventeen Years Later," 18-43.

<sup>19</sup>Enns, "Response to G. K. Beale's Review," 314.

<sup>20</sup>Ibid.

<sup>21</sup>Ibid., 317.

<sup>22</sup>Beale, "Review Article," 297.

<sup>23</sup>Ibid., 287.

<sup>24</sup>Ibid., 293.

<sup>25</sup>Enns, "Response to G. K. Beale's Review," 318.

<sup>26</sup>Ibid.

<sup>27</sup>Beale, "Review Article," 289.

<sup>28</sup>Enns, *Inspiration and Incarnation*, 27.

<sup>29</sup>Ibid., 32.

<sup>30</sup>Ibid., 39.

<sup>31</sup>For my full discussion of this, see Beale, "Review Article," 293-95.

<sup>32</sup>Enns chaffs at my labeling of his position as "evolutionary," and says I should have been "more circumspect than to use such a visceral term," since evolutionary models are naturalistic and exclude divine "direction and involvement" (Enns, "Response to G. K. Beale's Review," 318). He says he is "working from a progressive-revelational model." Perhaps, he thinks the word is visceral, since it may evoke associations with the notion of, for example, biological evolution and its applications to the history of intellectual and social thought. But is it not well-known that there

are two dominant "evolutionary" models: an atheistic one and a theistic one, the latter in which God is involved and directing the evolutionary process? There are significant Christian scholars (some of whom even hold to inerrancy) who hold to the latter view. In fact, it is well-known among church historians that the great Princeton New Testament exegete, theologian, and scholar still greatly revered by both Westminster seminaries, B. B. Warfield, accommodated some qualified aspects of theistic evolution within his Calvinistic approach to scripture. For example, see B. B. Warfield's articles on "Creation, Evolution, and Mediate Creation," and "The Manner and Time of Man's Origin," in B. B. Warfield, *Evolution, Science, and Scripture: Selected Writings* (ed. M. A. Noll and D. N. Livingston; Grand Rapids: Baker, 2000), a collection of writings by Warfield that Enns even cites in his "Response" (313-314, n. 3; 318, n. 9). In this light, how in the world could Enns think that I meant the naturalistic, atheistic model of evolution, since he clearly espouses belief in God? I do not think that I needed to qualify the word, since Enns expresses such belief in God, and, thus, I do not think that reference to theistic evolution is "visceral" (especially since I do not refer to it as my own opinion but that others "would call it 'evolutionary'").

<sup>33</sup>Enns, "Response to G. K. Beale's Review," 318.

<sup>34</sup>Ibid., 319.

<sup>35</sup>Enns, *Inspiration and Incarnation*, 44.

- <sup>36</sup>Ibid.
- <sup>37</sup>See Beale, "Review Article," 290, 296
- <sup>38</sup>Ibid., 293.
- <sup>39</sup>Enns, "Response to G. K. Beale's Review," 317.
- <sup>40</sup>Peter Enns, "Exodus and the Problem of Historiography" (paper presented at the annual meeting of the Evangelical Theological Society, San Antonio, Texas, November 2004).
- <sup>41</sup>Enns, "Response to G. K. Beale's Review," 319.
- <sup>42</sup>Ibid.
- <sup>43</sup>Ibid.
- <sup>44</sup>E.g., see Beale, "Review Article," 293; for the full evidence, see 289-297 to which the reader should refer.
- <sup>45</sup>Enns, *Inspiration and Incarnation*, 43-44.
- <sup>46</sup>Ibid., 43.
- <sup>47</sup>Ibid., 50.
- <sup>48</sup>Ibid., 41.
- <sup>49</sup>Ibid, though the wording is part of a question in his book ("does this [Genesis's similarity to ANE myth] indicate that myth is the proper category for understanding Genesis?), in context, he answers the question positively.
- <sup>50</sup>Enns, "Response to G. K. Beale's Review," 320.
- <sup>51</sup>V. P. Long, *The Art of Biblical History* (Grand Rapids: Zondervan, 1994), 40.
- <sup>52</sup>Ibid., 45-46.
- <sup>53</sup>Ibid., 48.
- <sup>54</sup>Ibid., 44-45.
- <sup>55</sup>Ibid., 57.
- <sup>56</sup>Ibid., 43.
- <sup>57</sup>Ibid., 46.
- <sup>58</sup>Enns, *Inspiration and Incarnation*, 55.
- <sup>59</sup>See Walton, "Ancient Near Eastern Background Studies," in *Dictionary for Theological Interpretation of the Bible* (ed. Kevin J. Vanhoozer; Grand Rapids: Baker, 2005), 43, who repudiates such unconscious absorption and use of myth in the Old Testament, while still affirming that "God's communication used the established literary genres of the ancient world and often conformed to the rules that existed within those genres" (41).
- <sup>60</sup>Enns, "Response to G. K. Beale's Review," 319-320.
- <sup>61</sup>J. H. Walton, *Genesis* (NIV Application Commentary; Grand Rapids: Zondervan, 2001), 84, though see the entire section of pp. 65-159.
- <sup>62</sup>Ibid., 147-152; though, while this is a literal depiction, the time scope may be difficult to pin down. Also, the cosmos is defined as the literal macrocosmic temple, of which small ANE and Israel's architectural temples were microcosmic models.
- <sup>63</sup>Beale, "Review Article," 296.
- <sup>64</sup>See *ibid.*, 297.
- <sup>65</sup>For elaboration of this, see my "Revisiting the Debate Seventeen Years Later" and my "Surrejoinder to Peter Enns" in a subsequent issue of *Themelios*.
- <sup>66</sup>For a convenient summary of this aspect and problem of Von Rad's theology, see W. Eichrodt, *Theology of the Old Testament 1* (Philadelphia: Westminster Press, 1961), 512-20.
- <sup>67</sup>Enns, "Response to G. K. Beale's Review," 320.
- <sup>68</sup>Enns, *Inspiration and Incarnation*, 40.
- <sup>69</sup>Ibid., 41.
- <sup>70</sup>Ibid., 55.
- <sup>71</sup>Note his above quotation from *ibid.*, 41.
- <sup>72</sup>Ibid., 40.
- <sup>73</sup>Ibid., 54.
- <sup>74</sup>D. A. Carson, "A Critical Review," 34-35.
- <sup>75</sup>On which see G. K. Beale, *The Temple and the Church's Mission* (Leicester: IVP, 2004), 29-80.
- <sup>76</sup>On which see *ibid.* 29-80.
- <sup>77</sup>On which see *ibid.*, 81-167.
- <sup>78</sup>For my explanation of the relationship, see *ibid.*, 29-167.
- <sup>79</sup>As, e.g., that depicted in A. P. Dickin's chart in Enns, *Inspiration and Incarnation*, 54.
- <sup>80</sup>Beale, "Review Article," 301.
- <sup>81</sup>Enns, "Response to G. K. Beale's Review," 321.
- <sup>82</sup>Quoting in part J. D. Woodbridge, *Biblical Authority: A Critique of the Rogers/McKim Proposal* (Grand Rapids: Zondervan, 1982), 163.
- <sup>83</sup>See D. A. Carson, *Becoming Conversant with the Emerging Church* (Grand Rapids: Zondervan, 2005), 188-200; see also A. C. Thiselton, *The Two Horizons: New Testament Hermeneutics and Philosophical Description* (Grand Rapids: Eerdmans, 1980), 411: "In Greek literature and in the Old and New Testaments there are abundant examples of uses of the word 'truth' in which the point at issue is correspondence with the facts of the matter."
- <sup>84</sup>Enns, *Inspiration and Incarnation*, 55; so also p. 41: "the biblical stories are similar enough to invite comparison" with the category of ANE myth.
- <sup>85</sup>Interestingly, in contrast to Enns's approach, C. Van Til's presuppositionalist perspective, the most well-

known apologist of the Westminster Seminary tradition, of which Enns identifies himself, starts first with Scripture and judges all things by Scripture.

<sup>86</sup>On which see Beale, "Review Article," 289-90.

<sup>87</sup>For my fuller argument in this respect, see my "Revisiting the Debate Seventeen Years Later;" and my "Surrejoinder to Peter Enns" in a forthcoming issue of *Themelios*.

<sup>88</sup>Note Enns, "Response to G. K. Beale's Review," 320, n. 14, where he uses this language to pose the question of how to determine genre, a question that he answers in his book and in his "Response" that I lay out above.

<sup>89</sup>*Ibid.*, 315, n. 6.

<sup>90</sup>It may be true that our differences are due to presuppositional perspectives, but, if so, it may be because Enns and I interpret the presuppositional approaches of old Princeton and old Westminster differently. I am sure, however, that we could not get to the bottom of this particular disagreement without some in-depth face-to-face discussion and debate.

<sup>91</sup>Enns, "Response to G. K. Beale's Review," 323.

<sup>92</sup>*Ibid.*, 322.

<sup>93</sup>Carson, "A Critical Review," 37-40.

<sup>94</sup>See my above cited *Themelios* article, "Revisiting the Debate Seventeen Years Later," and, in a forthcoming issue of the same journal, Enns's response, and my surrejoinder.

<sup>95</sup>Enns, "Response to G. K. Beale's Review," 322.

<sup>96</sup>Beale, "Review Article," 303.

<sup>97</sup>Enns, "Response to G. K. Beale's

Review," 317.

<sup>98</sup>Enns says that I employ "at times heavy rhetoric" (*ibid.*, 317), but I would like to see more examples of what he considers such "heavy rhetoric."

<sup>99</sup>*Ibid.*, 323.

<sup>100</sup>*Ibid.*

<sup>101</sup>*Ibid.*

<sup>102</sup>Beale, "Review Article," 299.

<sup>103</sup>Which some moderate evangelicals would say, e.g., was that Adam was a real figure in history or that there really was a flood in Noah's day or that the prophet Isaiah wrote the entire book of Isaiah or that Moses was the author of the Pentateuch, etc.

<sup>104</sup>Enns, "Response to G. K. Beale's Review," 324.

<sup>105</sup>Enns, *Inspiraton and Incarnation*, 114-115, 132.

<sup>106</sup>Enns, "Response to G. K. Beale's Review," 324.

<sup>107</sup>*Ibid.*, 326.



# The Copenhagen Interpretation of Quantum Mechanics: An Introduction and Worldview Assessment

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By the science of physics we discern something of the powerful logic that stands behind the world. In tracing the ominous sweep of faraway giants in the dark of space, in following the mechanics of nutrient transport in the human circulatory system, in setting man's feet on the surface of that lesser of two great lights, the moon—in these and countless other exercises we are not eyeing cold trivia about our world; we are learning yet again something of He who stands back of it all.

Physics does not yield a full-blown theology, but by its light we see evidence of a God of order, consistency, and deeply powerful intellect. Physicists believed this once. From Newton's ascendancy to the dawn of twentieth century, most scientists held some form of Christian belief. They also assumed it would be possible to describe all physical entities by Newtonian physics. On this assumption, tracing the activities of any inanimate object should be as simple as obtaining values for position, momentum, and trajectory, and then projecting outcomes by Newton's laws. Underlying this are presuppositions that the world is rational in structure and operation and that the scientific investigator is a mere observer rather than a participant in the experimental results he obtains.

Confidence in classical mechanics was so pervasive that some believed an omni-

scient intelligence could know the future exhaustively if it could grasp perfectly in an instant all the forces, components, and relations that compose the natural realm.<sup>1</sup> But foretelling the future based on physics was never more than fairy tale. The fact is humans are not omniscient and everyday mechanical systems can exhibit chaotic behavior.<sup>2</sup> Thus, mechanical determinism is an ideal that is inapplicable to any system. Nevertheless, the inability of Newtonian mechanics to eliminate chaotic elements is more a result of the investigator's *limited knowledge* of relevant factors than genuine irregularity in the natural order.<sup>3</sup> This is an important distinction from the tendency among physicists who adhere to the Copenhagen interpretation (CI) of quantum mechanics (QM) to attribute quantum chaos not to investigative incapacities but to the very nature of quantum entities. In summary, though determinism based on Newtonian mechanics is impractical, it nevertheless remains the case that, *in principle*, the Newtonian outlook sets up an expectation that future states of a mechanical system can be predicted by accounting for all present variables. Order begets order in a mechanistic universe.

Given the success of the Newtonian program, scientists operating up to the dawn of the twentieth century expected that even the microphysical world would prove to be orderly. The realization that it

is not jolted physicists out of a centuries-long habit of mind, and the result has been an “outrage” that has not abated in a century of years.<sup>4</sup>

## Introduction to Quantum Mechanics

“Quantum” refers to the smallest units into which a thing can be divided. In QM, it refers to the tiny packets of energy by which atomic exchanges occur. Atoms do not trade energy in regular portions; rather, they absorb and emit energy fitfully. For example, an atom may retain its entire quantity of energy for an indeterminate amount of time and then discharge in an unpredictable exothermic flurry a quanta of that energy. This irregularity evokes a host of questions, chief of which is: are quantum entities lawless? Experts are divided over whether or not this question has been answered.

### *The Problem of Light*

The odd manner in which atoms manage energy is but one of the quantum anomalies which seem to belie Newtonian expectations about an orderly, rational world. Consider light. Is it made of waves or particles? Particles are site-specific. If a particle happens to be resting on the tip of your nose just now, it cannot presently be found anywhere else in the universe. A wave, on the other hand, has *spread*. It can be here, there, and all around.

Scientists wishing to determine whether photons are particulate or wave-like run into a difficulty, however, for experiments seem to indicate that photons can behave as *either particles or waves depending on what kind of measurement the scientist conducts*.<sup>5</sup> Experiments also imply that photons “decide” how to behave based on the destinations of photons that precede

them and follow them through the testing apparatus. In other words, it appears that a certain “peer influence” is afoot, as if photons dialogue with one another across time and distance, take note of the experimental machinery arrayed around them, and then *decide* whether to be particles or waves. This uncanny behavior leads to an obvious problem for the experimenter. While the act of measuring macroscopic systems changes the native state only negligibly (for instance, measuring wind speed slows the wind only insignificantly), many theorists believe measuring a quantum system actually makes it what it is! It is as if the scientist is more “creator” than “explorer.” Hunt for a particle, and a particle you find. Seek a wave, and it is there in place of the particle. Search for the quantum reality that exists apart from your biasing the situation, and you will find yourself shutting down your machinery on your way out the door.

### *Quantum Probabilities*

Physicists use “wavefunction” as a catch-all term that signifies that all we can know about a quantum system are probabilities about things like position, momentum, and energy.<sup>6</sup> Thus, whereas Newtonian mechanics aimed at precise description of entity and event, QM settles for probabilistic descriptors of both. What a quantum entity happens to be and do is at best *statistically* described. For instance, if an experimenter isolates a radioactive atom, he can be confident that it is set to decay at some future time. However, he does well to go on with her daily activities, for the exact time of the impending decay event is unknown. He may predict it broadly as a function of probability, but never narrowly as a function of regular mechanistic process. Newton and his

mechanics, it seems, are detained at the door to the quantum domain.

### *Non-locality*

In classical physics, cause-and-effect is a local phenomenon. If billiard ball D suddenly darts across the billiard bed and lands inside a pocket, the sensible physicist will look for an immediate *local* cause for D's sudden change of momentum. Has either the cue or the cue ball struck it? Anyone suggesting that a cue ball on a *nearby* table sent D racing would rightly be dismissed from the discussion.

Not so in quantum billiards. After seventy years of trying to dispel it, genuine non-locality seems to be a settled fact of quantum reality. Quantum particles that share a common past may carry on affecting one another even in the event that they become too widely separated to allow for any form of contact action or physical communication.

### *The Current State of Quantum Mechanics*

Despite its anomalies, quantum theory (QT) is one of the most successful science theories in history, leading to many technological advancements.<sup>7</sup> If it works, it must be right. Right? *Maybe not*. The fact is physicists are in the dark about the meaning of QM.

Nobody understands quantum mechanics. So do not take the lecture too seriously . . . just relax and enjoy it. I am going to tell you what nature behaves like. If you will simply admit that maybe she does behave like this, you will find her a delightful, entrancing thing. Do not keep saying to yourself, if you can possibly avoid it, "But how can it be like that?" because you will get "down the drain", into a blind alley from which nobody has yet escaped.<sup>8</sup>

This advice, a veritable charter statement for the CI, amounts to the following: Give up trying to conceptualize QM. Live with the paradoxes, celebrate them even, but forego the search for rationality.

### *Formalism and Interpretation*

How can QT be fruitful and yet mysterious? The answer lies in the distinction between formalism and interpretation. The formalism is "a set of equations and a set of calculational rules for making predictions," while the interpretation offers ontological explanations for the observed phenomena.<sup>9</sup> One is about math; the other about meaning.

In QT, it is the *interpretation* that is mysterious. Since the formalism is all one needs to conduct experiments, most practicing physicists use the formalism and entirely ignore the controversy over interpretation. Since a key difference between the CI and alternative views is the question of whether or not quantum indeterminacy is a reflection of nature itself or just current conceptual and investigative limitations, the tendency for physicists to practice QM in disregard to its interpretation means physics has gotten on quite well without solving a vital ontological question: have we or have we not found genuine acausality in the physical world? Where one comes down on this question is not dictated by the formalism or the empirical results obtained in the laboratory. Rather, the decision is decided on one's personal philosophical convictions.<sup>10</sup> Thus, it is no surprise that most physicists regard the interpretation of QT as baggage that is best left curbside, for scientific fact is far more relevant than philosophical opinion when one is in the hunt for a research grant. Nevertheless, when pressed to choose an interpretation,

physicists typically cite the CI. In so doing they are only repeating the line that was fed to them in college. That the interpretation seems irrelevant the moment physicists step into the laboratory leads to a sort of hardening of the common position by sheer indifference. Physicists learned the CI in school, noted that virtually everyone accepted it, accepted it themselves as a matter of expedience, came to question the value of debating interpretive issues, and hence never bothered to question what they had dutifully accepted by rite of tradition. Copenhagen reigns among physicists partly because it just does not seem to *matter*. Add to this the fact that postmodernism champions certain of the elements vital to the CI, and everyday physicists must think things are getting on quite well without introducing needless dispute into the equation.

### **Introduction to the Copenhagen Interpretation (CI)**

The CI takes its name from Niels Bohr's hometown where he and physicists such as Werner Heisenberg and Wolfgang Pauli collaborated to provide an *interpretation* for QT. A sample of core components of the CI includes the following: (1) the QT, as developed by 1930, is as complete a description of QM as is possible, which entails, (2) that indeterminism is genuinely a characteristic of quantum events and not merely a reflection of current theoretical and investigative limitations, (3) that quantum acausality is one consequence of this indeterminacy, (4) that wave-particle duality is a complete description of quantum reality, such that wave and particle characteristics are said to be "complementary," which on Bohr's terms means quantum nature is paradoxical, and (5) that quantum systems remain

indeterminate (no real values) until they are measured.<sup>11</sup>

The goal of this article is to show that the CI is not suitable for use in Christian theological formulation or apologetic engagement. There are two main reasons this is so.

First, the CI is not the assured deliverance of science. The CI is in fact more a product of a post-WWI German philosophical bent that overthrew mechanistic conceptions in favor of irrationalist viewpoints. As these tastes have been sustained for nearly a century now, popularized and ensconced by postmodernism, the CI has continued to dominate QT in part because of its fitness with regnant worldview themes. In this light, the CI is vulnerable to the essential inevitability of a future worldview exchange. When irrationalist inclinations pass from the scene, the CI may seem to have been little more than a faddish piece of philosophical world-making. Hence, to legitimize the CI by grafting it into theological and apologetic endeavors is to risk having the legitimacy of said endeavors carted away when scientific fashion shifts away from Copenhagen. Furthermore, the CI is not the assured deliverance of science because at least one alternative theory rings in as empirically equivalent to Copenhagen while retaining somewhat more classical assumptions about rationality and causality.<sup>12</sup>

Second, aspects of the CI are in conflict with Christian belief. In particular, belief that the world is rationally structured and is reflective of God's own rationality is swept away by Copenhagen irrationality. A longstanding tradition in theology indicates that the concepts of God's purposive, rational creation of the universe and his bestowal of his image on humanity has

significant epistemological implications in the following way: the world is a creation of a rational God, reflects God's rationality in its structure and operations, and is in principle knowable by humans because the *imago dei* vouchsafes that our minds are capable of receiving true information about the world God made.<sup>13</sup> Furthermore, CI's principle of complementarity opens the possibility of accepting contradictories as varying parts of a holistic system. This supports worldviews that emphasize irrationality and deny realist conceptions of truth and world. As Christianity makes decisive claims about the existence of absolute truth, the impossibility of simultaneously instantiating contradictories, and the reality of the physical world, the principle of complementarity is in tension with the Christian worldview.

### **A Deeper Look at the CI *Indeterminism***

The CI maintains that indeterminism is a reflection of genuine acausality on the microphysical level. Hence, there is no hidden (currently unknown) causal system embedded in QM that awaits discovery.<sup>14</sup> Quantum non-locality is offered as one of the proofs for this acausality. The logic is as follows: if two particles can affect one another instantaneously even though they are separated by a distance too great to be spanned spontaneously by any conceivable physical means, all hope of identifying causal factors is lost. Another argument for acausality stems from the surprising role the scientist plays in quantum measurements. If a scientist cannot describe the autonomous operations of a quantum system because her very measurements have produced the effect measured, causality has passed beyond our purview.<sup>15</sup> Thus, repudiation

of causality is said to be the non-negotiable first step if progress is to be had in QM.<sup>16</sup>

### ***Complementarity***

By "complementarity" Bohr means "contradictariness," a reversal of the term's typical usage.<sup>17</sup> Bohr was not consistent in explaining all the entailments of complementarity, but Heisenberg explains that complementarity means the scientist must hold simultaneously two contradictory concepts for quantum entities: wave and particle.<sup>18</sup> Bohr took this as a justification for recasting rationality in terms that allow one to accept contradictory options simultaneously without committing logical fallacy.<sup>19</sup> Thus, while waves and particles are contradictory things, Bohr accepts both as proper and final descriptors of quantum reality. This view is unacceptable on any realist construal of science because it prohibits an intelligible conception of quantum nature.<sup>20</sup>

True to his physics, Bohr placed the Yin-Yang symbol on his coat of arms for the Danish Order of the Elephant and stenciled "Opposites are Complements" above it. For Bohr, QM justified Eastern concepts of reality. And not surprisingly, he applied complementarity to issues outside physics. For instance, he believed that "whenever you come with a definite statement about anything you are betraying complementarity."<sup>21</sup> Furthermore, he expected that "the quantum revolution would ultimately lead to a general complementaristic philosophy of empirical knowledge."<sup>22</sup> That is quite an ambitious statement, especially since it would overturn many fundamental beliefs about the world. In particular, complementarity undermines a key presupposition of science: that nature can be understood,

explained, and modeled rationally.

This premise has been the foundation of the scientific pursuit for over twenty-five centuries. . . . Bohr's framework of complementarity, however, is an explicit rejection of Thales' implicit claim [that nature can properly be explained and modeled rationally].<sup>23</sup>

### ***The Measurement Problem***

As defined by the CI, the measurement problem means acts of measurement do not provide physicists with information about the preexistent status of quantum systems; rather, acts of measurement force fundamentally indeterminate quantum systems to "develop" certain qualities. While it is debatable whether or not Bohr took this to mean that quantum systems do not exist prior to being observed, significant interpreters in his tradition insist that he meant exactly that. Roger Penrose, for instance, says that on Bohr's view there is no quantum reality apart from measurement. "Nothing is actually 'out there' at the quantum level. Somehow, reality emerges only in relation to the results of 'measurements.'"<sup>24</sup>

According to David Lindley, the only way to avoid these implications is to refute the CI and deny that indeterminacy is a real feature of QM.<sup>25</sup> Einstein and Erwin Schrödinger set out to do this very thing by proposing thought-experiments that aimed to show the absurdity of the CI.<sup>26</sup>

### ***Erwin Schrödinger's Cat***

In 1935, Erwin Schrödinger set out to win the physics world back to Newtonian sanity by discussing a hypothetical scenario involving atomic radiation and a housecat. He aimed to confront the Copenhagen contention that a quantum system is in superposition (has no definitive values) until it is measured.

The puzzle depends on setting up a system where there is a precise fifty-fifty chance of a particular quantum event—such as the decay of a radioactive nucleus—occurring. The conventional wisdom [i.e., the Copenhagen interpretation] in quantum mechanics says that the nucleus exists in a superposition of states, half decayed and half not decayed, unless its state is measured. Only at that point does it decide which state it is in. Schrödinger pointed out that the radioactive substance could be sealed in a windowless steel chamber . . . with a [Geiger counter] to monitor it. The detector is wired up to release a cloud of poison gas into the chamber if the radioactive material decays, and living in the chamber there is the famous cat. If the chamber is sealed and nobody looks into it, then when the radioactive nucleus is in a fifty-fifty superposition of states, according to the strict Copenhagen interpretation the Geiger counter, the poison gas and the cat are all in a superposition of states. The radioactive material both has and has not decayed, and the poison gas both has and has not been released, and the cat both has and has not been killed. . . . [Assuming] the Copenhagen interpretation is correct, everything remains in limbo until an intelligent observer looks into the chamber. At that point, the superposition collapses and the cat becomes either dead or alive.<sup>27</sup>

Naturally, no one has performed this experiment. Seemingly it is enough just to mull the hypothetical scenario and grasp its absurdity. Schrödinger was sure this would spell the end of Copenhagen excesses, but amazingly the cat paradox is regularly celebrated as a "strange-but-true" signal of just how odd the quantum world really is.

### ***The EPR Experiment***

While the physics crowd went after quantum oddities, Einstein stubbornly beat the old-world drum trying to call

everyone back to local causality. In so doing he digressed from quantum progenitor to QT's "deadbeat dad."<sup>28</sup> Einstein's fall-out with QT began when he shifted from positivism to thoroughgoing realism, emphasizing causality and observer-independence. In 1935 he took the battle to the heart of the CI by producing a thought-experiment known as EPR. EPR maintains that "every element of the physical reality must have a counterpart in the physical theory."<sup>29</sup> Hence, a theory is *incomplete* if some aspect of the reality it seeks to describe is left unmentioned. Furthermore, EPR assumes that the ability to formulate predictions of a quantum system indicates that some underlying physical reality exists and determines outcomes. An adequate theory will account for that reality. The CI does not. EPR sets up a hypothetical situation in which two quantum particles come into contact with one another in a vacuum tube, form a quantum system, and are then disjoined and shuttled off in opposite directions. Once they are separated by a distance too great to allow the particles to spontaneously communicate, the particles are measured for variables such as spin or momentum. The upshot is that Einstein hoped to show that the particles will display values that indicate they had "real values" before they were measured and that these values reflect values they had when they previously formed a quantum system—such that the law of conservation holds for QM. This would counter the CI's contentions that quantum particles have no real values until they are measured and that the act of measuring one particle spontaneously forces its faraway counterpart to change its values so as to maintain anti-correlation with the measured particle.

For Einstein, non-local causality was "spooky action-at-a-distance," a plot apropos for ghost stories, not physics. EPR's argument that QT itself is incomplete hinges on the impossibility of such anomalous action. The only other option is to accept the absurdities of non-locality and observer-created reality as true facts of the universe. Predictably, the Copenhagen theorists embraced these absurdities, thus neutralizing the albatross Einstein had crafted for them. Commentators typically agree that EPR failed to accomplish its purpose.<sup>30</sup> Nevertheless, Bohr's rebuttal of EPR is unsubstantial and boils down to an appeal from positivism.<sup>31</sup> That his response was so highly touted indicates something of the popularity to which the positivist framework had risen by the 1930s.

### *Putting EPR to the Test*

Most physicists sided with Bohr against EPR, but so long as EPR was merely hypothetical the matter could not be settled by laboratory trial. John Bell elucidated the first steps toward rectifying this shortfall by developing an experiment that made it practical to test Copenhagen's non-locality claim.<sup>32</sup> Bell held out hope of vindicating EPR, but when the tests were conducted the CI's insistence on genuine non-locality in QM was by all appearances justified. In 1981-82 a team of physicists found strong evidence for quantum non-locality.<sup>33</sup> By 1997, tests showed that entangled particles separated by eleven kilometers retain their causal linkage, as if they were immediately present to one another. This is like bruising your brother's arm while you sit on a sofa across town from where he sits.

Might locality be recovered in future experiments? Most theorists doubt it.

While one cannot help but feel the weight of current evidence, I suggest it is reasonable to hope that non-locality will someday be revised or supplemented in such a way as to lessen the present difficulty. As Wesley Salmon has said, “I do have a profound sense that *something* that has not been explained needs to be explained.”<sup>34</sup> The history of science supports this reticence. Scientists have long taken the appearance of distant action to be a sign that some variety of local causal agency exists but is *presently unknown*.

### ***Classical Language and Completeness***

Another key aspect of the CI is the insistence that though classical concepts are inapplicable in microphysics, classical language must be retained when describing quantum phenomena.<sup>35</sup> This serves to heighten the sense of paradox in quantum theory, as when Copenhagen theorists retain terms like “particle” and “wave” to describe quantum systems that fit neither bill in any cognizable sense. This practice runs counter to the realist desire to rule out paradox by incorporating new terms/concepts for discoveries that cannot properly be encompassed by traditional terminology. For instance, some theorists favor ditching the Copenhagen paradox regarding wave-particle duality by saying quantum entities are something like “waves and particles” in a way that is not genuinely paradoxical, though we cannot now see clearly enough to say how this is so.<sup>36</sup> The realist insists that it is our inchoate understanding rather than nature itself that gives rise to paradox in QT.

The chief result of the claim that QT is complete is that the search for “hidden variables” is useless. Hidden variables

are variables that are “hidden” from us because we *currently* have no empirical proof for their existence. On the realist view, there must surely be hidden variables operative in QM—factors that, if we knew them, could explain away the appearance of such things as acausality and non-locality. In essence, then, he who appeals to hidden variables to escape such paradoxes is making that claim that QT is *incomplete*. This is the contention of all alternatives to the CI.

### ***Irrationality***

Finally, the Copenhagen emphases on indeterminacy, acausality, and observer-created reality forge an irrational concept of nature. K. V. Laurikainen backs this claim and indicates how the CI relates to traditional Western presuppositions.

The conception of reality underlying the Copenhagen Interpretation is still a problem. The reason for this is the *repression of the irrational* characteristic of Western thought. Wolfgang Pauli was the most radical but also the most consistent among the founding fathers of quantum theory. His conception of reality opens up a new perspective for science: a view into an *irrational world*.<sup>37</sup>

In other words, if the Christian West could just get over its fixation on thinking the world is rational the CI would *not* be difficult to embrace.

### ***Worldview Applications of the CI***

Since 1927 the CI has been the only sanctioned interpretation of QM. It is the view of the textbooks, the position espoused in the lecture halls, and the interpretation parsed in the journals. To the extent that the CI is thought to describe truth about the physical universe it is fitting that attentive persons would make applications in fields outside physics.

### *Philosophy of Science*

The conflict between the CI and alternative interpretations is a component of the larger debate between realists and anti-realists, and anti-realists regularly cite Bohr's supposedly definitive refutation of EPR as evidence that anti-realism has carried the day.<sup>38</sup> Bohr himself might have been pleased with this outcome, for it is certainly possible to read him as an anti-realist.<sup>39</sup> In fact, anti-realism has been the predominant position of Copenhagen theorists from the beginning.<sup>40</sup>

The anti-realism circulating among quantum physicists has spread to philosophers such as Hilary Putnam, who gave up robust realism in response to QT.<sup>41</sup> Norris concludes that the CI puts a Kantian spin on anti-realism because it reverses the realist priority between ontology and epistemology by taking epistemological problems in QT to be a reflection of a sort of "noumenal" ontology.<sup>42</sup> Arkady Plotnitski agrees, accepts the CI, and concludes that it implies the end of all realism, "mathematical, physical, or other."<sup>43</sup>

The CI also fits well with positivism. After all, in some renditions the CI refuses to grant the reality of quantum systems that are not under observation, and in *all* renderings it denies that unobserved quantum systems possess real values. It is not hard to guess what impact this has on metaphysics. Richard Kitchener says the CI reduces to the assertion that there is no reality behind quantum phenomena.<sup>44</sup> Hence, the only metaphysics possible according to the strictures of the CI is a metaphysics of experience alone, which Kitchener identifies with "process philosophers, pragmatists, phenomenologists, ordinary language philosophers, positivists, phenomen-

ists, instrumentalists, contextualists, and so on."<sup>45</sup> Hence, the CI ultimately leads to metaphysical pluralism. "Since quantum physics makes no assertions about what is *ultimately real*, it cannot be in conflict with one's metaphysics."<sup>46</sup> Kitchener's argument depends on Kantian elements in the CI. The "real" is shoved into a noumenal caste and so in this sense room is made for "faith" in whatever metaphysical system you choose. Metaphysical pluralism is possible because metaphysical certainty is *impossible*.

### *Truth and Reason*

Danah Zohar says the complementarity doctrine signals the invalidity of either/or thinking. "We have to learn to get beyond apparent contradictions."<sup>47</sup> She also highlights analogies between QM and the search for religious truth and concludes that all truths are only "partial expressions of a 'higher' or a 'deeper,' and ultimately inexpressible, truth."<sup>48</sup> Making public this *truth about truth* might solve many of the world's problems, says Zohar. "It is because we have remained under the spell of monotheism, or the belief in one, simple, singular truth, that the history of the West is a history of intolerance and bloodshed, a history of crusades and holy wars, of inquisitions, of guillotines, pogrom and holocaust."<sup>49</sup>

It is tempting to suppose that Zohar is extending the CI beyond the intentions of its founders, but this may be mistaken. Max Born says, "ideas such as absolute certainty, absolute precision, final truth, etc. are phantoms which should be excluded from science."<sup>50</sup> That he believes the loss of absolute truth should extend beyond the claims of strict science is made obvious by the following elaboration. "This loosening of the rules of thinking seems to me

the greatest blessing which modern science has given us. For the belief that there is only one truth and that oneself is in possession of it, seems to me the deepest root of all that is evil in the world."<sup>51</sup>

Born holds that QM has gifted the world with a mandate for greater epistemic humility, but relativism is the actual result if "the belief that there is only one truth" on a given matter is ruled out completely.

### *Cosmology*

Science has compiled impressive evidence for a finite universe. Cosmologists were initially reluctant to concede this because much scientific and philosophic capital had been invested in models that would not admit that the universe had a beginning or Beginner. Today, the proof that the universe must be explained by some version of the Big Bang model is "impressive almost to the point of hubris."<sup>52</sup> In this light, one might expect that theistic conclusions regarding ultimate origins are inevitable, but in fact a case for an atheistic universe supposedly remains an option for adherents to the CI. QM comes into play in models for the universe's origin because early in the universe's expansion quantum particles were crowded together closely enough that quantum effects were significant. Elements of the CI are said to bear on this in several ways, but we shall discuss only two of them.

John Wheeler says quantum phenomena are not true phenomena until they are observed.<sup>53</sup> The importance of the "act of detection" is even

more important in light of Wheeler's delayed-choice experiments, which many physicists believe demonstrate that acts of measurement decide the near-past reality of quantum entities.<sup>54</sup> Extending his theory into cosmological origins, Wheeler says that though his delayed-choice experiments involve only a fraction of a microsecond's delay, in principle the delay may as well have been billions of years. From this Wheeler moves to a radical conclusion: we create the past by measuring it. "Useful as it is under everyday circumstances to say that the world exists 'out there' independent of us, that view can no longer be upheld. There is a strange sense in which this is a participatory universe."<sup>55</sup>

Wheeler brings this speculation to a crescendo when he asks if "Big Bang" might be a shorthand way of describing what billions of "elementary acts of observer-participancy" have brought about as they reach into the past.<sup>56</sup> The implication is that we created the universe by observing it. It is only by virtue of the popularity of the CI that he can present this as a piece of science rather than particularly imaginative science *fiction*.

Taking a tack that relies more on the supposed acausality of QM, P. W. Atkins says, "In the beginning there was nothing. Absolute void, not merely empty space." Then came the natural "miracle" of creation. "By chance there was a fluctuation, and a set of points, emerging from nothing and taking their existence from the pattern they formed, defined a time."<sup>57</sup>

Quentin Smith echoes this by claiming that QM shows that "many particles" simply pop into existence without a cause.<sup>58</sup> Smith even argues that in light of QM, "it is highly probable that a Universe with our characteristics will come

into existence without a cause.”<sup>59</sup> Smith’s case hinges on the appeal to acausality as supplied by the CI. He thinks one result is the ability to get particles for free—the naturalistic origin of material micro-reality. There are several difficulties with Smith’s proposal. The chief of them is this: the virtual particles he claims arise due to violations of conservation are not created *ex nihilo*, but in fact represent a transition from *existing* energy to matter.<sup>60</sup>

On the quantum fluctuation hypothesis, the universe will only come into being if there exists an exactly balanced array of fundamental forces, an exactly specified probability of particular fluctuations occurring in this array, and an existent space-time in which fluctuations can occur. This is a very complex and finely tuned ‘nothing’!<sup>61</sup>

Hence, the claim nature produces quantum particles out of thin air involves a bit of scientific smoke-and-mirror.

### ***Holism and Panpsychism***

All material objects are made of quantum particles. This leads some to claim that QM applies to *everything* and that quantum entanglement (where quantum particles affect one another even if widely separated) applies to the entire universe. This engenders holistic conceptions of nature and in fact Bohr himself thought the CI implied holism. Indeed, holism and process philosophies are the only metaphysics that are compatible with the new physics.<sup>62</sup> Pauli would agree, for he treated matter and psyche as a holism.<sup>63</sup> This holism is connected with his “emphasis on the *irrationality* of reality and the essential *role of the unconscious* when forming a picture of the world.”<sup>64</sup> Menas Kafatos and Robert Nadeau believe quantum holism implies that “human consciousness participates in the life of

the cosmos” in causative ways.<sup>65</sup> On this basis they reject the Judeo-Christian belief that human minds participate in the mind of God and are capable of interpreting in ordinary language and concepts a natural world created as “a transcript of the willful and directed purpose of Jehovah.”<sup>66</sup> It seems that a basic panpsychism is shaping up here: the view that mind and matter are distinct elements of reality that *cannot exist apart from one another*, an implication of which is that all events are both material and mental.<sup>67</sup>

There is at least one definitive scientific reason to deny that quantum entanglement justifies holistic or panpsychical entailments. While experiments carried out in highly controlled conditions keep entangled particles from being interfered with by other objects, in real life any two entangled particles will at every instant be jostled by countless other particles. The net effect of this real-world interference is that entanglement between any two particles is fleeting and soon becomes non-existent.<sup>68</sup>

### ***Eastern Parallels***

Fritjof Capra claims QM *forces* us to see the world from an Eastern perspective.<sup>69</sup> Gary Zukav says the CI has initiated a “monumental reunion” between rational and irrational aspects of our psyches.<sup>70</sup> While Capra and Zukav are unreasonably bold, in reality they are building on a line of implication laid down by Bohr himself, who said atomic theory parallels the epistemologies of Buddha and Lao Tzu.<sup>71</sup> Those parallels include emphasis on irrationality as a genuine characteristic of reality. The CI makes us uneasy because we Westerners suppress irrationality, says Laurikainen, but Eastern thought helps us accept the irrational world opened to us by

QM.<sup>72</sup> Interestingly, he says the tendency for Christian theologians to be closed to such things has encouraged many people to convert to Eastern views.<sup>73</sup>

While there are obvious similarities between Eastern thought and the CI, popular accounts exaggerate the extent to which developments in QM verify the Eastern outlook: key differences are ignored, mere analogy is falsely presented as justifying grounds, and an Eastern apologetic agenda drives the arguments beyond their justified reach.<sup>74</sup>

### Quantum Physics and Theology

Insomuch as QT undermines the materialistic, mechanistic excess some ascribe to Newtonian physics it provides an opening for theology. No longer can the naturalist cite unfringeable mechanical laws as proof that God cannot be involved in the world.<sup>75</sup> Following are some of the ways QT has been employed on behalf of theology.

#### *Free Will*

Several commentators who wrote just as the CI was coming off the presses announced that QM had saved human freedom. A. S. Eddington, for instance, wrote in 1928 that the future is a fusion of causal influences and unpredictable elements.<sup>76</sup> Later, G. E. M. Anscombe argued that quantum indeterminism is a necessary component of reality if humans are free.<sup>77</sup> Arthur Peacocke shares this conviction and believes QM indicates that God has bestowed “a certain autonomy” on humans and nature itself.<sup>78</sup> For Peacocke, this means God’s action in the world has an “exploratory character” because the quantum indeterminacies purchase an open-endedness not even God can control.<sup>79</sup> Greg Boyd agrees and cites QM as

evidence for open theism.<sup>80</sup>

There are several problems with purchasing human freedom from quantum indeterminism. First, the argument hinges on the CI as if it were the only interpretive option. It is not. Second, the argument depends on the feasibility of the link between quantum randomness and freedom of the will, but freedom and randomness are entirely different things.<sup>81</sup> What we want to understand is how we can act “deliberately and rationally,” not “unpredictably and in a chancelike fashion.”<sup>82</sup> As the Christian doctrine of human freedom insists that we are capable of making *rational* moral choices it seems clear that the Christian gains no ground by appealing to the CI.

#### *Special Divine Agency (SDA)*

Does quantum indeterminacy open a crevasse in the anti-supernaturalistic edifice of natural science? Many theologians believe so, including physicist and Episcopal priest William Pollard. Pollard believes, as per the CI, that quantum indeterminacy is a reality and not merely a result of current ignorance.<sup>83</sup> He suggests that “the appearance of chance and accident in history” is the key to SDA.

What Israel perceived as a mighty act of God was to other peoples only a particularly favorable combination of circumstances. What Israel called Providence, the Greek called Fortune. What to the faithful is an act of divine mercy showing forth our Lord’s restorative power is for the pagan merely a piece of extraordinarily good luck.<sup>84</sup>

But how can indeterminate microscopic reality affect the lawlike macroscopic world? This is the “amplification problem.” Quarks *may* be lawless, but sticks and stones are not. In that case, how can tampering with indeterminate entities

bring about real-world affects in everyday law-abiding objects? The best Pollard can suggest is that gene mutation, which can be influenced by QM, can produce macroscopic effects. So God rules via the vagaries of genetics.

Philip Clayton says the task of the theologian is not to *prove* SDA but rather to show that it is *possible* in light of current science. He thinks the possibilities are promising, for the widely accepted CI “argues for an actual *ontological indeterminacy*” which allows theologians to posit quantum-based SDA without making theology vulnerable to future shifts in science.<sup>85</sup> As for the amplification problem, Clayton essentially dodges it by saying that billions upon billions of divine interventions in the quantum realm *might* result in the macroscopic effects necessary to secure SDA.<sup>86</sup> It is hard to escape the impression that Clayton is *hoping* rather than *arguing* here.

Arguments for SDA predicated on quantum indeterminacy are problematic for several reasons. First, there is the aforementioned amplification problem. Even if God does determine the outcomes of indeterminate quantum events, He would be unable to bring about significant *macroscopic* effects by this fact.<sup>87</sup> This is no slight to God, for it is just impossible that rearranging the furniture of an indeterminate realm would affect the goings on in a *consistently lawful* realm. The atoms in my coffee mug may be zinging around in a quantum craze, but the mug itself is utterly indifferent to this. Quantum indeterminacy, if a reality, has no bearing on everyday objects.

Second, Peter Hodgson says quantum SDA is problematic because of the CI’s “positivistic obscurity.”<sup>88</sup> Third, the attempt to explain SDA via quantum inde-

terminacy is the mark of an impoverished theology. God is Lord of creation, and as such it is unwarranted to suppose He must work within the confines of natural indeterminacies to pull off his desired ends.<sup>89</sup> The mere fact of natural law *cannot* constrict God’s actions because in fact natural law is nothing other than an imperfect scientific description of God’s habits of providence. Thus, the law of causality does not stand outside God as a force with which he must reckon. Rather, it describes the work of God in creation. Hence, any apologetic for SDA that begins by searching for genuine indeterminism in the natural order has gotten off on the wrong assumption, namely, that causal determinism is a threat to God’s ability to act in the world.

### **Philosophical Background of the CI**

Scientists are not strictly objective. A researcher’s worldview significantly shapes his expectations, judgments, and hypotheses. To judge the merit of a scientific theory, it is important to know the philosophical predispositions of the theorists and judge how these have influenced their conclusions. This is especially important for the CI and the like-minded men who founded it.

#### **Niels Bohr**

As the CI spread outward from Copenhagen, Bohr’s worldview went with it. Many people regarded him “not only as teacher of physics but also as guide to life.”<sup>90</sup> Strangely, Bohr may have been pleased with this, for he believed his doctrine of complementarity could be a guide to life, possibly even better than religion.<sup>91</sup>

When young, Bohr aspired to write a treatise on epistemology, but the glory of

physics lured him away for a while. Ironically, QM brought him full circle. By entering physics instead of philosophy, he was able to return to philosophy with powerful new conceptual tools.<sup>92</sup> Thus, Bohr's work in QT was an amalgam of philosophy and physics. What kind of philosophy? Arkady Plotnitski says Bohr's doctrine of complementarity reflects his fondness for Kant, Hegel, Kierkegaard, William James, Harald Høffding, Nietzsche, and Freud.<sup>93</sup> Høffding is particularly important because Bohr knew him personally as a boy. Høffding emphasized the psychological fragmentation of society and blamed industrialization and mechanistic conceptions of nature.<sup>94</sup> He also espoused "objective antirealism," which includes *denial* of the correspondence theory of truth and transcendent truth conditions.<sup>95</sup> Jan Faye believes Bohr's philosophy and development of the complementarity doctrine are reflections of Høffding's anti-realism.<sup>96</sup>

Bohr's philosophy of QM relies heavily on Kant as well.<sup>97</sup> Indeed, Kant's phenomenal-noumenal distinction composes the whole warp and woof of the CI. Clifford Hooker says Bohr falls into the temptation Kant's successors always face: the temptation to deny the reality of the "thing-in-itself" because of the epistemological inaccessibility of the noumenal.<sup>98</sup>

In the main, Bohr's is an anti-realist/instrumentalist approach to science. This is illustrated well by a statement he uttered about quantum reality. "There is no quantum world. There is only an abstract quantum mechanical description."<sup>99</sup> Inheritor's of Bohr's tradition take this to mean that physical reality cannot be ascribed to quantum entities that are not under observation.<sup>100</sup> In summary, Bohr's lifelong preoccupation with phi-

losophy colored his involvement in QM and predisposed him to "detect" irrationality in QM.

### **Wolfgang Pauli**

Pauli and Heisenberg were also philosophically predisposed to find irrationality in QM. This is especially so with Pauli, who favored irrationality as a defense against materialism and sought to develop a framework that would unite psychology and physics.<sup>101</sup> Pauli believed QT was ideally suited to this task because quantum indeterminism indicates that irrationality is a genuine feature of nature. For this reason Pauli opposed the hunt for hidden variables, fearing the search would encourage physicists to hold out against the irrationality he believed they should embrace.<sup>102</sup>

Pauli espoused a "dark, pessimistic, irrational, and holistic realism"<sup>103</sup> and named Christianity as the chief obstacle to the "darkness" of irrationality.<sup>104</sup> Pauli's dislike for Christianity stemmed primarily from his rejection of the Christian belief that evil has no ontological existence but is merely a privation of good.<sup>105</sup> The Christian position, Pauli held, refuses to deal with the irrationality revealed by QM.

### **David Bohm's Alternative Interpretation of QM**

David Bohm's alternative to the CI is complex and presents its own set of confrontations with the Christian worldview.<sup>106</sup> Nevertheless, it is more in line with realism and classical physics. Furthermore, it is empirically equivalent to the CI, which means both interpretations are on *equal footing* scientifically. This means there is "pervasive underdetermination" between these competing

interpretations.<sup>107</sup> When interpreters are faced with empirical equivalence between two or more theories, they must judge the theories based on their philosophical and epistemological virtues.<sup>108</sup> Thus, one's metaphysical preferences will decide which interpretive option is most suitable. In that case, the realist is justified if he chooses Bohm or some future alternative that is empirically equivalent to the CI. The CI is not the only game in town. Furthermore, the empirical equivalence between Bohm and the CI indicates that QT itself *is* incomplete.

The physics community rejected Bohm's interpretation for several reasons, but one of the most significant was that the CI was already firmly established, forming a society of interpretive fidelity Bohm could not infiltrate. This indicates something of the powerful role non-science forces can play in the popularization of scientific theory.<sup>109</sup>

### The Forman Hypothesis

Paul Forman suggests that the post-Great War social climate in which Bohr and his associates operated inclined them to emphasize irrationality in QT. Specifically, the pre-war German emphasis on science and mechanism, which established scientists as heroes and cultural leaders, was exchanged for a keenness for irrationality, acausality, and antagonism toward the hard sciences.<sup>110</sup> If physicists were to recover something of their former privilege, they needed to become attuned to the new *Lebensphilosophie*. Casting aside the albatross of causality was a first step toward that end.

Forman acknowledges that his sociological model cannot be the whole truth, but believes Bohr *et al.* crafted QT to suit the obligations given them by their cul-

tural milieu.<sup>111</sup> This claim has provoked thoughtful response and even qualified acceptance from scientific realists.<sup>112</sup> James Gardner Murphy conducted an interview with Einstein in 1932 that indicates that a moderately strong version of the Forman hypothesis is justifiable. When Einstein stresses that scientists must salvage causality in physics, Murphy's reply encapsulates the Forman hypothesis.

You'll have a hard job of it, because you'll be going out of fashion. . . . Scientists live in the world just like other people. Some of them go to political meetings and the theater and mostly all that I know, at least here in Germany, are readers of current literature. They cannot escape the influence of the *milieu* in which they live. And that *milieu* at the present time is characterized largely by a struggle to get rid of the causal chain in which the world has entangled itself.<sup>113</sup>

Scientists do indeed live in the world just like other people, and the *Zeitgeist* ("spirit of the age") cannot fail to influence their theoretical posits. The Weimar culture's fascination with irrationalism likely played a role in the development of similar themes in QT. This conclusion is strengthened by the fact that Bohr favored irrationalist elements in philosophy *before* he developed the CI. Also supporting Forman's hypothesis is the fact of the empirical equivalence between the CI and Bohm's view. This indicates that non-science factors led to the dominance of the CI. If those factors had been different, most likely the CI would not dominate QM.<sup>114</sup>

### Scientific Critique of the CI Demarcation

The demarcation problem asks: how do we divide the world into "speakable" macro-systems and unspeakable quantum

systems?<sup>115</sup> According to the CI quantum systems are non-classical, acausal, and non-existent apart from observation. So how do we demarcate them from macroscopic systems that are classical, causal, and existent apart from observation? How many atoms must cohere before a quantum system “converts” to a classical system? Indeed, if quantum systems are acausal and non-classical, how can the addition of more quantum entities convert them to classically described macro-systems?

### *Correspondence Principle*

The Correspondence Principle requires that a new theory (such as QM) be accepted only if it accounts for the success of the preceding theory (such as Newtonian physics) by devolving into that theory under the sort of conditions by which the preceding theory has been well confirmed.<sup>116</sup> Basically, the new theory retains lower elements of the theory it succeeds and by virtue of this fact preserves explanatory power. That the CI *fails* to preserve impressively confirmed elements of classical physics indicates that a new QT is needed.<sup>117</sup>

### *The Completeness Claim*

The CI claims that QT is complete, such that no paradox-erasing supplementation is possible. Astute observers have called this an “outrageous” science stopper that sets “dogmatic limitations” on theorizing and investigation, all on the basis of “obscure philosophical preconceptions.”<sup>118</sup> In fact, the completeness claim is contrary to lessons learned from the history of science.

To try to stop all attempts to pass beyond the present viewpoint of quantum physics could be very dangerous for the progress of sci-

ence and would furthermore be contrary to the lessons we may learn from the history of science. This [history] teaches us, in effect, that the actual state of our knowledge is always provisional and that there must be, beyond what is actually known, immense new regions to discover.<sup>119</sup>

### *Hidden Variables*

Einstein spoke for all realists when he said that the statistical character of QT indicates its incompleteness as a description of QM.<sup>120</sup> In other words, there are hidden variables QT has not accounted for. This is nothing new. Scientific thinkers have postulated hidden variables since at least the fourth century BC.<sup>121</sup> Historically, the most significant motivation for positing hidden variables is the belief that action-at-a-distance is impossible. Aristotle, for instance, said all action (or causality) is either self-motion or contact action.<sup>122</sup> Either a thing has a will to move itself or else something must act on it to cause its motion. This has repeatedly been borne out in science, even when initial evidence suggested distant action or randomness was real. Take Brownian motion, for instance. Einstein successfully described the jiggling of dust motes as the effect of unseen molecules that actually follow classical causal laws. What was once thought to be genuinely random was subsequently described causally once hidden variables were discerned. In light of this and other examples where anomalies were banished by further investigation, it seems clear that the CI is falsely inflating present investigative limitations into insurmountable barriers.<sup>123</sup>

### *Non-Locality*

Proponents of the CI emphasize non-locality as a key indicator of the metaphysical implications of QM, but significant

interpreters of non-locality reject this conclusion.<sup>124</sup> Tim Maudlin argues that quantum entanglement can be explained via superluminal causal connections that do not involve matter or energy transport.<sup>125</sup> Maudlin's tactic rests on the questionable feasibility of suggesting that non-local hidden variables exist, such that some variety of non-local causal influence saves the principle of causality. This would exorcise both quantum entanglement and quantum indeterminism from QT, but it may violate Einstein's relativity theories, which insist that communications cannot be conveyed faster than the speed of light.<sup>126</sup> However, while energy and matter cannot convey faster-than-light influences, perhaps there is some unknown medium by which such signals can be conveyed. One thinks of the discredited ether theories in this context. Can these be resurrected? At present, the suggestions put forth by Maudlin and others are just speculation. Perhaps even on the most optimistic reading their offerings simply fall short. However, we may still be optimistic that their efforts are early signals of a coming sea change. As history demonstrates, when theorists are unfettered in their speculations, remarkable insights often follow. The more theorists turn aside from the CI's completeness claim, the more energy will be added to the speculative pursuit of better answers in QM.

### *In Defense of Realism*

Realism includes the beliefs that the world exists independent of our minds and that causal factors are operative in physical systems whether or not we detect them. If scientists discover elements of reality that cannot be readily understood, the realist regards it as "unnecessary

arrogance" to suppose that the limitations and uncertainties we experience inhere the real world itself.<sup>127</sup> However, thoroughgoing realism with regard to QM is impossible given current limitations. The best stance seems to be realism with respect to science generally, but qualified instrumentalism with respect to QM specifically.

At this stage the best (most rational) attitude for physicists and philosophers to adopt is one of qualified instrumentalism, or a willingness to work with the theory as it stands while acknowledging its limits and keeping an open mind with respect to alternative accounts—such as Bohm's—that hold out the prospect of a fuller, more complete understanding.<sup>128</sup>

In this approach, the fruitfulness of QT is preserved by the *pro tempore* instrumentalist approach while the rationality of nature is preserved by the insistence that realism is a genuine future possibility for QM.

### **Christian Worldview Critique of the CI**

The CI makes or is the basis for worldview claims that are contrary to elements of the Christian faith. To begin with, the CI instantiates an insuperable truth problem. Zohar, Born, and others speak of how belief in transcendent, ultimate truth is harmful, and how the doctrine of complementarity provides a means of equalizing contradictory truth claims. Kafatos and Nadeau express a similar view. They believe this negates ontological dualism, transcendent truth claims, and the Christian worldview.<sup>129</sup> I agree. The denial that truth can be ultimate and transcendent is contrary to the biblical claim that God *is* transcendent, *is* truth, and has *revealed* truth to us. The Bible teaches

the reality of objective truth in several ways, including by presupposition. For instance, the apostle Paul's argument in 1 Corinthians 15 about the resurrection of the dead presupposes the reality of objective truth.<sup>130</sup> Furthermore, the whole tenor of the gospel as presented by Christ himself necessitates an objective, exclusivist model of truth. "I am the way, the truth, and the life," Jesus said, "no one comes to the Father except through me" (John 14:6). In John 8:24, Jesus indicates that the contrary to believing in him, namely, *not* believing in him, leaves one dead in sin. Hence, Bohr's complementarity doctrine, which states that the opposite of a profound truth is another profound truth, simply does not comport with a Christian construal of the world, nor does the assertion that belief in exclusivist monotheistic religion is a root of moral evil.

The majority of Christian thinkers have been realists with respect to the external world and the philosophy of science. This is chiefly because the biblical doctrine of creation entails that the human mind is created in such a way as to match the intelligibility of nature.<sup>131</sup> The "sameness" between mind and nature is secured by the fact that both are made by God to reflect His rationality. The human mind in particular is readymade for reception of truth. "Human knowledge can be regarded as a reflection of the truth originating in the mind of God. . . . God has endowed humans with a structure of rationality patterned after the divine ideas in His own mind: we can know truth because God has made us like Himself."<sup>132</sup>

The realism position is bound up with the correspondence view of truth, which is also a component of the Christian worldview.<sup>133</sup> The CI denies the very pos-

sibility of the correspondence theory of truth, at least as relates to quantum systems, and possibly to macro-systems as well. Reality "out there" is created by acts of observation that are made by humans. As we have seen, some proponents of the CI go so far as to say that our observations create past truth or even the universe itself. This undermines the Christian belief that God made the world and that our knowledge is true knowledge only insofar as it corresponds with reality as God has made it.

Stanley Jaki has said that science is not merely an objective tool, but intellectual creativity. As such, the scientific endeavor is closely joined to presuppositions and ideologies.<sup>134</sup> Importantly, the conflict between the CI and the Christian worldview recalls the ideological support Christian theism lent to science in the early stages of the development of science. For instance, the presupposition that nature is stable and rational is necessary if science is to be possible. Historically, this ideology came from the Christian Bible, which teaches that stable, rational nature is a reflection of its stable, rational Creator.<sup>135</sup> Furthermore, the fact that creation was thought to be the product of a rational Designer encouraged empirical investigation of the natural realm. Del Ratzsch expresses this issue helpfully:

Christians saw the world as a creation (thus orderly and uniform) of a Person (thus rational) who had created freely (thus requiring empirical investigation) unconstrained by our prejudices and expectations (thus requiring open-minded investigation). So the basic character of science grew to be what one could expect from a Christian outlook.<sup>136</sup>

Vern Poythress describes natural law as the imperfect human description of the very regularities of God's own

providential care for his creation.<sup>137</sup> From this it follows that the natural order will operate rationally as a reflection of God's nature. This is not to say that humans will always be able to detect said rationality. Certainly, God's actions in the natural order may in some cases be beyond our comprehension, but this does not mean that such actions are fundamentally *irrational*. In QM, for instance, God's ordering of quantum phenomena may be beyond our understanding due to our inability precisely to penetrate the quantum scale. In principle, however, all natural operations ought to be considered rational and orderly—a reflection of God their Maker. The CI undermines confidence in the in-built rationality of the physical universe by declaring that microphysical entities are lawless, causeless, indeterminate, and thus irrational.

The CI's postulate of genuine physical acausality conflicts with the Christian doctrine of *creatio ex nihilo* (creation from nothing), which entails that all things are dependent on God for their being and behavior. If God is rational, how could He instantiate indeterministic irrationality in the world? Further, if He did instantiate indeterminism in the world, how does He govern creation? Nicholas Saunders describes the difficulty as follows:

It seems difficult to see in what sense indeterminism might be created and sustained by God or, to put it another way, how indeterminism and general divine action might be related. . . . Indeed the only sense in which indeterminism appears coherent is as a product of a divine kenosis, or God voluntarily withholding his knowledge, concerning its mechanism. However if this is the case then we must address the problem of how God is active in some indeterminate processes without compromising this mechanism or his lack of knowledge of it.<sup>138</sup>

The notion that God instantiates indeterminism in the world is problematic in light of the doctrines of creation, omnipotence, and omniscience. Fortunately, we are not forced to incorporate indeterminism into our quantum ontology. As Polkinghorne says, how we construe indeterminism is a matter of metaphysical preference.

Unpredictability is an epistemological property and there is no inevitable connection between epistemology and ontology. What connection we make is a matter of metaphysical choice and philosophical contention. In particular, questions of the nature of causality are always ultimately metaphysical in character, as the unresolved dispute between Bohm and Bohr about whether quantum theory should be considered deterministic or indeterministic makes only too clear.<sup>139</sup>

In light of the problems genuine indeterminism presents for the doctrines cited above, it is best to regard quantum indeterminism to be nothing more than a marker of current scientific limitation, a limitation that may be resolved as science progresses.

## Conclusion

Whatever direction QT takes in the future, one thing seems clear: the CI is no better than the scientific and philosophical merits on which it stands. As we have ample reason to question these merits, it is best to conclude that the CI is not suitable for use in formulations of Christian theology and apologetics.

## ENDNOTES

<sup>1</sup>This is often referred to as “Laplacian Determinism” after Pierre Laplace’s famous claim that an omniscient intelligence could predict the future if he but knew all present physical facts. Though

Laplace himself does not so name it, the vast intelligence to which he refers is commonly called “Laplace’s demon.” The original reference is as follows: “We ought then to regard the present state of the universe as the effect of its anterior state and as the cause of the one that is to follow. Given for one instant an intelligence which could comprehend all the forces by which nature is animated and the respective situation of all the beings who compose it—an intelligence sufficiently vast to submit these data to analysis—it would embrace in the same formula the movements of the greatest bodies of the universe and those of the lightest atom; for it, nothing would be uncertain and the future, as the past, would be present to its eyes. The human mind offers, in the perfection which it has been able to give to astronomy, a feeble idea of this intelligence. Its discoveries in mechanics and geometry, added to that of universal gravity, have enabled it to comprehend in the same analytical expression the past and the future states of the world” (Pierre Simone Laplace, *A Philosophical Essay on Probabilities* [trans. Frederick Truscott and Frederick Emory; New York: Dover Publications, 1951], 4).

<sup>2</sup>James T. Cushing, *Quantum Mechanics: Historical Contingency and the Copenhagen Hegemony* (Chicago: University of Chicago Press, 1994), 209-12.

<sup>3</sup>As Cushing explains it, “The generic source of this classical dynamical chaos is the exponential separation (in time) of system trajectories (in

phase space) so that there is extreme sensitivity to initial conditions, leading to loss of effective predictive ability for the long-term behavior of the system,” where “phase space” designates a mathematical space charting coordinates for position and momentum. *Ibid.*, 213. See also 271 n. 46.

<sup>4</sup>My use of “outrage” stems from Danah Zohar, who champions common quantum anomalies in an effort to formulate a quantum worldview. On quantum outrage, see Danah Zohar and Ian Marshall, *The Quantum Society: Mind, Physics, and a New Social Vision* (New York: Quill, 1994), 38.

<sup>5</sup>For a more detailed description of this experiment, see Jeremy Royal Howard, “The Copenhagen Interpretation of Quantum Physics: An Assessment of its Fitness for Use in Christian Theology and Apologetics” (Ph.D. diss., The Southern Baptist Theological Seminary, 2005), 4-7.

<sup>6</sup>Sam Treiman, *The Odd Quantum* (Princeton: Princeton University Press, 1999), 25.

<sup>7</sup>Wesley C. Salmon, *Four Decades of Scientific Explanation* (Minneapolis: University of Minnesota Press, 1989), 173; Christopher Norris, *Quantum Theory and the Flight from Realism: Philosophical Responses to Quantum Theory* (New York: Routledge, 2000), 25; Alain Aspect, “Introduction: John Bell and the Second Quantum Revolution,” in *Speakable and Unsayable in Quantum Mechanics: Collected Papers on Quantum Philosophy* (Cambridge: Cambridge University Press, 2004),

xvii; Steven Weinberg, *Dreams of a Final Theory* (New York: Pantheon Books, 1992), 65-66.

<sup>8</sup>Richard Feynman, *The Character of Physical Law* (Cambridge, MA: M.I.T. Press, 1965), 129.

<sup>9</sup>Cushing, *Quantum Mechanics*, 9. Dipankar Home says the “interpretation provides physical content to a theory in terms of some key concepts” and names as an example “the concept of force as a cause for acceleration [which] is crucial in understanding the basic equation of motion in Newtonian mechanics.” See Dipankar Home, *Conceptual Foundations of Quantum Physics: An Overview from Modern Perspectives* (New York: Plenum Press, 1997), 1.

<sup>10</sup>Trevor J. Pinch, “What Does a Proof Do If It Does Not Prove? A Study of the Social Conditions and Metaphysical Divisions Leading to David Bohm and John von Neumann Failing to Communicate in Quantum Physics,” in *The Social Production of Scientific Knowledge* (ed. Everett Mendelsohn, Peter Weingart, and Richard Whitley; Boston: D. Reidel Publishing, 1977), 177.

<sup>11</sup>This list is a compilation of components listed by several scholars. Among these are Christopher Norris, “Philosophy of Science as ‘History of the Present’: Quantum Theory, Anti-Realism, and Paradigm-Change,” *New Formations* 49 (2003): 25; David Lindley, *Where Does the Weirdness Go? Why Quantum Mechanics is Strange, but Not as Strange as You Think* (New York: BasicBooks, 1996), 107; Arkady Plotnitsky, *Complementarity: Anti-Epistemology after Bohr and Derrida*

- (Durham, NC: Duke University Press, 1994), 72; Alan Grometstein, *The Roots of Things: Topics in Quantum Mechanics* (Boston: Kluwer Academic, 1999), 410; and Cushing, *Quantum Mechanics*, 32.
- <sup>12</sup>This is a reference to David Bohm's work, which is discussed briefly below.
- <sup>13</sup>Ronald H. Nash, *The Word of God and the Mind of Man: The Crisis of Revealed Truth in Contemporary Theology* (Phillipsburg, NJ: P&R Publishing, 1982), 9, 59, 81, 131-32.
- <sup>14</sup>Plotnitsky, *Complementarity*, 72.
- <sup>15</sup>Niels Bohr, "Causality and Complementarity," *Philosophy of Science* 4 (1937): 293.
- <sup>16</sup>Ibid., 108. Naturally, the supposition that observation forces the quantum system to manifest concrete values involves a sort of "causality," but inasmuch as this brand of causality is so radically removed from traditional concepts of causality, quantum theorists of the Copenhagen party regularly speak of quantum acausality.
- <sup>17</sup>John Bell, "Six Possible Worlds of Quantum Mechanics," in *Speakable and Unsayable in Quantum Mechanics: Collected Papers in Quantum Mechanics* (New York: Cambridge University Press, 1987), 189-90.
- <sup>18</sup>Werner Heisenberg, *Physics and Philosophy: The Revolution in Modern Science* (vol. 19 of *World Perspectives*; ed. Ruth Nanda Anshen; New York: Harper and Brothers, 1958), 49.
- <sup>19</sup>Norris, *Quantum Theory*, 247.
- <sup>20</sup>Dugald Murdoch, *Niels Bohr's Philosophy of Physics* (Cambridge: Cambridge University Press, 1987), 232.
- <sup>21</sup>Abraham Pais, *Niels Bohr's Times, In Physics, Philosophy, and Polity* (Oxford: Clarendon Press, 1991), 446.
- <sup>22</sup>Henry J. Folse, *The Philosophy of Niels Bohr: The Framework of Complementarity* (Amsterdam: North-Holland Physics Publishing, 1985), 170.
- <sup>23</sup>Shimon Malin, *Nature Loves to Hide: Quantum Physics and Reality, a Western Perspective* (Oxford: Oxford University Press, 2001), 37. Thales of Miletus, Mali notes, is often considered the first scientist because he postulated a first principle in nature and sought to order nature in accordance with it.
- <sup>24</sup>Roger Penrose, *The Emperor's New Mind: Concerning Computers, Minds, and the Laws of Physics* (Oxford: Oxford University Press, 1989), 226. Quentin Smith quotes Robert Pine, who in a manner similar to that of Penrose believes that the CI implies that quantum reality is created by human thought (observation). See Quentin Smith, "Why Cognitive Scientists Cannot Ignore Quantum Mechanics," in *Consciousness: New Philosophical Perspectives* (ed. Smith and Aleksandar Jokic; Oxford: Clarendon Press, 2003), 424.
- <sup>25</sup>Lindley, *Weirdness*, 111.
- <sup>26</sup>So-called "thought-experiments" or *gedanken*-experiments are hypothetical experiments scientists run through in their minds because factors such as insufficiencies in technology, funding, or access prevents them from carrying out the experiment in the laboratory.
- <sup>27</sup>John Gribbin, *Q is for Quantum: An Encyclopedia of Particle Physics* (New York: Free Press, 1998), s.v. "Schrödinger's cat."
- <sup>28</sup>George Musser, "Was Einstein Right?" *Scientific American* 291 (September 2004): 88. Similarly, John Polkinghorne seems gently to chide Einstein when he calls him "the last of the great ancients rather than the first of the great moderns." See John Polkinghorne, *Science and Providence: God's Interaction with the World* (Boston: Shambhala Publications, 1989), 78.
- <sup>29</sup>A. Einstein, B. Podolsky and N. Rosen, "Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?" *Physical Review* 47 (1935): 777.
- <sup>30</sup>P. H. Eberhard, "The EPR Paradox: Roots and Ramifications," in *Quantum Theory and Pictures of Reality: Foundations, Interpretations, and New Aspects* (ed. W. Schommers; New York: Springer-Verlag, 1989), 57.
- <sup>31</sup>"It is bewildering that Bohr's response was ever considered, and is often still considered, an adequate (not to mention 'triumphant'!) reply to EPR. I can suggest a few explanations for this strange state of affairs. The myth is in part connected with the general mythology of the Copenhagen interpretation, the hero worship of Bohr, the fabrication of the 'winner's narrative'. . . . A few ingenious rhetorical moves characterize Bohr's response and create the illusion of victory. By giving a short, nonmathematical summary of the dense and complex EPR paper, Bohr ensured that few would bother to read the EPR paper itself." Mara Beller, *Quantum Dialogue: The*

- Making of a Revolution* (Chicago: University of Chicago Press, 1999), 153. On Bohr's response having a positivistic grounding, see Mara Beller and Arthur Fine, "Bohr's Response to EPR," in *Niels Bohr and Contemporary Philosophy* (ed. Jan Faye and Henry J. Folse; Boston: Kluwer Academic, 1994), 19.
- <sup>32</sup>David Bohm actually suggested a variation of EPR that nonetheless kept with its aims. In 1964, John Bell described how Bohm's modified thought-experiment could actually be carried out under laboratory conditions if the measuring capacities of the relevant equipment were greatly improved, which he doubted was possible. As it turns out, the necessary advancements in technology came less than twenty years after Bell introduced his theorem.
- <sup>33</sup>In their 1981 report, Alain Aspect, Philippe Grangier, and Gérard Roger reported that their results were "to a high statistical accuracy a strong evidence against the whole class of realistic local theories." Alain Aspect, Philippe Grangier, and Gérard Roger, "Experimental Tests of Realistic Local Theories via Bell's Theorem," *Physical Review Letters* 47 (1981): 463. Further tests proved to be even more definitive, as detailed in their 1982 report: Alain Aspect, Philippe Grangier, and Gérard Roger, "Experimental Realization of Einstein-Podolsky-Rosen-Bohm Gedankenexperiment: A New Violation of Bell's Inequalities," *Physical Review Letters* 49 (1982): 91-94. For a reasonably clear explanation of the Aspect experiments, see Gribbin, *Encyclopedia*, s.v. "Aspect experiment."
- <sup>34</sup>Salmon, *Four Decades*, 186.
- <sup>35</sup>Bohr, "Causality," 294. Werner Heisenberg agreed with Bohr. See Heisenberg, *Physics and Philosophy*, 44.
- <sup>36</sup>John Bell, "Speakable and Unspeaking in Quantum Mechanics," in *Speakable and Unspeakable in Quantum Mechanics: Collected Papers in Quantum Mechanics* (New York: Cambridge University Press, 1987), 171.
- <sup>37</sup>K. V. Laurikainen, "Wolfgang Pauli's Conception of Reality," in *Symposium on the Foundations of Modern Physics: The Copenhagen Interpretation 60 years After the Como Lecture* (ed. Pekka Lahti and Peter Mittelstaedt; Singapore: World Scientific Publishing, 1987), 209.
- <sup>38</sup>Ernan McMullin, a realist, notes this tendency. Ernan McMullin, "A Case for Scientific Realism," in *Scientific Realism* (ed. Jarrett Leplin; Los Angeles: University of California Press, 1984), 12.
- <sup>39</sup>Jan Faye, *Niels Bohr: His Heritage and Legacy. An Anti-Realist View of Quantum Mechanics* (vol. 6 of *Science and Philosophy*; ed. Nancy J. Nersessian; Boston: Kluwer Academic Publishers, 1991), 217.
- <sup>40</sup>Arthur Fine, "The Natural Ontological Attitude," in *Scientific Realism* (ed. Jarrett Leplin; Los Angeles: University of California Press, 1984), 93.
- <sup>41</sup>Norris, *Quantum Theory*, 1.
- <sup>42</sup>*Ibid.*, 195.
- <sup>43</sup>Plotnitski rests his case for anti-realism on complementarity. Arkady Plotnitski, *In the Shadow of Hegel: Complementarity, History and the Unconscious* (Gainesville: University Press of Florida, 1993), 35. See also idem, "Complementarity, Idealization, and the Limits of Classical Concepts of Reality," in *Mathematics, Science, and Postclassical Theory* (ed. Barbara Herrnstein Smith and Arkady Plotnitski; Durham, NC: Duke University Press, 1997), 134, and idem, *Complementarity*, 120.
- <sup>44</sup>Richard F. Kitchener, "Introduction: The World View of Contemporary Physics: Does It Need a New Metaphysics?" in *The World View of Contemporary Physics: Does it Need a New Metaphysics?* (ed. Richard F. Kitchener; Albany: State University of New York Press, 1988), 6.
- <sup>45</sup>*Ibid.*, 7.
- <sup>46</sup>*Ibid.*, 17-18.
- <sup>47</sup>Zohar and Marshall, 41-42.
- <sup>48</sup>*Ibid.*, 137.
- <sup>49</sup>*Ibid.*, 141. Zohar elsewhere indicates that religion is out and science and psychology are in as the new forces that must shape belief. "It is no longer possible to believe in both the discoveries of modern science and in the traditional dictates of the Church, and, for increasing numbers of people today, science and psychology have taken the place of traditional religion." Danah Zohar, *The Quantum Self: Human Nature and Consciousness Defined by the New Physics* (New York: Quill, 1990), 218.
- <sup>50</sup>Max Born, *Physics in My Generation* (2<sup>nd</sup> ed.; New York: Springer-Verlag, 1969), 142.
- <sup>51</sup>*Ibid.*, 143.
- <sup>52</sup>Brian Greene, *The Elegant Universe: Superstrings, Hidden Dimensions, and the Quest for the Ultimate Theory*

- (New York: Vintage Books, 1999), 349.
- <sup>53</sup>Wheeler, "Law without Law," 189.
- <sup>54</sup>For an excellent and concise description of Wheeler's experiment, see John Gribbin, *Encyclopedia*, s.v. "delayed choice experiment."
- <sup>55</sup>John Archibald Wheeler, "Law without Law," in *Quantum Theory and Measurement* (ed. John Archibald Wheeler and Wojciech Hubert Zurek; Princeton: Princeton University Press, 1983), 194.
- <sup>56</sup>*Ibid.*, 196-97. In response to the idea that observation created the universe, John Bell asks, "Was the world wave function waiting to jump for thousands of millions of years until a single-celled living creature appeared? Or did it have to wait a little longer for some more highly qualified measurer—with a Ph.D.?" John Bell, "Quantum Mechanics for Cosmologists," in *Speakable and Unsayable in Quantum Mechanics: Collected Papers in Quantum Mechanics* (New York: Cambridge University Press, 1987), 117.
- <sup>57</sup>P. W. Atkins, *Creation Revisited* (New York: W. H. Freeman & Company, 1992), 149.
- <sup>58</sup>Quentin Smith, "A Big Bang Cosmological Argument for God's Nonexistence," *Faith and Reason* 9 (1992): 217.
- <sup>59</sup>Quentin Smith, "Two Ways to Prove Atheism," sec. 1 [cited 26 July 2006]. Online: [http://www.infidels.org/library/modern/quentin\\_smith/atheism.html](http://www.infidels.org/library/modern/quentin_smith/atheism.html).
- <sup>60</sup>William Lane Craig, "The Beginning of the Universe," in *Faith and Reason* (ed. Paul Helm; Oxford: Oxford University Press, 1999), 281.
- <sup>61</sup>Keith Ward, *God, Chance and Necessity* (Oxford: Oneworld Publications, 1996), 40. For similar arguments, see Ian G. Barbour, *Nature, Human Nature, and God* (Minneapolis: Fortress Press, 2002), 115; Marcelo Gleiser, "The Three Origins: Cosmos, Life, and Mind," in *Science and Ultimate Reality: Quantum Theory, Cosmology, and Complexity* (ed. John D. Barrow, Paul C. W. Davies, and Charles L. Harper; Cambridge: Cambridge University Press, 2004), 641.
- <sup>62</sup>Kitchener, "Introduction," 15.
- <sup>63</sup>Laurikainen, "Wolfgang Pauli's Conception," 220-21.
- <sup>64</sup>*Ibid.*, 221.
- <sup>65</sup>Menas Kafatos and Robert Nadeau, *The Conscious Universe: Part and Whole in Modern Physical Theory* (New York: Springer-Verlag, 1990), 108-09.
- <sup>66</sup>*Ibid.*, 100.
- <sup>67</sup>K. V. Laurikainen, "Quantum Theory and the Problem of Free Will," in *Symposium on the Foundations of Modern Physics 1990: Quantum Theory of Measurement and Related Philosophical Problems* (ed. Pekka Lahti and Peter Mittelstaedt; Singapore: World Scientific, 1991), 221.
- <sup>68</sup>Brian Greene, *The Fabric of the Cosmos: Space, Time, and the Texture of Reality* (New York: Knopf, 2004), 122-23.
- <sup>69</sup>Fritjof Capra, *The Tao of Physics: An Exploration of the Parallels Between Modern Physics and Eastern Mysticism* (4<sup>th</sup> ed.; Boston: Shambhala, 2000), 18.
- <sup>70</sup>Gary Zukav, *The Dancing Wu Li Masters: An Overview of the New Physics* (New York: William Morrow and Company, 1979), 62.
- <sup>71</sup>Niels Bohr, *Atomic Physics and Human Knowledge* (New York: John Wiley & Sons, 1958), 19-20.
- <sup>72</sup>Laurikainen, "Wolfgang Pauli's Conception," 226.
- <sup>73</sup>Laurikainen, "Quantum Theory," 220.
- <sup>74</sup>Michel Bitbol, "A Cure for Metaphysical Illusions: Kant, Quantum Mechanics, and Madhyamaka," in *Buddhism & Science: Breaking New Ground* (ed. B. Alan Wallace; New York: Columbia University Press, 2003), 326-27. Dana Edgar Bible notes that Capra and other Eastern apologists have "played loose" and have been "overly reductionistic" with the links between quantum physics and Eastern thought. Dana Edgar Bible, "Metaphysical Implications of the New Physics: An Assessment of Christian and Non-Christian Views" (Ph.D. diss., Southwestern Baptist Theological Seminary, 1986), 153-63.
- <sup>75</sup>John Polkinghorne, *Science and the Trinity: The Christian Encounter with Reality* (New Haven, CT: Yale University Press, 2004), 5.
- <sup>76</sup>A. S. Eddington, *The Nature of the Physical World* (New York: Macmillan, 1928), 294-95.
- <sup>77</sup>G. E. M. Anscombe, "Causality and Determination," in *Causation and Conditionals* (ed. Ernest Sosa; Oxford: Oxford University Press, 1975), 79.
- <sup>78</sup>Arthur Peacocke, "God's Interaction with the World: The Implications of Deterministic 'Chaos' and of Interconnected and Interdependent Complexity," in *Chaos and Complex-*

- ity: *Scientific Perspectives on Divine Action* (ed. Robert John Russell, Nancy Murphy, and Arthur Peacocke; Vatican City: Vatican Observatory Publications, 1995), 281.
- <sup>79</sup>Arthur Peacocke, *Theology for a Scientific Age: Being and Becoming—Natural, Divine and Human* (2<sup>nd</sup> ed.; Minneapolis: Fortress Press, 1993), 157.
- <sup>80</sup>Greg Boyd, *God of the Possible* (Grand Rapids: Baker, 2000), 109.
- <sup>81</sup>Norris, *Quantum Theory*, 146-47.
- <sup>82</sup>Karl Popper, *The Open Universe: An Argument for Indeterminism* (Totowa, NJ: Rowman and Littlefield, 1982), 126.
- <sup>83</sup>William G. Pollard, *Chance and Providence: God's Action in a World Governed by Scientific Law* (New York: Charles Scribner's Sons, 1958), 43.
- <sup>84</sup>*Ibid.*, 66.
- <sup>85</sup>Philip D. Clayton, *God and Contemporary Science* (Edinburgh: Edinburgh University Press, 1997), 193-94.
- <sup>86</sup>*Ibid.*, 194.
- <sup>87</sup>Jeffrey Koperski, "God, Chaos, and the Quantum Dice," *Zygon* 35 (2000): 546.
- <sup>88</sup>Peter E. Hodgson, "God's Action in the World: The Relevance of Quantum Mechanics," *Zygon* 35 (2000): 511.
- <sup>89</sup>*Ibid.*, 514.
- <sup>90</sup>John Heilbron, "The Earliest Missionaries of the Copenhagen Spirit," in *Science in Reflection* (vol. 3 of *The Israel Colloquium: Studies in History, Philosophy, and Sociology of Science*; ed. Edna Ullmann-Margalit; Boston: Kluwer Academic, 1988), 221.
- <sup>91</sup>*Ibid.*
- <sup>92</sup>Ruth Moore, *Niels Bohr: The Man, His Science, & the World They Changed* (New York: Knopf, 1966), 406-07.
- <sup>93</sup>Plotnitski, *Complementarity*, 76.
- <sup>94</sup>M. Norton Wise, "How Do Sums Count? On the Cultural Origins of Statistical Causality," in *Ideas in History* (vol. 1 of *The Probabilistic Revolution*; ed. Lorenz Krüger, Lorraine J. Daston, and Michael Heidelberger; Cambridge, MA: MIT Press, 1987), 406.
- <sup>95</sup>Faye, *Niels Bohr*, 216.
- <sup>96</sup>*Ibid.*
- <sup>97</sup>Laurikainen, "Wolfgang Pauli's Conception," 224.
- <sup>98</sup>Clifford Hooker, "The Nature of Quantum Mechanical Reality: Einstein Versus Bohr," in *Paradigms and Paradoxes: The Philosophical Challenge of the Quantum Domain* (ed. Robert G. Colodny; Pittsburgh: University of Pittsburgh Press, 1972), 171.
- <sup>99</sup>Bohr cited in Max Jammer, *The Philosophy of Quantum Mechanics: The Interpretations of Quantum Mechanics in Historical Perspective* (New York: John Wiley & Sons, 1974), 12.
- <sup>100</sup>Arkady Plotnitski, "Complementarity, Idealization, and the Limits of Classical Concepts of Reality," in *Mathematics, Science, and Postclassical Theory* (ed. Barbara Herrnstein Smith and Arkady Plotnitsky; Durham, NC: Duke University Press, 1997), 142.
- <sup>101</sup>Herbert Van Erkelens, "Wolfgang Pauli and the Spirit of Matter," in *Symposium on the Foundations of Modern Physics 1990: Quantum Theory of Measurement and Related Philosophical Problems* (ed. Pekka Lahti and Peter Mittelstaedt; Singapore: World Scientific, 1991), 431.
- <sup>102</sup>K. V. Laurikainen, *Beyond the Atom: The Philosophical Thought of Wolfgang Pauli* (Berlin: Springer-Verlag, 1988), 30.
- <sup>103</sup>Tongdong Bai, "Philosophy and Physics: Action-At-A-Distance and Locality" (Ph.D. diss., Boston University, 2004), 179. Bai describes how Pauli's views differ from positivism as follows: "Unlike the positivist claim that there might be another reality behind the instrumental formalisms of [quantum mechanics] but it is secondary to the primary reality of experience . . . Pauli insists on the existence of this irrational yet real individuality and claims that this dark reality is the ultimate reality of the micro-world; there is nothing behind it; and it is the reason for and the ultimate foundation of the statistical description of quantum formalism. This dark and irrational side of reality had been suppressed since the beginning of modern sciences till the development of [quantum mechanics]." *Ibid.*, 208.
- <sup>104</sup>*Ibid.*, 195-96. Bai elsewhere says Pauli's worldview is "mystical holism, or pessimistic, dark, and irrational realism. That is, according to Pauli's world-view, the existence of external reality, a crucial feature of the 'table-thumping' realism, is not questioned. What he insisted and thumped on is that reality itself has a hopelessly irrational and 'dark' side, shown by the irrational side of [quantum mechanics]." *Ibid.*, 183.
- <sup>105</sup>*Ibid.*, 196.
- <sup>106</sup>For details on why Bohm's interpre-

- tation is problematic, see Howard, "The Copenhagen Interpretation," 141-50.
- <sup>107</sup>James T. Cushing, "Underdetermination, Conventionalism and Realism: The Copenhagen vs. the Bohm Interpretation of Quantum Mechanics," in *Correspondence, Invariance and Heuristics: Essays in Honour of Heinz Post* (ed. Steven French and Harmke Kamminga; Boston: Kluwer Academic Publishers, 1993), 262.
- <sup>108</sup>J. P. Moreland, *Christianity and the Nature of Science: A Philosophical Investigation* (Grand Rapids: Baker, 1989), 28.
- <sup>109</sup>Trevor J. Pinch, "The Hidden-Variables Controversy in Quantum Physics," *Physics Education* 14 (1979): 50; Albert, *Quantum Mechanics*, 52.
- <sup>110</sup>Paul Forman, "Weimar Culture, Causality, and Quantum Theory, 1918-1927: Adaptation by German Physicists and Mathematicians to a Hostile Intellectual Environment," in *Quantum Histories* (vol. 4 of *Science and Society: The History of Modern Physical Science in the Twentieth Century*; ed. Peter Galison, Michael Gordin, and David Kaiser; New York: Routledge, 2001), 193.
- <sup>111</sup>Paul Forman, "Kausalität, Anschaulichkeit, and Individualität, or How Cultural Values Prescribed the Character and the Lessons Ascribed to Quantum Mechanics," in *Society and Knowledge: Contemporary Perspectives in the Sociology of Knowledge* (ed. Nico Stehr and Volker Meja; New Brunswick, NJ: Transaction Books, 1984), 344.
- <sup>112</sup>James Cushing rejects what he calls the "extreme Forman hypothesis," which says sociological factors played a central role in the creation of quantum theory, but adopts a "modest Forman-type thesis" by stating that such factors were important to winning acceptance for the radical new views in physics. See James T. Cushing, *Theory Construction and Selection in Modern Physics: The S Matrix* (Cambridge: Cambridge University Press, 1987), 7. Mara Beller's assessment is similar to Cushing's in that she espouses a modified form of Forman's hypothesis. "Somewhat modifying Forman's argument, the cultural milieu provided a psychological reinforcement, as well as a vast and rich reservoir of arguments for legitimization, in the event of an ultimate conclusion favoring a clear case of indeterminism in physics." See Mara Beller, "Born's Probabilistic Interpretation: A Case Study of 'Concepts in Flux,'" in *Quantum Histories* (vol. 4 of *Science and Society: The History of Modern Physical Science in the Twentieth Century*; ed. Peter Galison, Michael Gordin, and David Kaiser; New York: Routledge, 2001), 249.
- <sup>113</sup>Max Planck, *Where is Science Going?* (New York: W. W. Norton & Company, 1932), 204-05.
- <sup>114</sup>Cushing, "Underdetermination," 276.
- <sup>115</sup>John Bell, "Speakable and Unspeakable," 171.
- <sup>116</sup>Heinz R. Post, "Correspondence, Invariance and Heuristics: In Praise of Conservative Induction," in *Correspondence, Invariance and Heuristics: Essays in Honour of Heinz Post* (ed. Steven French and Harmke Kamminga; Boston: Kluwer Academic Publishers, 1993), 16.
- <sup>117</sup>*Ibid.*, 22.
- <sup>118</sup>Karl Popper, *Quantum Theory and the Schism in Physics* (London: Routledge, 1982), 5-6. Michael Redhead, *Incompleteness, Nonlocality, and Realism: A Prolegomenon to the Philosophy of Quantum Mechanics* (Oxford: Clarendon Press, 1987), 51.
- <sup>119</sup>David Bohm, *Causality and Chance in Modern Physics* (Philadelphia: University of Pennsylvania Press, 1957), x.
- <sup>120</sup>Albert Einstein, "Reply to Criticisms," in *Albert Einstein: Philosopher-Scientist* (New York: Tudor, 1951), 666.
- <sup>121</sup>Jammer, *The Philosophy of Quantum Mechanics*, 257.
- <sup>122</sup>Ernan McMullin, "The Explanation of Distant Action: Historical Notes," in *Philosophical Consequences of Quantum Theory: Reflections on Bell's Theorem* (ed. James T. Cushing and Ernan McMullin; Notre Dame: University of Notre Dame Press, 1989), 275.
- <sup>123</sup>Heilbron, "The Earliest Missionaries," 219.
- <sup>124</sup>Raymond Y. Chiao, Paul G. Kwiat, and Aephraim M. Steinberg, "Faster than Light?" *Scientific American* 269 (August 1993): 53-54; Alain Aspect, "Introduction: John Bell and the Second Quantum Revolution," in *Speakable and Unspeakable in Quantum Mechanics: Collected Papers on Quantum Philosophy* (Cambridge: Cambridge University Press, 2004), xxvi.
- <sup>125</sup>Tim Maudlin, *Quantum Non-Local-ity and Relativity: Metaphysical Intimations of Modern Physics* (2<sup>nd</sup> ed.;

- Oxford: Blackwell, 2002), 240.
- <sup>126</sup>Abner Shimony, "Search for a Worldview Which Can Accommodate Our Knowledge of Microphysics," in *Philosophical Consequences of Quantum Theory: Reflections on Bell's Theorem* (ed. James T. Cushing and Ernan McMullin; Notre Dame: University of Notre Dame Press, 1989), 30.
- <sup>127</sup>Euan Squires, *The Mystery of the Quantum World* (Boston: Adam Hilger, Ltd., 1986), 132.
- <sup>128</sup>Norris, *Quantum Theory*, 35.
- <sup>129</sup>Kafatos and Nadeau, *The Conscious Universe*, 117, 75.
- <sup>130</sup>Ronald H. Nash, *Life's Ultimate Questions: An Introduction to Philosophy* (Grand Rapids: Zondervan, 1999), 248.
- <sup>131</sup>John Hedley Brooke, *Science and Religion: Some Historical Perspectives* (Cambridge: Cambridge University Press, 1991), 19.
- <sup>132</sup>Nash, *The Word of God*, 81. See also, Stephen Wellum, "Postconservatism, Biblical Authority, and Recent Proposals for Re-Doing Evangelical Theology: A Critical Analysis," in *Reclaiming the Center: Confronting Evangelical Accommodation in Postmodern Times* (ed. Millard J. Erickson, Paul Kjos Helseth, and Justin Taylor; Wheaton, IL: Crossway, 2004), 187.
- <sup>133</sup>Douglas Groothuis, "Truth Defined and Defended," in *Reclaiming the Center*, 68-69.
- <sup>134</sup>Stanley L. Jaki, *The Savior of Science* (Grand Rapids: Eerdmans, 2000), 1.
- <sup>135</sup>*Ibid.*, 65.
- <sup>136</sup>Del Ratzsch, *Science and Its Limits: The Natural Sciences in Christian Perspective* (Downers Grove, IL: InterVarsity Press, 2000), 136-37.
- <sup>137</sup>Vern S. Poythress, "Why Scientists Must Believe in God: Divine Attributes of Scientific Law," *Journal of the Evangelical Theological Society* 46 (2003): 112.
- <sup>138</sup>Nicholas Saunders, *Divine Action and Modern Science* (Cambridge: Cambridge University Press, 2002), 90.
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# Intelligent Design and the Contemporary Christian

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## **A Modest Idea: Intelligent Causation**

Are biological structures the product of intelligent agency or not? Theorists in the “intelligent design movement” believe there is sufficient evidence to answer in the affirmative. Amazingly, even the suggestion of this idea is enough to set off a “culture war” in many parts of the world.

The notion that biological structures show evidence of intelligent design is as old as human thought. This idea was common to religious theories about the origin of life, but many non-religious thinkers also attributed biological structure to a designer. As we shall see, Plato defended design arguments and until the time of Darwin such defenses were standard in many biological works by eminent scientists.

The first scientists were overwhelmingly believers in intelligent design in nature, a fact that nobody disputes. This is not surprising given the appearance of the biological world. Even a critic of design like Richard Dawkins must concede that the biological world appears designed. Given the intricacy of biological structures, their frequent similarity in appearance to human built machines, and the seeming improbability of their chance construction, the possibility of design is difficult to dismiss.

Intelligent design has a long and respectable history in science, but recently it has fallen on hard times. Of course,

many people are sincerely convinced that design theory is not useful based on their understanding of philosophy of science and the state of scientific evidence. They are opposed to the idea of intelligent design because they think it is wrong.

Sadly, unlike many minority positions in philosophy (one thinks of the idealism of Berkeley) where dissent is tolerated, opposition to design is not confined to modest arguments against its usefulness or plausibility, but comes with cultural and professional sanctions and heated rhetoric as any Internet investigation will quickly demonstrate. Why does the mere mention of design infuriate so many scientists and philosophers?

First, many scientists and philosophers are committed to the worldview of naturalism. One sociological feature of that view in modern times has been a disdain for theists and theistic arguments. Though intelligent design does not necessitate a god, it is congenial to the possibility. The very idea that theism might return to respectability causes a fierce reaction from fervent naturalists.

Second, traditional religious scholars have suffered from “second class” status in the academy for some time. Religion is not considered knowledge and some religious academicians have internalized rules of discourse that do not allow them to argue from the basis of their religious convictions. Many have developed theologies rejecting an active God who leaves “finger prints” that can be detected by

scientists. Such a theological shift has allowed these scholars to operate in a marginal position within the academy. Intelligent design ideas and the fierce reaction to it from naturalists threaten that hard earned respectability.

The larger problem is the inadequate understanding of the development of science and Western culture held by many working scientists (secular or religious). The history of ideas is often presented as a long process of eliminating religious ideas from science. The myth taught is simple: as religious thinking declined, science developed. Science was born out of philosophy. Philosophy, the secular myth claims, favored the elimination of religious explanations in favor of “natural” ones. People used to think the gods did things, but then they began to understand that gods were not needed. Darwin simply finished the long process of getting rid of divine explanations begun by Thales, Anaximander, and the other Pre-Socratic philosophers.

Instead, the move from Thales to Plato can best be understood as removing *unintelligent agency* (the Homeric gods) from explanations. Zeus was too whimsical to be part of any theory of the world. Heraclitus and other pre-Socratics were attacking a grossly inadequate theology that was useless as a knowledge tradition. They did not, for the most part, move to *secularism*, but to monotheism or pantheism. They substituted inadequate personal causal theories from Homer with better ones. For example, Heraclitus fiercely attacked the Homeric idols, but substituted a “divine logos” as the organizing principle of the cosmos.

Early philosophy began to define what could be considered intelligent *effects* and when it was justified to appeal to

intelligent design. Every effect needs an adequate cause and some effects appear to justify an appeal to an intelligent cause.

This process of philosophical development culminated in the work of Plato and Aristotle. Plato in particular appealed directly to intelligent agency in his final work *Laws*. In X, he argues:

Athenian: Quite true, Megillus and Cleinias, but I am afraid that we have unconsciously lighted on a strange doctrine.

Cleinias: What doctrine do you mean?

Ath. The wisest of all doctrines, in the opinion of many.

Cle. I wish that you would speak plainer.

Ath. The doctrine that all things do become, have become, and will become, some by nature, some by art, and some by chance.

Cle. Is not that true?

Ath. Well, philosophers are probably right; at any rate we may as well follow in their track, and examine what is the meaning of them and their disciples.

Cle. By all means.

Ath. They say that the greatest and fairest things are the work of nature and of chance, the lesser of art, which, receiving from nature the greater and primeval creations, molds and fashions all those lesser works which are generally termed artificial.

Cle. How is that?

Ath. I will explain my meaning still more clearly. They say that fire and water, and earth and air, all exist by nature and chance, and none of them by art, and that as to the bodies which come next in order—earth, and sun, and moon, and stars—they have been created by means of these absolutely inanimate existences. The elements are severally moved by chance and some inherent force according to certain affinities among them—of hot with cold, or of dry with moist, or of soft with hard, and according to all the other accidental admixtures of opposites which have been formed by necessity. After this fashion and in this manner the whole heaven has been created, and

all that is in the heaven, as well as animals and all plants, and all the seasons come from these elements, not by the action of mind, as they say, or of any God, or from art, but as I was saying, by nature and chance only. Art sprang up afterwards and out of these, mortal and of mortal birth, and produced in play certain images and very partial imitations of the truth, having an affinity to one another, such as music and painting create and their companion arts. And there are other arts which have a serious purpose, and these cooperate with nature, such, for example, as medicine, and husbandry, and gymnastic. And they say that politics cooperate with nature, but in a less degree, and have more of art; also that legislation is entirely a work of art, and is based on assumptions which are not true.

Cle. How do you mean?

Ath. In the first place, my dear friend, these people would say that the Gods exist not by nature, but by art, and by the laws of states, which are different in different places, according to the agreement of those who make them; and that the honorable is one thing by nature and another thing by law, and that the principles of justice have no existence at all in nature, but that mankind are always disputing about them and altering them; and that the alterations which are made by art and by law have no basis in nature, but are of authority for the moment and at the time at which they are made. These, my friends, are the sayings of wise men, poets and prose writers, which find a way into the minds of youth.

Instead of being the story of secularization, the birth of philosophy could better be presented as the refinement of a better theology and natural philosophy.

Intelligent agency is not, after all, a miracle. Unless one assumes that *human* behavior is the product of purely natural causes (such as brain chemistry), intelligent human agency is something all around. The mere existence within each

one of us of an “I” that appears to be irreducible to matter and energy suggests that naturalism is inadequate as a theory of everything. I am surer that I exist as “I,” than that the external world exists. There seems to be no good reason to explain the thing I cannot doubt (“I”) by something I can doubt (the world of matter and energy).

There is no adequate naturalistic explanation for human agency, but science can still proceed. Any science that deals with humans accepts human intelligence as a possible cause, a brute given. The same general procedures *could* be used when looking at biological phenomena. Was this organism *created* or not? The scientist need not know the nature of the creator to ask this question. Surely he knows what intelligent agency looks like from his own personal experience! If the intervention of a *human-like* intelligence is the best explanation for the existence of a biological structure, then a biologist ought to be able to entertain that possibility.

The advantage to this “open philosophy of scientific causation” is that it does *not* demand that a scientist find intelligent design. If design is not the best explanation or a better natural explanation is available, any scientist is free to propose such a solution. The present naturalistic regime demands, indeed assumes that *nothing* in the cosmos will require an intelligent designer.

One problem with language in this debate is that “creation” is frequently made to sound like a mere gap in the explanation . . . creation is a miracle that only contributes mystery to science. A famous cartoon shows a standard scientific formula with the words “and then a miracle occurs” appearing in the middle of the explanation. This common

conflation of “creation” with “miracle” (where miracle is the mysterious and unexplained) does not seem justified based on our experience with identifying human artifacts. A scientist can sensibly say, “This object shows signs of being created by intelligence. It is an artifact.” This is not invoking a miracle.

There are many questions that can be asked when we know that a man has created a thing. Why did he create it? How did he create it? What is it for? Knowing *that* a thing is a creation of an intelligent being (whoever that being is) does not end investigation—it *guides* it.

Often opponents of intelligent design act as if they already know that all of reality *must* be reduced to physics. But what if this is too simple a picture of reality? Surely it is possible that metaphysics has an irreducible role to play in any full “theory of everything.” Perhaps in areas such as human psychology, science comes to its natural limits and metaphysics plays an essential part in expanding knowledge.

If naturalists wish to say “intelligent design” is by definition unscientific (since science is, on their view, limited to natural causation), this is no real attack on intelligent design *as an idea*. Naturalism cannot explain everything, therefore science cannot explain everything. Intelligent agency would be part of a different field (philosophy?) and not science.

The discipline label should be no deterrent to finding the truth. If the goal of human investigation is to find the truth, and it is *possible* that biological entities were created, then humans will develop a discipline to discover that truth or expand their definition of an old one. This is not surprising since naturalistic science is blind to certain things. The very language of science and mathematics contains enti-

ties (numbers) that cannot be reduced to matter or energy. If metaphysics is not reducible to physics, then science is not all of knowledge. Science would be unable to explain human agency if something like the *human soul* exists as an immaterial entity.

Naturalists should not demand that everyone must limit themselves to naturalism and then become offended when non-naturalists (such as theists) do not listen, but this is often what happens. Having defined science as “applied naturalism” and having limited acceptable causes to natural causes, the naturalist is pleased to discover the theories produced by such scientists support metaphysical naturalism.

Defining terms is crucial to shaping philosophical debates. Terms such as “creation” or “design” have been hollowed out by naturalists for some time. Charles Darwin desired to remove all non-natural “final causes” from biology and dismissed “creation” as a vacuous explanation. Darwin could not imagine design as anything but fruitless terminology that explained nothing. Picturing the word “creation” as a pious platitude was good Victorian rhetoric and Darwin made strong use of it. To cite but a few examples from *Origin of the Species*:

He who believes in separate and innumerable acts of creation will say, that in these cases it has pleased the Creator to cause a being of one type to take the place of one of another type; but this seems to me only restating the fact in dignified language.

Nothing can be more hopeless than to attempt to explain this similarity of pattern in members of the same class, by utility or by the doctrine of final causes. The hopelessness of the attempt has been expressly admitted by Owen in his most interesting

work on the “Nature of Limbs.” On the ordinary view of the independent creation of each being, we can only say that so it is;—that it has so pleased the Creator to construct each animal and plant.

Although I am fully convinced of the truth of the views given in this volume under the form of an abstract, I by no means expect to convince experienced naturalists whose minds are stocked with a multitude of facts all viewed, during a long course of years, from a point of view directly opposite to mine. It is so easy to hide our ignorance under such expressions as the “plan of creation,” “unity of design,” etc.

Darwin prefers any natural theory to any appeal to intelligent agency. This makes sense if “creation” and “design” are defined as “ignorance of natural causes.” There are good reasons to doubt this definition.

First, if biological entities are the product of intelligent design (“creations”) then the search for unintelligent causation is futile. Design is *not ignorance of natural causes, but knowledge (based on observation) of an intelligent cause*. Is scientific observation the search for truth or naturalistic answers? If naturalists assume such an answer *must* exist, then they are likely to find clever answers, but not the truth. I fail to see how a classification system based on ancestry (like those of Darwinists) is more robust as an explanation than a classification system based on design patterns. Only if natural accounts (such as descent) are always preferable to non-naturalistic accounts (such as mathematical modeling to find body patterns) can one make this claim.

Second, modern design theorists like William Dembski and Stephen Meyer are attempting to provide robust definitions of design and then examine the implica-

tions of such definitions. At think tanks like the Center for Science and Creation or in graduate programs in science and philosophy at Biola University, such work is on-going.

### **The Idea of Design and Creationism**

Critics of the idea of design try to dismiss it as a form of “creationism.” This is only possible because in popular usage the word “creation” refers to the handiwork of a god. The broader convention is still around, since the work of any intelligent human agent can still be called his creation. One can say that Joss Whedon is the *creator* of *Buffy the Vampire Slayer* without becoming a creationist!

Intelligent design scientists observe the biological world and believe the evidence points to a “creator.” This is a “creator” in the broad sense (“intelligent agent who makes things”) and not in the restricted sense of “the deity who makes things” The broad sense is useful in any design theory while the narrow sense is a term needed for a creationist explanation of things.

To avoid popular confusion, some design theorists avoid the words “create” or “creator” and prefer “intelligent agent” or some other term. However, other design theorists continue to use the words in the broader sense. Ill informed or hostile people can use public confusion about word usage to conflate intelligent design theory with “creationism.” But what *is* a creationist? Creationists are (generally) defending a particular *religious* theory about the identity and methods of the creator. For example, I am a Christian and a young-earth creationist. Based on my reading of the Bible, philosophical arguments, and some scientific evidence, I believe that the earth is roughly ten

thousand years old, much of the fossil record should be explained by a global flood, and the phyla (at least) were created as we find them today. This is a *creationist* theory about the origin of the design in the world.

Design theorists who are *not creationists* make much more restricted claims. Biology cannot possibly yield such a rich theory of reality as young earth creationism by itself. The design biologist can only extrapolate to the existence of a designer (intelligent agent). This designer may or may not be the God of the young earth creationist. As a result of this distinction, design theorists need not be creationists. Design is not “weak creationism” or “sophisticated creationism.” Design theory is the sort of supporting idea that must be true if creationism is true, but design theory could still be true if every form of creationism was false. If aliens from Vulcan seeded our planet with life they designed, then a design hypothesis would be true, but all forms of creationism would be false.

There are good rhetorical and political reasons for critics of intelligent design to associate it with creationism. Though creationism is very popular in the general population, it is very unpopular amongst intellectuals. Associating intelligent design with “creationism” also makes it “religious.” In the United States, courts *cannot* forbid legislation mandating merely foolish ideas in schools, but it can ban religious instruction from the classrooms. Calling intelligent design “creationism” helps suppress discussion of design theories (or advocacy by individual teachers) in government schools.

*The modern intelligent design movement is not religious, but it does have implications for religious people. An idea can be important*

to the truth of a religion without itself being religious. If ancient Israel did not actually exist in the past, this would have serious ramifications for traditional Christians. Fortunately archeology discovers that Israel did exist in Palestine which is good news for the Christian. Does this mean archeology is a form of Christian apologetics? In the same way, the usefulness of design concepts to Christian theists does not make intelligent design religious!

Concerns about getting this distinction right must not produce an even worse error in Christians. Some Christians end up treating religious knowledge as if it is unfit for public consumption! Just as design theorists are free to be atheists, so some design advocates should be free to become creationists and free to pursue their studies using all their sources of knowledge. Fundamentally, intelligent design or the notion that intelligent agency could have played a role in biology, is compatible with theism, but is not necessarily theistic.

Why are so many leading design theorists Christians? Since there are millions of Christian theists in the United States (over eighty percent), it is sensible to assume that most design theorists will be theists. One assumes that a huge percentage of most activities in the United States contain overwhelming numbers of Christian theists!

Creationism is a religious idea that utilizes some design theory. It claims to know the designer based on philosophical and theological grounds. Christians are free to use all our knowledge to assert that the creator of all life is the God of the Bible. To do this, we will have to develop a more flexible philosophy of science than that given to us by our culture.

## Christians and Creationism: A New neo-Platonic Philosophy of Science

In his dialogue *Timaeus* Plato says,

If we can furnish accounts no less likely than any other we must be content, remembering that I who speak and you my judges are only human, and consequently it is fitting that we should, in these matters, accept the likely story and look for nothing further.

Here is the start for a solution to endless debates of the roles of “religion” and “science.” One should read Plato for his own sake, not just to proof text him for answers to contemporary problems. However, it is appropriate after reading Plato and trying to understand him in his own context, to see if his ideas can be helpful in solving modern debates. I believe Plato can help reframe the questions in religion and science discussions in the conservative Christian community.

Sadly, Christians have not benefited from this friendly philosophy of science. Creationists have not spent much time developing a philosophy of science. Those creationists who have thought much about the nature of reality have tended to be simple Baconians. Too often creationism has been merely a hermeneutic in search of an apologetic. Too few creationists have given themselves the intellectual freedom to examine their own point of view critically. Ironically many creationists have more in common with David Hume than with such religious figures (and neo-Platonists) as A. E. Taylor or George Berkeley. This is not surprising in a movement dominated by scientists and pragmatic Americans. I believe such a blind commitment to certain naïve Enlightenment forms of realism is not beneficial. At the very least, it prevents Christian scientists from exploring the world around them

with the freedom a different philosophy of science might allow. Plato was the first great creationist, if one means by that term a thinker who accepts that the universe began with a creator.

It is easy to derive some important principles for a creationist philosophy of science founded in Platonism. Creationists should take as their goal the sort of “likely account” of the origins of the world that Plato places in the mouth of the wise Timaeus. The freedom that young earth creationism can potentially give the philosopher of science is an important reason for my embracing young earth creationism. Traditional science is locked into an established Darwinian view that does not allow for such freedom of thought.

Oddly, creationists have, by and large, adopted methodological naturalism while rejecting philosophic naturalism. No creationist believes that “nature is all there is, was, or will be.” But too often, he acts as if naturalism were true in his research. He will not allow a “miracle” or consider evidence for divine intervention any more than his secular peer. The difficulty is that methodological naturalism closes the door to God’s detectable action in nature. Too often it leads creationists to make fruitless attempts to falsify some particular notion that naturalists currently maintain, using naturalistic assumptions, while failing to develop their own model of the world. Creationists forget that a fully naturalistic flood model might be as destructive to theism as Darwinism.

What is truth? Since Pilate asked that question of Truth Himself in the Gospels men have puzzled to find a resolution. The full answer is beyond the scope of this or any article. It is sufficient for this article to make a small distinction in the way we normally use the term “truth.”

The first way is a term to describe what Francis Schaeffer called, "True truth." These are truths that are logically necessary and I would include in this category mathematical concepts, logical relationships, and facts about the past. The second category of "truths" are things for which we have good reasons to justify our belief, but which might still be false. Confusion between the two categories leads to problems, as we shall see.

Scientists often sound as if they are expounding some necessary truth about the cosmos. Plato would caution moderns that such truth is hard to find. Platonism suggests that stories are all one can tell about the cosmos. It is simply a subject about which developing orthodoxy is impossible.

Theories about gravitation are often held to be descriptions of necessary relationships in this or any other universe. In the same manner, theologians often make the same sort of claims. Theological descriptions of the Universe, like Arminianism or Calvinism for example, often claim to be necessary because they are rooted in the unchanging nature of God. The problem is that both sorts of theories may be claiming too much, if this is indeed their claim. As descriptions of reality developed by human minds, they are always incomplete. Our knowledge of their truth is under-determined by the evidence.

Scientists can never have all the facts about any matter. Scientists must, therefore, be somewhat skeptical about any idea in science. No theory, no matter how secure, is beyond the reach of some theoretical bit of new evidence. Every theory is subject to modification and so none fits our earlier definition of True truth. One adopts these theories, not because one is

compelled to do so or by logical necessity, but for other less secure reasons. A theory may be adopted, for example, because it is the best answer available at present. Fully natural incompatible theories that both fully explain the data are possible. If one allows for a broader view of science, with supernatural explanations allowed in some manner in one's meta-commitments, then the possibility of logically incompatible but working theories is even greater. Divinity is a powerful, indeed at times too powerful, explanatory tool.

This does not mean that some theories are not very secure. Many, like theories about gravitation for example, are very secure indeed. It is not my intention to suggest that one can discard very secure theories at will or on a whim. Such theories are very important human artifacts that should only be abandoned for good and sufficient reasons. They may come very close indeed to fully describing some necessary truth about the universe. But at the end of the day, unlike mathematical relationships discovered by humans, scientific theories are human artifacts after all. Mathematical relationships are necessary relationships. No mathematician will discover that  $2+2$  is not 4. On the other hand, it may be hard to imagine certain scientific theories receiving large scale modifications, but our experience with Newton and Einstein's physics should help us see that such modifications are possible, if unlikely.

The same thing could be said about theological systems. No matter how complete or how profound they might seem to be, theological systems are human artifacts based on divine revelation. Is there any theologian so bold as to claim a complete and perfect systematic theology? All such theories are open to modifica-

tion or falsification with the passing of time. Once again, this is not to introduce some sort of cheap relativism. Certain formulations, like the "Apostle's Creed," would seem to be very secure indeed. It is unlikely that much modification will ever be needed to such creeds. In some religious traditions within Christianity, such creeds are, of course, felt to be part of the Divine revelation or deposit of necessary truths. This only removes the problem to another level, however. Such Christians would still have some theological system based on the Creeds that would not be necessarily true.

What does this imply? This means that in both science and theology it is logically possible that two logically incompatible theories may be developed that both (even fully!) explain the evidence. This does not mean that two such theories currently exist. In science, one is hard pressed to think of any particular example. In theology, any such example would be hopelessly controversial. However, the logical possibility of such theories existing has profound implications for the creationist.

First, it means that naturalistic theories and theistic theories of origins will always be adopted for reasons independent of necessity. It will never be logically necessary to be an evolutionist. Once again, this does not mean that it might not be sensible to be an evolutionist and not a creationist given the state of the evidence or conversely that some theory of creation might be preferable to some theory of evolution. It might be that the only reasonable thing to do given the evidence as it stands at present might be to choose some particular theory of origins over another, but it is not ever a compulsion laid on a rational soul. Rational dissent is always

a theoretical possibility, even within the Church. Theories about the physical world will always be under-determined by the evidence.

It will be claimed of course that to dissent from a theory that was very well established would require an alternate theory to already be in place. This is not the case, however. Since theories always carry the logical possibility of logically incompatible alternatives being developed, a person might seek out another explanation for a phenomenon because the current theory fails on some scientific or metaphysical grounds for that person. A person could also seek a new scientific theory for the sheer joy of developing new theories. To deny the human joy of seeing things from a new perspective is to develop anti-intellectualism in the name of scientific orthodoxy. So long as the person deals fairly with the evidence and the rules of rational discourse, he should be free to pursue other research vantage points.

Yet in the case of human origins, it is clear that large numbers of people have powerful and rational reasons to seek a new scientific theory. The conservative Christian, for example, has a powerful and satisfying set of religious experiences to explain. He is perfectly rational to seek to preserve those experiences if he can. Preserving those experiences and the belief systems that support them at the cost of reason and honest dealings with the data would be to go too far. Exploring openly and honestly for some theory of science in order to preserve his functional and elegant epistemology is a reasonable action. Why should a person not value his metaphysical orthodoxy over a scientific one? If no scientific theory can be developed to account for his view,

then he should abandon that view in the end. Meanwhile, he should be free to pursue his vision of science without harassment.

I am not saying that any old scientific theory will do. There are many theories that are not possible. A Platonic philosophy of science says developing incompatible theories is possible, not that any given theory is possible. Creationism may be a dead end. I do not believe it is. In any case, it is sensible to explore the intellectual avenues opened by a creationist world view if for no other reason than that such intellectual exploration is good for its own sake. The "story" of Genesis is a powerful one that has had a great hold on the minds of humans for many ages. To explore that view and to show that it cannot be made to accord with the facts of the universe would be a great service to science, theology, and philosophy. The careful creationist researcher stands, therefore, in the very highest intellectual tradition.

The second implication of these general concepts is the attitude that non-creationists should adopt to those pursuing this, to their minds, fruitless task. The naturalist or the theistic evolutionist should welcome the creationist into their midst with joy. Even if the creationist is chasing down the wrong track, if he is working carefully, his failure should be illuminating. Creationist critiques of current theories and reformulation of current data can only enable the members of the academy to see that data in a new light. Imagine for example the opportunity for biologists to examine a completely creationist biological classification scheme. Even if the creationist view fails in the end, such a scheme would have enabled the non-creationist to examine relationships from a new point of view. In some ways, it would simulate the contact

between two radically different cultures! Both groups would benefit from the cross-fertilization.

If all sides of the origins debate admit that they are at best telling "likely stories," then they can, in humility, continue to use their metaphysical assumptions to spin new theories to explain the ever-increasing amount of data collected in our universe. In fact, philosophy of science is beginning to come to the conclusion that this is what they are doing whether they admit it or not. This has been the great lesson taught to us by feminist philosophers of science. Feminist philosophers and scientists have shown that science is value laden and value driven. Ideology does make a difference in how we interpret the data of the world. Each person, to use Quine-like language, has a web of belief. The individual is willing to modify outer strands of that web in order to preserve the more central aspects of her world view.

What should be central to our view of the world? To some rational men and women, the area very near the center touches on naturalistic explanations of the cosmos. Any belief is altered to preserve that view. This is a rational thing for that person to do if naturalism is a core commitment. Assuming that a conservative Christian point of view is also rational, it is equally sensible for a person to modify their scientific theories (so long as they do so honestly) in order to preserve that precious set of commitments. In short, a naturalist will prefer a less robust metaphysics that is being worked upon, if he gets a fully naturalistic theory of everything. A conservative Christian theist will prefer a less robust (at least in its early stages) scientific account of the world, if it preserves his metaphysics. Neither is acting

irrationally, unless conservative Christian theism or naturalism can themselves be shown to be irrational.

The colleges and universities should, therefore, free individual scientists, philosophers, and theologians to work on their own individual theories about the way that the world works. Scientists with new or relatively weak scientific general theories should not demand equal time in-class in talking with students. Scientists teaching the dominant paradigm should point out that some significant group of scientists are disturbed by certain scientific problems with the "orthodox" point of view and by some metaphysical implications of the same. While the students master the "orthodox" theory as the best available at the time, they are also taught the open-minded approach to ideas that all true students require for their growth. Of course, in the case of scientists who challenge areas of overwhelming consensus, like that in the area of origins or relativity for example, funding should not be expected. The scientist might be free to teach "orthodoxy" in the mainstream university or college while pursuing their more "eccentric" views on their own time. On the other hand, these persons should receive the same general use of the facilities available to all members of that particular academic community. (Their freedom to develop alternatives as part of their regular personal research responsibilities should not be impaired. A creationist scientist should be free to publish in creationism and such work should be considered legitimate science.) Of course, any scientist who misuses or abuses data to support any position is guilty of a crime against reason! No argument justifies such behavior.

Many anti-creationists are likely to

react that creationism cannot ever be a candidate for "alternative theory status" because creationism cannot be science. They have a methodological naturalism built into their view of science. This is a hollow victory, however. Even if the point is conceded (and I do not think it needs to be), the creationist can simply say that he is involved in a bold project to develop a view of the universe combining both the "facts" explained by religion and the "facts" explained by science.

The naturalist of course (and not all who use the natural method in science are naturalists) does the same thing. He attempts to explain both sets of data using only "science," as science has been defined. If the creationist can develop a new approach to knowledge, and after all the majority of early scientists knew no formal "natural method" as a limitation of science, such a new epistemic research program would not be harmed by the fact that it was not "science." If my theory explains the natural world in a rational, interesting, productive, manner, then what difference does it make if it does not fit into semantic classification schemes? Let the creationist say that he is involved in "natural philosophy" if the naturalist prefers. If he develops a view that explains the facts of the world, then he is not harmed by his exclusion. In fact, given certain psychological tendencies toward theism that humans have shown, "science" may someday want to claim that it can expand to do "natural philosophy."

Let me stress that I am not suggesting that creationists import religious explanations for natural events in an ad hoc manner. Nor does scientific Platonism lead to a "relativistic" post-modernism. There are sound philosophic reasons for being

wary of such ideas. Creationism has built in religious metaphysical commitments. These commitments have implications in the natural world. The limitation of the impact of these implications would be a chief problem of a creationist philosopher of science. In so far as a creationist does day-to-day research, his technique and methodology would not (as it was not historically) be much different from that of his natural method colleague.

Plato believed in truth. He was even open to the possibility that some kinds of truth were knowable. More importantly, stories can be *likely* or *unlikely*. While the Christian and the Platonist are never certain of the truth, in a Cartesian sense, they can still find good reason to prefer one answer to another. Theories should be internally coherent. Given Christian and Platonist views about the nature of God, the creator should have made the most beautiful of all possible worlds. The Christian Platonist will prefer the elegant theory to the clumsy one.

The final implication to the suggestions based on the advice of Plato is that creationists should quit spending all their time criticizing evolutionary theories. Plato criticized the *unlikely* stories of his day, but that is not all he did. Phillip Johnson has sufficiently shown, to any open-minded person, that a rational person need not accept evolution. The creationist has been given good reason to look around for another point of view. It is a waste of time to repeat that effort. If Johnson has set us free to speculate, then it is time to begin the theorizing.

Platonism is also not particularly triumphant in its expectations. Plato had a modest view of human ability to pursue truth for very long. Most people will prefer to cling to the dogmas of natural-

ism. They appear safer. Plato points out in *Republic* that handing out opinions is much more attractive than following the argument wherever it leads. He thought this especially true of the intellectual leaders of the city of his day.

Therefore, Christians should not expect evolutionists to give up. Evolutionists will be able to expand or change their view to handle any new bit of evidence. Large scientific and metaphysical theories about the world are very flexible. It is difficult to imagine what sort of data could force a committed individual to abandon them altogether.

Having shown that it is rational to look around, the creationist should begin to construct a sound and equally powerful theory about the cosmos. Plato has shown naturalism to be largely indefensible. Christianity shows it to be the product of man's desire to be God. We must leave the spiritually and intellectually dead to bury their own dead and move on to living lives in the light of what we believe, based on best reason and experience, to be the nearest approximation of the truth. Creationists must begin to theorize unconstrained by defensiveness.

The lack of such a theorizing is the great weakness of any "creationist" worldview. This world-view must be free to grow as the evidence demands. We must not force creationist scientists to enter the lab with any theoretical constraints. A creationist scientist must be free to falsify a creationist view. He must be free to develop data that helps the other point of view, if that is where his research leads him. He must not be forced into an intellectual straight jacket in our desire to develop a creationist worldview. If his best reason shows that evolution theory is the best result or that creationism is most unlikely to develop

a fruitful alternative, then creationists should publish his results. No one should tie scientists to particular Flood mechanisms or hermeneutic techniques.

Intellectual freedom and the free market place of ideas will leave Christians with nothing to fear if our hermeneutic has allowed us to divide rightly the Word, which is Truth. No likely story could ever defeat the Greatest Story Ever Told. Having nothing to fear, therefore, creationists should pursue their intellectual quest for another (and we think more biblical) view of the world secure enough in our God and faith to allow our doubts to freely surface. It is that freedom of thought, grounded in the nature of God Himself that is the best reason to dare to be a creationist.

### **Christians and Creationism: Incarnational Science**

Plato and his disciples did not produce the scientific revolution. Later Greek philosophers took Plato's work and abused it. They veered between a worship of nature as god and a denigration of nature as worthless. Both extremes made science difficult to sustain since one does not study a god or spend time on a worthless thing.

Intelligent design is a useful first step. Christians expected something like it to be true, but the traditional Christian has additional sources of information (such as the pages of sacred Scripture). We have more knowledge than the knowledge that can be gained from the design theorist alone. Knowledge of design, seeing finger prints in creation, is just a clue to the nature of reality.

There is even richer information to be gained from divine Revelation. Phillip Johnson was right when he suggested that

the key passage in the debate about Christianity and Darwinism was not Genesis 1, but John 1. The divine Word became flesh and so brought reason down to Earth and clothed it in humanity. The incarnation of the Word made science possible, because it ennobled matter without divinizing it. Even the fallen world became very good, because it clothed the God-Man Jesus Christ.

The Incarnation also suggests a God who is involved in His creation. The Word made everything that was made. He then came and lived among His human creations. This suggests an active and involved creator God and not the distant God of deism.

The Incarnation story is not over. Cosmic history does not *just* have a meaningful *beginning* for a Christian theist, but an end. History is going someplace and Creator God will personally bring the End of the cosmos by His own mighty hand. His plans for the End suggest a God who is not distant, but one who is involved in every facet of cosmic history. Surely the Savior whose eye is on the sparrow cares about the details of His creation! His care and compassion suggest that He would minimize animal pain and suffering in every possible way. Human pain is difficult enough to understand, but animal pain that cannot teach the animal anything is even more difficult. One reason to prefer a younger to an older earth is to minimize this problem of animal pain.

Divine revelation teaches us that God continues to "intervene" in a creation He loves. Every human conception is also a singular creative act as a soul is placed within each new body. God "intervenes" in history millions of times each year! This does not suggest a God who is distant, but one who is involved. A Christian is justi-

fied to look for the fingerprints of God in all of creation, because of what he discovers about God's nature through biblical revelation of the Incarnation. The fact of the Incarnation and God's revelation of Himself as Trinity through it changed everything. Plato could not imagine this and Judaism missed it.

# The *SBJT* Forum: “In the Beginning...”

*Editor’s Note:* Readers should be aware of the forum’s format. D. A. Carson, Kirk Wellum, Todd L. Miles, Terry Mortenson, and C. Everett Berry have been asked specific questions to which they have provided written responses. These writers are not responding to one another. The journal’s goal for the Forum is to provide significant thinkers’ views on topics of interest without requiring lengthy articles from these heavily-committed individuals. Their answers are presented in an order that hopefully makes the forum read as much like a unified presentation as possible.

**SBJT: In any complex debate, it is not long before there are “hidden” elements in the discussion, i.e., elements that are gumming up the integrity of debate because one side or the other fails to recognize their existence and significance. What “hidden” elements are there in current discussions over science and origins?**

**D. A. Carson:** I shall mention three, and then offer a concluding reflection.

(1) Considerable confusion exists over what a biblically faithful understanding of the relationship between God and the created order ought to be. Consider three possibilities. (a) In an *open* universe (not to be confused with “open theism”), God interacts openly with the created order. Everything that takes place in creation takes place because of the explicit control that God exercises. The only determination of any event is the will of God, directly and immediately controlling everything. It is difficult to distinguish “miracle” from any other event, because God stands immediately behind *every* event; equally, it is almost impossible to envisage what “science” might be, for everything is immediately traceable to the mind and will of God. Moreover, this way of looking at things often leads to fatalism.

The only “cause” of anything is the immediate will of God. (b) The direct opposite of the first option is the *closed* universe. By this I mean that everything that happens in the universe is caused by other things in the universe. There is no outsider, and certainly no God who reaches in and controls things. Cause and effect take place within the closed order of creation. Obviously, science is not only possible, it is the only rational way to try to understand sequences of events, whether in history or in the physical order more broadly. (c) An alternative to both is the *ordered and controlled* universe. Here everything that happens takes place within God’s control: not a bird falls from the heavens, Jesus reminds us, apart from God’s sanction. Paul tells the Ephesians that God orders all things according to the counsel of his own will. Yet God normally does things in a regular way. That is precisely why science is possible. God has created all things in a certain way, and ordains things to interact with one another in a regular and particular fashion. But God does not then step away from the created order and simply let things take their course. He continues to be in charge, and nothing occurs apart from his sanction. The biblical writers know of the water

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cycle: Qoheleth, for instance, knows of rain that falls on the land, forms streams and rivers, returns to the sea, is evaporated into the skies, and falls again as rain. But the biblical writers' knowledge of the water cycle does not prevent them from preferring to say that God sends the rain. All of the physical phenomena bound up with the water cycle are ordered by God. They are regular, analyzable, measurable. Science is thus not only possible, but a means of discovering how God *regularly* does things through means he himself has established and ordered, and which he continues to control. On the other hand, nothing prevents him from doing something very unusual, quite outside the regular ordered array. That is what we call a miracle, and, precisely because such an event does not follow a regular pattern, science is unlikely to have any useful or accurate explanation. Moreover, this side of the resurrection we may rightly insist that it is Christ himself who upholds all things by his powerful word; Christ is the mediatorial king, i.e., all of God's sovereignty is mediated through him until the end of the age (1 Cor 15). He is the One who orders and controls all things, even if most things in his watchcare are so regular in their operation that science is a great gift for uncovering this order.

These three are not the only possible patterns for thinking of the relationship between "God" and "the universe." My point, in any case, is simple: all sides often bring certain assumptions about this relationship to the table, and rule certain arguments out of order simply because they cannot see beyond their assumptions.

(2) Two views of what science is are battling to prevail in the public square. Although the two overlap, the first is more

narrowly methodological than the second. The first asserts that science is tasked with understanding as much as possible of the physical order, using the time-tested tools of careful observation, measurement, controlled experiments that can be replicated, deploying testable hypotheses that win consensus or are modified or overturned by subsequent advances, and so forth. The second view of what science is adopts all the methodological commitments of the first, but adds a philosophical commitment: science in this second view steadfastly refuses to allow into the discussion, at any level, any appeal whatsoever to anything supernatural.

In the present atmosphere, these two views of science can often be distinguished by how they respond to the best of the intelligent design arguments. While remaining rigorously scientific *within its own definition of science*, the *first* view can envisage the possibility that the proponents of intelligent design may be on to something. The best of the arguments for "irreducible complexity" attempt to introduce such mathematical rigor into *known* physical processes that they can be distinguished from the "God of the gaps" errors so egregiously common among nineteenth-century figures. These scientists may want to tread cautiously to be sure that no surreptitious "God of the gaps" arguments are being smuggled in, but they cannot see anything *necessarily* wrong with the physical world bearing witness to its Creator. At very least, the matter is worth further scientific probing. By contrast, scientists who implicitly or explicitly adopt the *second* understanding of what science is will insist that even the best arguments for intelligent design are *necessarily* unscientific. There *cannot be* any connection between scientific method and

possible implications outside the material order, as there cannot be any appeal beyond the material order to explain what takes place within that material order.

The links between this latter view and the “closed universe” of the previous point are pretty obvious. One might therefore think that everyone who adopts this second view of science is necessarily a philosophical materialist, perhaps an atheist, yet quite clearly this is not the case. Some scientists who are sincere Christians adopt this second view of science, but think that God-talk inevitably describes God’s relationship with the universe in non-scientific terms, i.e., in another dimension, or with other categories. Science and theology become alternative but mutually exclusive ways of describing reality.

The tensions intrinsic to this position are considerable, for transparently biblical Christianity insists that God has disclosed himself not only in private ways to particular individuals, but also *in the public arena of history, in the material space-time universe*. The cardinal instance, of course, is the resurrection of Jesus Christ. If a person does not accept the real but miraculous nature of this event, it is difficult to see how he or she can be a Christian at all. But if one accepts the facticity of this event as described in the Scriptures, then one necessarily allows that there are at least *some* occasions when the supernatural God interacts with the material universe in ways that transcend what science *can* treat. As Carl F. H. Henry once asked Karl Barth in an open Q & A, “Was the resurrection of Jesus Christ the sort of event that could have been recorded by contemporary news media had they been present?” If one says no, one abandons the biblical record: after all, the tomb was

empty, and the resurrected Jesus had the tell-tale wounds, was seen and touched, and ate with his disciples. If one says yes, then one abandons the second definition of science *at least in this instance*, for scientific observation could observe in principle the phenomenon of the resurrected Christ *without being able to allow it because it defies “scientific” (under this definition of “science”) explanation*. The tension is palpable. If one chooses to live with it in the case of the resurrection of Jesus, why not allow it in some other events? For obviously this argument could be extended to other great revelatory moments, and ultimately to *creatio ex nihilo* (After all, how far can any Christian reasonably push even the most speculative theories of an infinitely repeating expanding and contracting universe?).

But my point is at the moment a simpler one: Very often conflicting definitions of “science” lurk behind the intensity of our debates.

(3) Hermeneutical discussions regarding the opening chapters of Genesis often hide another set of assumptions. We might get at this challenge by thinking our way through an example. Someone might argue (Indeed, many have argued!) that the Hebrew word for “day” always refers to a solar day when it is modified by an adjectival number. So when Exodus 20 tells us that the Lord created the heavens and earth in “six days,” the nature of the day (it is argued) is settled. Let us for the moment grant the validity of this argument without further dispute or refinement. The next phase in the discussion often revolves around whether Genesis 1 is prose or poetry, with the assumption that this is equivalent to asking whether it is history or imaginative, metaphorical description. At this juncture

one encounters lengthy debates over the nature of Hebrew parallelism and its place in poetry, over the possible relation between the terminology of this passage and the terminology of other creation accounts in the Ancient Near East, including *Enuma Elish*, and so forth. But one of the possibilities is rarely probed very far. Some have argued that this description really is given in terms of solar days, that the account is very much in terms of a “creation week,” that it is wrong to think of each day being a symbol for an age (as in the “day-age” theory)—but that this does not itself mandate a young earth or a literal week-long creation, because, it is argued, the creation week is itself a creative representation of what happened with its own theological purposes, but not a “scientific” or “historical” representation of what happened.

If this argument were admitted to have any plausibility, then of course all the evidence in the world that the days of creation are solar days is irrelevant to the debate. The question of literary genre becomes far more central—and it is far more difficult to adjudicate. Sadly, its difficulty is exploited by both sides. The conservative side sometimes treats appeals to literary genre as mere excuses for unbelief; the liberal side sometimes appeals to the literary genre of Genesis 1 as if astonishing minimalism is mandated by the text itself. But once again, my point is the simpler one: on all sides of this discussion, very often hidden elements gum up the quality of the discussion.

And that brings me to my final reflection. Thirty-five years ago, Francis Schaeffer wrote a little book that I have often found useful in helping some Christians move beyond entrenched positions. That book was called *Genesis in Space and Time*

(London: Hodder & Stoughton, 1972). He asked, in effect, a simple question: What is the least that Genesis 1-11 must be saying for the rest of the Bible to cohere, for the rest of the Bible to make sense and be true? That is not the same as asking what is the *most* that one can reasonably infer from these chapters. Rather, it is one particular application of the old *analogia fidei* argument: the appeal to “the analogy of the faith” as established by the rest of the Scriptures is one crucial way to let Scripture interpret Scripture.

### **SBJT: What important things do we learn from the biblical doctrine of creation?**

**Kirk Wellum:** The importance of the doctrine of creation is crucial to understand, if we are to grasp the richness of the biblical storyline from beginning to end. Zooming out as far as we can go, the biblical story can be divided into four main parts: (1) Creation, (2) Fall, (3) Redemption, and (4) Re-creation. Immediately, it should be apparent that this breakdown does not proportionally represent the overall distribution of the biblical material. In one sense, the creation of the heavens and the earth and the sinful rebellion of humankind is presented by the time we get to the end of Genesis 3, and the rest of the Bible is primarily taken up with God’s plan of redemption that reaches its fulfillment in the unveiling of the new heavens and new earth at the end of the age. However in another sense, these four themes, including creation, are intricately woven throughout the Bible from start to finish. Even where these themes are not explicitly mentioned, they are implicitly informing everything that is taking place. Due to their foundational nature, mistakes in any of these areas have serious

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and widespread implications for how we understand the Christian faith. This is not only true with regard to redemption but it applies to the doctrine of creation as well. Creation sets the stage for everything that follows in the Bible and it carries the story along in ways that might not be obvious on the surface. If we miss what God is revealing about himself as the sovereign Creator, ourselves as creatures made in his image, the world that he made good and for his glory, and Jesus Christ as the Lord of creation, the biblical message is lost, or at least, severely distorted. Since we possess the whole biblical canon, we often forget that Genesis was written long after the events that it describes took place and that it was written for the Israelites after they were rescued from Egypt and formed into a nation. God went to all this trouble because the Israelites needed to know the information contained in Genesis, including the creation account, if they were to make sense of what he was doing. In a similar way, we need to have a solid grasp of this material if we are to understand God, ourselves, the world around us, and the salvation that is found in the Lord Jesus Christ.

*First, the biblical doctrine of creation establishes the glorious character of God.* He is not one God among many, a mere local, tribal deity. Rather he is the true and living God, the Lord of heaven and earth. He is the source of life and he is completely self-sufficient. He did not create to meet some lack in himself as if he needed something to do, someone to talk to, or someone to love. He created for his own good pleasure that he might reveal his magnificent splendor. More than just the great architect of the universe, he is the King of creation. But we should never think of him as aloof and distant because

of his transcendent royalty since the Bible tells us that he is intimately involved with his creation continually upholding, sustaining, and governing all things by his powerful word. He has graciously chosen to enter into a covenant relationship with his believing people whom he has chosen in his Son before the foundations of the world. In short, there is no God like this God! He is truly awesome and full of majesty, glory, wisdom, power, beauty, and skill. Consequently, he is worthy of our love, obedience, and worship. He will win the battle against sin and Satan who has rebelled against him. We can count on him to keep all his promises. We can trust him no matter what happens in human history, in our personal lives, or in the life of the church.

*Second, the biblical doctrine of creation also tells us something about ourselves as human beings.* We did not evolve from impersonal matter. Rather, we were created by God and, as such, we are creatures who are dependent upon him and responsible to him. We are not little gods around whom the world revolves, but neither are we insignificant. In fact, our real significance is found in our identity as creatures specially made by God in his image and likeness. This is our glory and the source of our true dignity, and we get into trouble whenever we forget our origins and attempt to live contrary to this reality. When this happens we lose touch with who we are and mistakenly redefine ourselves as sophisticated animals who sit on top of the food chain, or as human machines, or bundles of unruly hormones, or even as animated microprocessors. This is devastating on many levels because our identity as God's creatures grounds our ethical and moral responsibilities in his righteousness and establishes our role as

the stewards of his creation who operate under his authority. Furthermore, it is only when we view ourselves as God's creatures that we begin to see that something is terribly wrong with the human race, which superficial treatments cannot fix. Against the backdrop of our original glory, we see that our problems run so deep that only redemption that ultimately results in complete re-creation can set us back into a proper relationship with God.

*Third, the biblical doctrine of creation tells us something about the world we inhabit.* Put simply: the world made by God has significance. In the beginning, God pronounced a seven-fold blessing on all that he made. This means, among other things, that the world has real value. Therefore, we must not exalt the spiritual over the physical or vice versa; both are important and, in the end, God will redeem the material and immaterial components of our humanity so we can enjoy him in glory forever as whole human beings. The fact that God created and sustains the universe also grounds scientific inquiry. We do not live in an "open" universe where we are subject to capricious, unregulated, and arbitrary elemental spiritual forces, nor a "closed" universe that God cannot enter and in which he is not permitted to operate. Instead we live in a "controlled" universe where God regulates all things according to laws that he has established and yet reserves the right to act differently as he sees fit. This last perspective makes it possible for us to do science and at the same time to pray to our heavenly Father. Consequently, we can simultaneously think God's thoughts after him because of the regularity he has established and call upon him to intervene in supernatural ways without being intellectually incon-

sistent.

*Fourth, the doctrine of creation has implications for our understanding of the gospel that is centered in the Lord Jesus Christ.* The doctrine of creation is both theocentric and profoundly christocentric. As the biblical story unfolds and we move from the Old to the New Testament, we find that Jesus stands at the center of creation and fulfills Old Testament revelation in wonderful ways. His transformation of the doctrine of creation is introduced in the Gospels, elaborated on in the epistles, and comes to its grand conclusion in the book of Revelation.

In the Gospels, Jesus heals the sick, exercises power over the winds and the waves, and even raises the dead, among other things. He is being presented as someone who has the power to restore the order and harmony of the created realm, which has been disordered by sin. John 1:1-18 tells us that Jesus is the Word who became flesh; the same Word who was there with God in the beginning, the Word who is God and through whom God made all things (recalling Gen 1:1). He is life and his life is the light of men. Jesus is the Lord of creation.

In the epistles, Jesus, the Son, is said to be the image of the invisible God, the firstborn over all creation (Col 1:15). This grand assertion has far-reaching implications for both creation and redemption. It means that Jesus is the point of contact between God and the creation without in any way diminishing his deity. Characterizing Jesus as the "firstborn" speaks of his pre-existence and his supremacy over all things as the unique Son of God. The fact that he is "the image of the invisible God" in a way that surpasses all others means that he is able to restore the divine image that was so severely defaced in human-

kind. As the “firstborn over all creation” he also transforms our understanding of the creation mandate to have dominion over the earth by his humble obedience that was willing to go to the cross to secure our salvation.

Furthermore, in Col 1:16-20 we are told that all things were created with reference to him and in relation to him (all things created *in* him), that he is the agent of creation (all things created *through* him), and the goal of creation (all things created *for* him). He is before all things and in him all things hold together. In addition to God’s fullness dwelling in him, he has accomplished a universal reconciliation by making peace through his blood shed on the cross. In other words, the very unity and purpose of the cosmos is bound to Jesus Christ. There is hope for believing sinners and life beyond death because of him. There is a new beginning and a new creation.

This hope is experienced personally in the new birth and in the Christian community as an outpost of the world to come, and one day in the entire cosmos. In Rom 8:18-25 Paul speaks about the creation waiting in eager expectation for the children of God to be revealed. According to Paul, the creation is subjected to frustration so that it is not able to fulfill its purpose apart from the intervention of God in Jesus Christ.

Finally, at the end of the New Testament, the last two chapters of the book of Revelation describe the new heaven and the new earth that will appear after the first heaven and the first earth have passed away. Using a series of metaphors, the glory of the new creation is described. It is a new city, a new Jerusalem, a bride beautifully dressed for her husband, and a brilliant jewel. It is also portrayed as

a measured and secure city without a temple, that does not need the light of the sun or the moon for the glory of God gives it light. It is an open, yet pure, city for the nations with a garden in the center, the river of life, the tree of life, and no more curse. The throne of God and of the Lamb are there, 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, and they will walk in the light of the Lord and reign forever and ever. So here, at the end of the Bible, the creation is renewed and purified from every vestige of sin through the work of Jesus Christ.

This brief survey is enough to show that the doctrine of creation is woven throughout the Bible from beginning to end. It is not an incidental doctrine nor it is something that we can ignore, distort, or re-interpret according to the whims of the surrounding culture. We must study, believe, and work out the entailments of what God has said about his creative activity if we are to understand him, ourselves, our world, and the riches of his glorious grace.

**SBJT: What is the importance of the creation account to systematic theology?**

**Todd L. Miles:** It is a statement of the obvious that the best place to start, when seeking to understand the Bible, is the beginning. But too often, the obvious is forgotten! When the beginning of the biblical story is ignored, our ability to answer life’s ultimate questions is severely diminished because systematic theology is only as good as the biblical theology that undergirds it. For this reason, the creation account is primarily valuable, not because it offers a rich source for systematic inquiry (though it

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does), but because it provides the true and divinely inspired beginning to human and redemptive history. Everything in the drama of redemptive history flows from the beginning—Creation. The creation account must therefore be read in light of its place in the overall story, including the fall of man, promises to the patriarchs, granting of the covenants, establishment of Israel, exile, promise and anticipation of the Messiah, the life, death, resurrection and ascension of Jesus Christ and the inauguration of his Kingdom, the creation of the church, the promise and anticipation of the return of Christ, the consummation of the Kingdom, and recreation. Further, ignoring the creation account essentially guarantees that our understanding of these events will be diminished or confused with the sure result that our biblical and systematic theology will suffer.

The creation account begins with the statement that God created the heavens and the earth, that is, God created everything (Gen 1:1). Before anything else existed, God was there. The first verse of the Bible establishes the Creator-creature distinction, a critical and foundational tenet to the biblical worldview. Assuming Mosaic authorship of the Pentateuch, Genesis was delivered to the children of Israel prior to their settling of the Land. How the tribes of Israel must have been encouraged by the knowledge that as the Creator of all, God enjoyed absolute authority over all that is in creation! Their God, the Lord who made a covenant with them at Sinai, was not only distinct from his creation, but was supremely greater than the gods of the pagan nations that would surround them. When the Creator-creature distinction is ignored, theological systems and conclusions will inevitably

go sideways. Theologies that are pantheistic and panentheistic are fundamentally opposed to the Christian worldview at the most basic level.

The sovereign Lord who created by the Word of his mouth and his Spirit (Gen 1:2-3; Ps 33:6) did so in an orderly fashion. Nine times in the first chapter of Genesis the words, “according to its kind,” are repeated. The creation narrative affirms that there is an order and purposiveness that exists in the world. Worldviews and theologies, such as evolutionism and naturalism that deny this intentional supernatural order cannot be reconciled with the Christian worldview. God repeatedly declares that what he has made is “good” (Gen 1:4, 9, 12, 18, 21, 25, 31). From the first page of the Bible, the material creation of God, including the human body, is defined as good. The delegated stewardship of creation given to humanity, the resurrection of Christ, the promised resurrection of the saints and the restoration of creation make perfect sense in light of the creation account. Such duties and events would make no sense if a spirit-body dualism prevailed. There is simply no room in Christian theology or practice for any moral bifurcation of the soul and body.

Mankind is distinct from all creation because it and it alone is created in the image of God. The incarnation of Jesus Christ is made possible due to the reality of this teaching in the first chapter of Genesis. Interpretations vary as to what it is to be created *Imago Dei*. An explicit definition of the term is not provided in the creation account, most likely because the term resists a simple definition. Errors are often made in reducing the *Imago Dei* to one thing or another. Genesis 1 and the rest of Scripture do unpack the crucial

truth of man and woman created in the image of God.

In the ancient near East, kings or magistrates would often erect an image to demonstrate that their rule extended to the limits of the location of the image (cf. Dan 3:1ff). The purpose of the image was to make visible the invisible original. Man is said to be created in the image of God and this surely has much to do with *representing*. This is an awesome responsibility! There is a basic level at which all humanity represents God. Regenerate believers have even greater capacity to do so. The Christian must not only represent God, but with maturity in faith, the believer is given greater capacity and responsibility to make Christ visible to the world (Col 3:9-10; Eph 4:20-24). Genesis 1:28-30 also demonstrates that there is a *functional* aspect to image bearing. Dominion over God's creation is fundamental to image-bearing. Dominion points to a stewardship, protecting the relationship for which one is responsible. It is a delegated service, for the good of those over whom responsibility is given. There is a purposeful intention for the human race that is continuous with the creative purpose of God. The stewardship is given to all, but the success or faithfulness in performing the duty is variable. The implications for this aspect of image-bearing include issues surrounding dominion. Environmental decisions, exploitation of resources, economic issues, the cultural mandate, and even the treatment of animals have to be informed by the creation narrative and the duties vested to humanity therein.

Humans, created in the image of God, have been granted all that is necessary to successfully image God in the world and carry out the duties of representing the invisible God. There is therefore a *substan-*

*tival* aspect to *Imago Dei* that encompasses the essence and structure of the image of God in man. It involves individual personhood and includes such things as knowledge, abilities, and capacities. The structure of image includes both the material and the immaterial. Being created in the image of God grants man a fundamental glory as well. The implications for the structure of the image of God in man are great. The dignity of all humans, regardless of station or condition, is affirmed. It is on the basis of this dignity that the biblical writers prohibited murder and slander (Gen 9:6; James 3:9). Protection, quality, and treatment of life convictions must therefore be rooted in the creation narrative. Debates and decisions surrounding abortion, treatment of the terminally ill and elderly, world hunger, prison conditions, welfare reform, etc., must be informed by the creation account.

That God created humanity as male and female (Gen 1:27) demonstrates that the image of God is not only individual but is *corporate*. Though not proving the Trinity, the creation narrative certainly allows for the doctrine. It is clear that the creation of the first man and first woman demonstrates a capacity and need for relationship. Implications for this aspect of the image of God in man include issues surrounding the need for companionship, community, and fellowship. Interaction between the sexes, role differentiation, and marriage relationships must be grounded in the teaching of the first two chapters of Genesis. The Lord God declared at the beginning, "It is not good that man should be alone" (Gen 2:18). Isolation is not good. Prisoners, the elderly, and orphans need visitors and comfort (James 1:27). Children need affirmation and the opportunity to interact in

a safe environment with their peers. The fact that God met the relational needs of Adam by creating one like him but not the same as him is of critical importance when discussing issues surrounding homosexuality and same-sex marriage.

Anyone who is paying attention realizes that recent advances and discoveries in science and technology have placed humanity in an ethical quandary. Indeed, in many cases, science has outpaced our ability to make ethical decisions. It has always been the case that humanity's greatest need is to hear from God. But now the penalties for not listening are catastrophically high. When the Word of God is ignored and/or despised, we place ourselves in a position where we do not have the wherewithal to answer the questions that beset our culture. The creation account begins the biblical story. When the creation account is denied or ignored, the biblical story loses its foundation, and systematic and ethical conclusions are inevitably diminished or distorted.

**SBJT: What advice would you give pastors to help them prepare their congregation (specifically their youth) for what they face in the public school system which is thoroughly committed to an evolutionary worldview?**

**Terry Mortenson:** First of all, you must teach people in your church (especially the youth) what a worldview is. They need to understand that it is a set of assumptions that every person has about certain basic questions of life. For example, is there a God or not? If so, what is He like and what is His relationship to the physical universe? What is the universe (an illusion or reality, orderly and predictable or random and chaotic, infinite and eternal or finite, etc.)? What is man (just an ani-

mal, unique from animals, related to God or not, basically good or inherently sinful, etc.)? Is there such a thing as absolute truth? Can we know truth, and, if so, how can we know it? Is there right and wrong in an absolute sense or is all morality a matter of opinion or majority vote?

Biblical Christianity answers these questions one way. The evolutionary view that dominates our culture and public education is humanistic and atheistic and answers them in a very different way. The Christian's answers should come from the Bible. Unfortunately, many people in the church live their daily lives unconscious of the fact that they are actually influenced by the evolutionary humanist worldview more than they are by the worldview they profess to believe at church. So we must inform people about what a worldview is and how it affects our decisions and relationships.

Second, pastors must clearly teach their people what the Christian worldview is. It is my studied conviction that many people who write or speak on this subject today do not have a fully biblical worldview. That view must start with taking Genesis 1-11 as literal history. Those chapters reveal very important truths about the nature of God, the nature of the creation, and the nature of man, and how they relate to each other. It also tells us that the world is not now the way it was originally created. The whole creation has been ruined by sin and death. Those early chapters of the Bible also begin to reveal the solution that would eventually be provided by Jesus Christ.

If the early chapters of Genesis are not giving us true history (if those chapters are mythology or symbolic poetry), then the whole foundation of the Christian worldview is false and the superstructure

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of the gospel and the Bible's teaching about how we are to live and what we should expect for the future also collapses into nothing more than wishful thinking. Jesus and the apostles all took those chapters as literal history, and so must we.

Third, pastors need to equip their people to defend the Christian worldview. That means teaching them apologetics—preparing them to give reasons for why they believe what they believe, to give a humble defense of the biblical worldview and the gospel on which it is built, when they are confronted with objections. Many Christians know *what* they believe, but they do not know *why* and they cannot explain to a non-believer why he should believe the Bible and turn from his sin and trust in Christ. There are many apologetic questions that Christians, especially young people, need to be able to answer, such as how we know the Bible is the Word of God and why it is reasonable to believe that Jesus rose from the dead and that miracles in the Bible really happened.

But the greatest apologetic challenge facing the church today is evolution and the idea that the earth is millions of years old. Christians all over the world are confronted with evolutionary brainwashing in the schools, media, museums, and national parks. Every Christian needs to have answers for questions like, how do you fit dinosaurs into the Bible? Do not natural selection and mutations prove evolution? Who was Cain's wife? What about radiometric dating and the geological evidence that the earth is millions of years old? Can we fit the Big Bang theory into Genesis? Was Noah's flood global? Were the days of creation literal days?

There are good answers for these questions and true science confirms the

biblical teaching regarding each answer. But most Christians, especially youth, do not know the answers. To start to equip lay people and youth, I would highly recommend these resources (all available at [www.answersingenesis.org](http://www.answersingenesis.org)):

- The DVD "Genesis: Key to Reclaiming the Culture" explains that the truths of Genesis are key to understanding and responding to the moral and spiritual crisis facing America.
- *Evolution Exposed* is a book every Christian public high school student should have. In it Roger Patterson (a former public high school science teacher) documents the enormous amount of false information regarding evolution in three leading textbooks used in public high schools. For each point he shows the students where (on AiG's web site or in literature that AiG sells) the students can find the biblical and scientific refutation of the evolutionist claims. It will equip home-school and Christian-school students also.
- Adults and junior and senior high kids will be equipped in the award-winning "Answers Academy," a 13-week course that includes thirteen 30-min DVD lectures, a 200-page teacher's manual and 90-page student workbooks. This will greatly help people understand the crucial difference between facts and interpretations of facts and the anti-biblical philosophical assumptions used by evolutionists to make those interpretations.

Finally, encourage people in your church to visit the AiG web site, which has over 5000 articles with biblical and scientific answers to just about any question you would have related to creation and evolution. There you will also get a brief virtual tour of AiG's world-class Creation Museum, opening May 28, 2007, which will powerfully demonstrate that true science confirms the literal truth of Genesis and will challenge people with the gospel that is based on that true history.

We are in a battle for the truth and Peter tells us in 1 Pet 3:15 that we need to be ready to give an answer to the unbeliever. Apologetics is absolutely essential to produce strong Christians who can stand in the relentless evolutionary assault and who can effectively witness to people who have been brainwashed with the lie of evolution. The literal history of the early chapters of Genesis is absolutely foundational to a Christian worldview. To ignore them and compromise with evolutionary thinking is to have a less-than-fully-biblical worldview.

**SBJT: How does the doctrine of creation help us in forming a biblical-theological understanding of human sexuality?**

**C. Everett Berry:** It is hardly a groundbreaking insight to say that in the modern, Western world human sexuality has been reduced to a mere appetite that can be satisfied by almost any conceivable hedonistic means. Whether it be teenagers sewing their wild oats during their college-fraternity days, disillusioned spouses fragmenting their families by engaging in devastating affairs, or liberated entrepreneurs and celebrities having relationships devoid of marriage altogether, the fact remains that sexuality is now defined in terms of convenience, eroticism, and autonomy. Likewise, an obsession with sexuality permeates the ethos of our culture because of the ubiquitous influence of media exposure. One cannot drive down the highway, surf the web, watch a sporting event, or even shop in a grocery store without being bombarded with revealing billboards, immodest images, suggestive commercials, or tabloid snapshots that pulsate with sexual exploitation. It is no wonder that the present cultural climate considers the Judeo-Christian concepts of

monogamy and sexual purity as “retro” novelties that are as out of date as VCR’s and dial-up internet.

Ironically though, in the midst of such moral decay our culture does recognize one thing about sexuality that many Christians fail to acknowledge, namely, that it is an intrinsic part of what it means to be human. This point is often ignored by the church because treatments of sexuality are typically restricted to upholding moral standards, such as abstinence for the sake of remaining pure for a future mate, or avoiding unwanted consequences of unruly sexual activity (e.g., unexpected pregnancies or STD’s). Indeed these perspectives have their place. But alone, they miss a basic component embedded in the canon of Scripture, which is that sexuality must be understood within the larger framework of a biblical-theological anthropology. With this approach, we find that the significance of human sexuality is grounded in the same place as all issues regarding human existence, namely, creation.

The reason sexuality is so distorted today is not just because people want to defy moral guidelines or fulfill their needs impulsively. There is a deeper problem. People as sinners naturally want to define every part of their identity, including their sexuality, in noncreationist terms. So, for example, when the apostle Paul states that man suppresses the truth of the Creator through unrighteousness (Rom 1:18-19), this includes a suppression of any notion of a *created* sexuality. The implication, then, is that all acts of sexual sin are *de facto* expressions of an atheistic view of sexuality, which in Pauline terms is idolatry. This being the case, a biblically holistic view of sexuality does not start with mere polemics against pre-marital

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sex or adultery. Rather, the church should begin with the fact that men and women as sexual beings are made in the image of God, thereby emphasizing that a right understanding of sexuality is based upon a right understanding about Christian theism. But what does this approach look like? Two brief suggestions will be noted.

First, we should acknowledge that the dignity of sexuality is based upon the fact that human beings reflect the image of their Creator *functionally*, not just ontologically. When the Lord declared in Gen 1:26-28 that He would create a man and woman in his own image, part of this reality entailed the activities of dominion over the earth as well as relating to each other intimately. Further commentary is provided on this latter point in Gen 2:23-24 where it is asserted that Adam's bond with Eve sets a standard to be followed, namely, that when any man takes a wife, he enters a covenant that actually supersedes his relationship with his parents. So whereas children derive their physical existence from their father and mother, that relationship is subordinate to the new union that comes when their child takes a spouse. It is crucial to note that the order of sexuality reflects the very essence of its Creator. Covenantal faithfulness and unrelenting loyalty are imperative to human sexuality because they are indicative of God's own nature. Consequently, when one attempts to define sexuality in ways contrary to this paradigm, inevitably another model must be put in its place. Today it is commonly defined in terms that see humanity as a mere biological experiment or hopeless existential entity. The end result of such approaches is really a degrading of sexuality. If humans are cheap, then sexuality is even cheaper.

However, recognizing that sexuality is holy because its Creator is holy makes the topic what it should be, sacred.

In conjunction with the first point, we must also concede that the broader theological ramifications of sexuality must be articulated in light of what it means to be a part of the new humanity established by Jesus Christ. Here the point essentially is that sexuality is not just related to the original created order but also to the very gospel itself. Covenantal faithfulness is not only an idea that references God's character in the creation of the first Adam, it is also indicative of the salvation we have in the second Adam. Therefore, a theology of sexuality should reflect the devotion that Christ has for his people (Eph 5:25-33). This has incredible ramifications for Christian living. When believing husbands fail to love their wives selflessly, they are saying to the world that Christ does not love his church. When wives do not follow the headship of their husbands, they are saying that the church does not submit faithfully to Christ. And when the husband, for example, violates his marriage vows, the message conveyed is that Christ can be an adulterer because he can find another spouse, thereby contradicting the promise that a believer cannot be separated from the love that is found in Christ (contra Rom 8:35-39). What this shows, then, is that a sound view of sexuality is based not only on a correct view of creation, but also of soteriology. Indeed, both, biblically speaking, are intimately related to each other. Obviously, this places a huge responsibility on Christians, not only to think correctly about these matters, but also to live them out practically in the home, church, and society.



# Book Reviews

*One Sacred Effort: The Cooperative Program of Southern Baptists.* By Chad Owen Brand and David E. Hankins. Nashville: Broadman & Holman, 2005, 240 pp., \$14.99 paper.

Chad Brand and David Hankins have performed a great service for Southern Baptists with the production of this volume. These authors provide a very readable account of the story of the Cooperative Program, its functions, its accomplishments, and its future (3). As Morris Chapman notes in the Foreword, more than twenty years have passed since a similar work has been written. Anyone with mere acquaintance with the denomination is aware that much water has passed under the Southern Baptist bridge in the previous two decades, justifying the need for such a work as this. Moreover, a new generation of Baptists needs to know the Cooperative Program story from its inception to the present.

Together the authors are eminently qualified to write such a book. Brand serves as professor of Christian theology at The Southern Baptist Theological Seminary and associate dean for biblical and theological studies at Boyce College; Hankins previously served as vice-president for the Cooperative Program with the SBC Executive Committee and now serves as executive director of the Louisiana Baptist Convention.

While the focus of this book is the Cooperative Program, the information contained therein far exceeds

this narrow parameter. In chapter one Brand delineates the features that characterize the Baptist vision, some of which Baptists share with other groups and some of which are unique to Baptists. Baptists accept the Bible as the standard for belief and conduct, are congregational in their polity, and perceive the Great Commission as their task. Brand's discussion of the priesthood of all believers, soul competency, and religious liberty is a biblically sound and a historically accurate portrayal of the traditional Baptist understanding of these concepts. As such, Brand's discussion is a welcomed correction to many modern interpretations of these doctrines, interpretations that owe much more to rugged, American individualism than to the Bible.

In chapter two Brand examines the New Testament teachings concerning the church, to show that God has called the church to the task of world evangelization and has equipped the church to carry out its divine mandate. Among other things, Brand offers solid biblical grounds for congregational polity as the model of church government advocated by the New Testament.

In chapter three Brand offers a biblical/theological foundation for cooperation among local churches. While strongly maintaining the autonomy of the local church, Brand marshals considerable New Testament evidence for the churches cooperating in missionary endeavors; that is, autonomy does not preclude coop-

eration. Aware of the dangers that historically have accompanied such cooperation, Brand warns against surrendering the biblical model of church polity in exchange for what appears to be greater efficiency. He unabashedly advocates confessionalism, as demonstrated in the adoption of the Baptist Faith and Message, to prevent compromising biblical truth for the sake of greater cooperation.

Chapters four and five are devoted to the story of churches down through history that have found ways of cooperating in fulfilling the biblical mandate. Whereas chapter four is a survey of such cooperation in the early church, Roman Catholicism, the Reformers, the early Baptists, and the modern missions movement, chapter five is devoted exclusively to the Southern Baptist Convention. Brand describes the growth of the SBC, emphasizing the cooperative efforts that served as forerunners of the Cooperative Program, launched in 1925.

In chapters six and seven Hankins describes the operation of the Southern Baptist Convention. The focus of chapter six is the explanation of the annual meeting of the Convention, which actually is the only two days that the Southern Baptist Convention actually exists. Hankins offers a clear and simple explanation of the role of the messengers, the officers, and the business of the convention. In chapter seven, with the same clarity and simplicity, Hankins explains the Convention's process of alloca-

tion of funds, beginning in the local church, to the state conventions, to the Southern Baptist Convention, to the various entities supported by the Cooperative Program. Hankins concludes by noting the efficiency of this process.

In chapter eight Hankins describes the historical development and present work of the local Baptist associations and the state conventions—other organizations through which Baptist congregations cooperate. The chapter includes a description of the “Covenant for a New Century,” a major reorganization of the convention in order to heighten efficiency in the new century (and millennium).

In chapter nine, Brand and Hankins provide valuable information concerning the entities that the Cooperative Program supports with particular attention devoted to the history of these entities. The chapter culminates in a presentation of the present work of the two mission boards, six seminaries, the Ethics and Religious Liberty Commission, GuideStone Financial Resources, LifeWay Christian Resources, and Women’s Missionary Union.

In chapter ten, Hankins explains the work of the Executive Committee, the entity responsible for overseeing the work of the convention while the convention is not in session. This committee is responsible for receiving and disbursing funds, planning and overseeing the annual meeting, handling legal issues and convention relations, promoting the Cooperative Program, and admin-

istering both Baptist Press and the Southern Baptist Foundation.

In chapter eleven Hankins offers a sober (but not quite somber) evaluation of the present trends and tensions within the Southern Baptist Convention which could jeopardize its future effectiveness. These concerns are validated in the decline in percentage giving to the Cooperative Program. Hankins divides these concerns into three categories: tensions in the denomination, trends in the churches, and trouble in the pew. This enlightening analysis undergirds Hankins’s attempt in chapter twelve “to help local churches address pertinent issues about the value of the Cooperative Program to their mission” (178).

Hankins’s six challenges to the local church comprise chapter twelve. He warns that Southern Baptist churches must be confident in the primary theological affirmations that ground their cooperation. In effect, Southern Baptists must allow leeway in nonessential matters. Second, churches must recognize their duty to cooperate with other churches of like faith and order. Third, churches must operate with a proper balance between local church ministries and mission enterprises. Fourth, churches must demonstrate the effectiveness and efficiency of the Cooperative Program. Fifth, churches must develop Christians that are committed to biblical stewardship, beginning with the tithe. Sixth, churches must educate their members concerning the value of the Cooperative Program. Hankins identifies the key players in meeting these challenges as the

congregations’ pastors.

This book is necessary reading for all who hold dear the “one sacred effort” known as the Cooperative Program, the heart and soul of the Southern Baptist Convention. The book has a very readable style, almost conversational at times. It is historically accurate and theologically sound. While it is penetrating in its analysis of problems and disturbing trends, it is equally insightful in its prescriptions.

*One Sacred Effort* could be used as a textbook for college and seminary courses that deal with the Southern Baptist Convention. Pastors could use this book to teach their people in this important aspect of church life. Associational missionaries could use this book to help educate pastors and other church leaders. Pastors could use this book effectively in discussion groups among themselves at monthly pastors’ meetings.

If the Southern Baptist Convention fails to deal effectively with the challenges that it faces, it will be neither because the trumpet was not sounded nor because solutions were not proposed. *One Sacred Effort* serves both functions very well.

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*Princeton and Preaching: Archibald Alexander and the Christian Ministry.* By James M. Garretson. Edinburgh/Carlisle, PA: The Banner of Truth Trust, 2005, xxiv+280pp. \$28.00.

Archibald Alexander (1772–1851) was the first professor at Princeton Semi-

nary, the first official Presbyterian seminary in the United States. The school began its first year with three students who met with Alexander in his home. Alexander was joined by Samuel Miller (1769–1850) in 1813, and the two served Princeton together for most of the first forty years of the seminary’s existence. Born to a pious family, Alexander could read the New Testament by the age of five and at seven had memorized the Westminster Shorter Catechism. He was apparently born again at the age of seventeen while reading John Flavel’s sermon on Revelation 3:20 aloud to an elderly Christian lady. He soon felt called to ministry and was tutored by his pastor, Rev. William Graham. He was licensed in 1791, and he then served as a missionary in the southern counties of Virginia and along the borders of North Carolina through 1794, when he was ordained, and installed as pastor of the church of Briery. He had a passion for home and foreign missions.

From 1796 to 1806 Alexander served as president of Hampden-Sydney College. He then accepted a call to Pine Street Church in Philadelphia. While in Philadelphia, Alexander helped establish the Philadelphia Tract Society, the Society for Promoting Christian Knowledge among the Poor, and a Sunday School Association. He aided in the establishment of a Foreign Missions Society, helped develop a colonization plan for Negroes to return to Africa, and was involved with various Bible Societies. Though he would have preferred to remain at the church, he was called to Princeton in 1812. Archibald

Alexander’s son James W. Alexander provided the English translation of the hymn by Bernard of Clairvaux that Paul Gerhardt had rendered into German, “O sacred Head, once wounded.” The great Princeton theologian Charles Hodge named his son Archibald Alexander Hodge.

The robust theology and warm piety of old Princeton owed much to Archibald Alexander, who has been called, “the fountain-head of the Princeton ministerial ethos.” Old Princeton trained generations of men for ministry, and when it shifted decisively to the left in the 1920’s, Old Princeton became the ideal that drove Machen in the founding of Westminster Seminary. The vision of Old Princeton also inspired early founders of Fuller Theological Seminary such as Harold John Ockenga and Carl F. H. Henry. After “Black Saturday” at Fuller (see George Marsden, *Reforming Fundamentalism*), the Old Princeton ideal was pursued at Trinity Evangelical Divinity School by several who had been at Fuller. Carl Henry’s decisive influence on R. Albert Mohler Jr., along with the fact that two founders of The Southern Baptist Theological Seminary, James P. Boyce and Basil Manly Jr., studied at Princeton under Alexander, extends the Old Princeton / Archibald Alexander influence well into the Southern Baptist orbit.

Several studies of Old Princeton exist, but books on Alexander are comparatively sparse. In the volume under review here, James Garretson provides a biographical summary of Alexander in chapter one. From there Garretson provides chapters that

summarize Alexander’s approach to the call to ministry, the qualifications for ministry, sermon preparation, the preparation of the preacher’s heart, the minister as shepherd, the content of preaching, ministerial deportment, the challenges of ministry, and the encouragements of the ministry. The concluding chapter draws together Alexander’s approach to training men for ministry and recommends it to our generation. This book would serve as healthy devotional reading. It is almost too rich to be read through quickly, so readers would perhaps be best served by savoring short passages for periodic encouragement. Let us heed the admonition of Heb 13:7 and remember those who have gone before, observing the outcome of their lives that we might imitate their faith.

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*Articular Infinitives in the Greek of the New Testament: On the Exegetical Benefit of Grammatical Precision.* By Denny R. Burk. Sheffield: Sheffield Phoenix Press, 2006, 200 pp. \$55.00.

Professor Denny Burk of the Criswell College in Dallas, Texas, has offered the field of Greek language studies a helpful and insightful treatment on the articular infinitive. Before one thinks that such a task is too large for one work, it should be noticed that he has focused his research on the 324 examples of this construction in the New Testament itself while using examples from the Septuagint

to test his thesis. This approach will no doubt be an asset to grammarians and exegetes whose focus is the New Testament.

Burk rightly conveys the need for his study when he points out that most New Testament reference grammars and commentaries do not include the insights brought about through modern linguistics. Heretofore such an incorporation is largely absent. While Burk's work does not propose to generate a new reference grammar, it does propose a linguistic analysis of one important aspect of that grammar—the articular infinitive. This he has successfully done. In this concisely-written work of 141 pages (including a helpful appendix and a number of tables and figures), Burk seeks to ask and answer the following question: “What is the semantic and/or syntactic value of the articular infinitive in New Testament Greek?” or “What does the article contribute to the *meaning* of the infinitive in New Testament Greek?” (2).

To answer this question he first argues that the article is a determiner and that determiners have the sole semantic function of marking substantives as definite (128). In his second chapter (27-46) he concludes that when the article is grammatically necessary, one should not look for the additional semantic significance of determination (44-46). His goal is for his research to successfully demonstrate the article's necessity as a *function* word in connection with the infinitive. If this is demonstrable, then one would have no reason to argue that the article has its normal

*semantic force* as a determiner (cf. 110, 144). In chapters three (articular infinitives not following a preposition, pp. 47-74) and four (articular infinitives following a preposition, pp. 75-110), Burk gives examples of the New Testament's usage of the articular infinitive in which the appearance of the article is “grammatically obligatory,” i.e., the article either marks the case of the infinitive and/or it specifies a particular grammatical function that could not be made explicit were the article absent. In his fifth chapter (articular infinitives in the LXX, pp. 111-27), he tests his thesis by exploring twenty-three so-called exceptions that have been cited in the LXX. In each example Burk shows that these do not, in fact, undermine his thesis as it is argued in the preceding chapters (126-27; cf. 128).

The book ends with what may be the most useful part of his monograph. Rather than leaving the reader to ascertain the implications of the preceding chapters, Burk gives a sketch of just how the implications of his thesis can be carried over into the task of grammar as well as exegesis. In other words, the final chapter is given to demonstrate why his thesis is valuable to New Testament scholars, students, and preachers. First, Burk demonstrates how his thesis impacts Hellenistic grammatical study. He rightly laments that even the best works on New Testament grammar do not incorporate the advances in general linguistics, particularly pertaining to the concept of definitiveness and “how this concept relates to the conventions used in

Greek to mark definitiveness” (129). Further, he asserts that his research has helpful implications of both case semantics (131-32) and the interpretation of prepositional phrases (132). Second, he illustrates how his thesis plays out in doing the specific task of exegesis and how it influences interpretation. One sees the benefit (and necessity) of grammatical precision when interpreting such texts as Mark 9:10, Acts 25:11, Rom 13:8, Phil 2:6, and Heb 10:31. Burk demonstrates how his thesis impacts the exegesis of these sample texts, and interacts with select New Testament scholars on these passages. He shows that an overreading of the presence of the article with the infinitive may lead to unwarranted exegetical conclusions. His inclusion of this particular section is welcomed and demonstrates the inseparable connection between grammar and exegesis.

Greek grammar is still a discipline in need of advancement, and Burk has illustrated an important area where Greek grammarians have not been in agreement. This lack of agreement is apparent when one peruses the standard grammars as well as many technical New Testament commentaries. It remains to be seen if Burk's thesis will gain traction in the realm of Greek grammar (and more importantly in the commentaries), but what has been put forward is a viable and defensible articulation of the syntactical significance of the article when it accompanies the infinitive in the New Testament.

Barry C. Joslin

*LifeWay Legacy: A Personal History of LifeWay Christian Resources and the Sunday School Board of the Southern Baptist Convention.* By James T. Draper, Jr., with John Perry. Nashville: B & H Publishing Group, 2006, xiii + 464 pp., \$29.99.

Only a few months after his departure from the presidency of LifeWay, beloved pastor, statesman, and former SBC President Jimmy Draper has sent us this intriguing volume that stands both as an objective piece of historical research and as a personal “I was there!” of LifeWay and of the man who led it into the twenty-first century. Previous histories of the Baptist Sunday School Board (BSSB) have appeared, including that of Burroughs in 1941 and Shurden in 1981. There was also the volume by McBeth, which was to have been a centennial work in 1991, but which was never published. This volume by Draper is not a critical history, but a reminiscence, a very helpful reminiscence, especially valuable to those in the SBC who do not know the BSSB/LW story. It is also a wonderful refresher account, for those who already “know it best” will love it “like the rest.”

Draper begins at the beginning of the SBC in 1845 in Augusta Georgia. He includes a frank discussion of the major motivating cause for the new convention’s split from its northern counterpart—slavery. The narrative then takes us to the point in the 1880s when there existed great debates in the SBC concerning whether there was even a need for a publishing board. Several previous efforts at

founding such a board had failed, and many, especially in the northern SBC regions, believed that the American (northern Baptist) publishing house was adequate for southern needs. Draper’s exposition of the work of J. M. Frost, the man most responsible for the early success of the BSSB, is very helpful. People need to remember who their heroes are, and Frost was all of that and more.

For this reviewer, the best parts of the book were those chapters where Draper himself had some involvement in the events being narrated. He was personally acquainted with three BSSB presidents who preceded him, James L. Sullivan (1953-1975), Grady C. Cothen (1975-1984), and Prentice Lloyd Elder (1984-1991). The years spanned by these presidents have been years of both growth and of tumult, and the BSSB was at the heart of much of it.

Sullivan’s presidency saw dramatic numerical gains in the SBC. This was the time of “Million More in ‘54.” It also witnessed the controversy over Ralph Elliott’s *The Message of Genesis* in 1961 and the Broadman Commentary in 1970-71. These conflicts were the opening scenes of the recent debate over liberalism and the authority of the Bible, a controversy which would eventually result in a conservative resurgence and a recovery of the entities of the SBC by historic conservatives. That conflict has also caused serious rifts to develop within the SBC, or, perhaps more accurately, it demonstrated rifts that were already there but which had not yet become public in any significant way.

The battle for the Bible broke wide open during Cothen’s tenure as BSSB president. After the 1979 Convention, Cothen alleged that Judge Pressler sat high above the convention floor in the Summit, “calling the signals for his organization” (327). It is from such inaccurate rhetorical representations that myths are formed, and this is certainly one of the great myths in SBC history. Cothen had no sympathy for the conservatives in the Convention controversy, though he did recognize, rightly, that the conflict was over theology, not power (330). Cothen would later make a bid for SBC president, but would be defeated by Charles Stanley. In 1984 Cothen stepped down, largely due to declining health.

Lloyd Elder came to the presidency in 1984 after distinguished service in both pastorates and denominational life. That same year Roy Honeycutt preached his famous “Holy War” sermon at SBTS chapel. Russell Dilday, president of SWBTS, was also in the middle of conflict with conservative faculty members at his institution (351). The battle between conservatives and moderates was about to enter a new phase, and the new president of the BSSB was in for the ride of his life. Suspicious of some of his trustees, Elder made strategic errors in his leadership at the Board. The Board eventually lost confidence in him, and he left the BSSB in 1991.

Draper is quite humble about his own accomplishments at the Board, now LifeWay. Under his direction the organization became the largest publisher of Christian literature in the world. It also has the largest chain

of Christian bookstores in the world. This book is also fascinating for its insights into the different management styles of the various presidents. Here is also, in microcosm, a study in the evolution of Christian denominations in America in the twentieth century.

The new president of LifeWay, Thom Rainer adds a Foreword to this volume. Observers of LifeWay now feel justified in their belief that the entity will grow just as dramatically and just as successfully in his tenure as it did in Draper's. All of those who know Jimmy Draper will be grateful for this volume, even as they are for the life and contributions of this great man of God.

Chad Owen Brand