

Assessing the Christian Epistemic Obligation to Big Bang Cosmology

Sven Östring
North New South Wales Conference

For centuries, in the midst of historical waves of conflicting explanations of how our cosmos began, the Bible has resolutely proclaimed that God originally created the universe out of nothing. Thus, biblical cosmology holds that the universe is not past eternal and had a beginning. This cosmology was at odds with both the polytheistic Babylonian Enuma Elish creation myth¹ and Aristotle's assertion that the universe has existed, unchanging, from eternity past.²

Scientific Support for the Beginning of the Universe

All this changed in 1824, through the work of French military engineer and physicist, Nicolas Léonard Sadi Carnot, who was the first person to formulate the second law of thermodynamics.³ The law states that the processes taking place in an isolated system always tend toward a state of

¹ Available at <https://www.ancient.eu/article/225/enuma-elish—the-babylonian-epic-of-creation—fu/>. Accessed 14 July 2019.

² Aristotle, *On the Heavens*, 350 BC. Available at <http://classics.mit.edu/Artistotle/heavens.html>. Accessed 14 July 2019. It is fascinating to note that the Aristotelean cosmological theory dominated scientific thinking for eighteen centuries. Now it is simply shelved as a historical display piece.

³ In 1824, Carnot published the book titled *Réflexions sur la Puissance Motrice du Feu et sur les Machines Propres à Développer Cette puissance*, which is translated into English as *Reflections on the Motive Power of Fire and on Machines Fitted to Develop that Power*. In this book, Carnot formulated a preliminary outline of the second law of thermodynamics.

ÖSTRING: BIG BANG COSMOLOGY

equilibrium.⁴ Since the universe is not in an ultimate state of equilibrium now, it could not have existed for an infinite amount of time. Thus, science could now offer its support for the Biblical teaching that the universe had a beginning.

While working on a cosmological application of his General Theory of Relativity in 1917, Albert Einstein also found that his theory would not predict an eternal, static universe. Two scientists continued to develop the mathematical equations that describe the universe based on Einstein's General Theory of Relativity. They were the Russian mathematician, Alexander Friedmann, and the Belgian astronomer and Jesuit priest, Georges Lemaître. In the 1920s they independently reached the conclusion that the universe is expanding. The theory predicted that all of space and time originated from a singularity and has expanded to the immense universe that we know today. This expansion became known as the "big bang." Science could give further support to the biblical position that the universe had a beginning.

William Lane Craig has noted, though, that the beginning of the universe is more impressively supported by the second law of thermodynamics than the evidence for the expansion of the universe. Craig observes that, while uncertainty remains regarding the physical description of the universe prior to the Planck time, there is no such uncertainty with respect to the laws of thermodynamics.⁵ As Eddington remarked, "The second law of thermodynamics holds, I think, the supreme position among the laws of Nature. If someone points out to you that your pet theory of the universe is in disagreement with Maxwell's equations—then so much the worse for Maxwell's equations. If it is found to be contradicted by observation, well, these experimentalists do bungle things sometimes. But if your theory is found to be against the second law of thermodynamics I can give you no hope; there is nothing for it but collapse in deepest humiliation."⁶

⁴ William Lane Craig, *Reasonable Faith: Christian Truth and Apologetics* (3rd Ed), (Wheaton, IL: Crossway Books, 2008), 140-141. The second law of thermodynamics can also be formulated with respect to entropy, and states that the entropy of an isolated system always increases.

⁵ Refer to Craig, *Reasonable Faith*, 150.

⁶ Arthur S. Eddington, *The Nature of the Physical World*, (London: Macmillan, 1928), 74.

JOURNAL OF THE ADVENTIST THEOLOGICAL SOCIETY

There are Christians who feel the need to integrate the big bang theory into their theology because they believe that the weight of evidence requires them to do so and because they do not want to be perceived as anti-science. This is understandable, but there is the real danger, that this approach could lead to promoting a physical process that God did not actually use in creation and adopting a scientific theory that will ultimately become obsolete.

The Biblical Sketch of Cosmogony

In order to catch a glimpse of how God created the universe, it is important to carry out a study of passages in the Bible regarding the creation of the universe. For example, the book of Hebrews acknowledges that it is “By faith we understand that the universe was created by the word of God, so that what is seen was not made out of things that are visible,” and the psalmist tells us that “By the word of the Lord the heavens were made, and by the breath of his mouth all their host. . . For he spoke, and it came to be; he commanded, and it stood firm.”⁷ Elsewhere in the Bible God says, “I made the earth and created man on it; it was my hands that stretched out the heavens, and I commanded all their host.”⁸ This reveals that God was actively involved in the creation of the universe, namely by speaking it into existence. It also poetically indicates that there was possibly some form of physical expansion involved in creating “the heavens.” While this suggests some superficial parallels between this poetic reference to the expansion of “the heavens” and the expanding space-time structure hypothesized by big bang cosmology, it is important not to rush into taking a misguided concordist approach which holds that the Bible taught big bang cosmology thousands of years before it was discovered by Friedmann and Lemaître in the 1920s.

Reasons for Not Committing to Big Bang Cosmology

Does the big bang theory integrate directly with the biblical cosmogony? It is important to note that most Christian denominations who based their statements of faith solely on the Bible have neither formally nor

⁷ Hebrews 11:3 & Psalm 33:6,9 (ESV).

⁸ Isaiah 45:12 (ESV). The theological insight that God stretched out the heavens is also confirmed in Job 9:8, Isaiah 42:5, 44:24, 51:13, Jeremiah 10:12, 51:15 and Zechariah 12:1.

ÖSTRING: BIG BANG COSMOLOGY

informally endorsed the big bang theory. But should individual Christians feel intellectually obligated to adopt and defend the big bang theory? There are a number of reasons to conclude why they are not.

Empirical Undetermination: Firstly, the big bang theory is not the only theory that can fit the empirical data.⁹ The Christian cosmologist George Ellis has explained, “People need to be aware that there is a range of models that could explain the observations... What I want to bring into the open is the fact that we are using philosophical criteria in choosing our models. A lot of cosmology tries to hide that.”¹⁰ Ellis is referring to the fact that scientific theories are underdetermined by evidence, which means that the empirical evidence supports more than one cosmological theory. Even the famous cosmologist Stephen Hawking, who became an atheist by the end of his life, recognised this when he wrote, “One can imagine that God created the universe at literally any time in the past. On the other hand, if the universe is expanding, there may be physical reasons why there had to be a beginning. One could still imagine that God created the universe at the instant of the big bang, or even afterwards in just such a way as to make it look as though there had been a big bang.”¹¹ This is not just some armchair

⁹ A seminal study of the underdetermination in science was undertaken by the French physicist and philosopher of science, Pierre Duhem, in his book *La Théorie Physique: Son Objet et sa Structure*, (Paris: Rivera & Cie, 1914) which has been translated as *The Aim and Structure of Physical Theory*, (Princeton: Princeton University Press, 1954). A much stronger version of underdetermination was presented by the analytic philosopher Willard Van Orman Quine in his paper “Two Dogmas of Empiricism,” *The Philosophical Review*, 60 (1951): 20-43: Available at: <http://www.ditext.com/quine/quine.html>. Accessed 13 January 2019. Their ideas have been combined into the Duhem-Quinn thesis. A brief introduction to the underdetermination of scientific theories is provided by John Lennox, *God and Stephen Hawking: Whose Design is it Anyway?* (Oxford: Lion Books, 2011), 65.

¹⁰ Gibbs, W. W., “Profile: George F. R. Ellis,” *Scientific American* 273(4) (October 1995): 55. For some examples of cosmological models that Ellis is referring to in principle, see the discussion in the article below and footnotes 10-16.

¹¹ Stephen Hawking, *A Brief History of Time: From the Big Bang to Black Holes* (London: Bantam Books, 1988), 10. In acknowledging that God could have created the universe at any time after the instant of the big bang, including the case that the universe was more recently created, for example in the order of thousands of years ago, Hawking literally sweeps away the starlight problem and objections based on deep-time dating models, such as radiometric dating, continental plate tectonics, the geological column, ice cores and evolutionary time scales for the biosphere, in one fell swoop. Since God is able to recently create a universe with the cosmological observations available to us, He can certainly also recently create geological and biological entities with their observable data. It is important

musings of high-profile cosmologists. Underdetermination in cosmology has been rigorously demonstrated in the context of classical general relativity.¹² Thus, the weight of evidence does not lead inescapably to the big bang.

This means that cosmological evidence cannot be presented to settle the issue between the big bang and a more recent supernaturalistic cosmogony, since God is the maximally great causal Agent, with the attribute of omnipotence, who could have recently created the universe with all of the cosmological features that it actually exhibits. Thus, all the evidence attributed to deep-time is already accounted for within this supernatural cosmogony and so pointing to this evidence makes no epistemological headway. The standard objection that is raised at this point is that this implies that God would appear to be deceptive by leaving us evidence that makes the universe appear much older than it actually is. Plantinga's observation, addressing the objection regarding the consistency of divine action with regards to the occurrence of miracles, is also applicable in this situation as well: "Here the objection, obviously, is theological. It has nothing to do with science."¹³ Science is not capable of determining whether God would or would not create the universe recently with all of the

to note that Stephen Hawking is not the only scientist or philosopher who acknowledges this genuine possibility. The analytic philosopher, Alvin Plantinga confirms that "God has created our world. . . he may have done it relatively recently" Alvin Plantinga, *Where the Conflict Really Lies: Science, Religion and Naturalism* (Oxford: Oxford University Press, 2011), 66. William Lane Craig acknowledges that the literal interpretation of Genesis 1 is one option that could be right. Refer to <https://www.reasonablefaith.org/podcasts/defenders-podcast-series-2/s2-creation-and-evolution/creation-and-evolution-part-12/>. Accessed 13 January 2019. The geologist Justin Payne, who is a non-believer, states that it is a viable option that the earth is approximately 6,000 years old and it was created in such a manner that the geological record provides evidence for the earth being approximately 4.5 billion years old. Refer to <http://reasonablefaithadelaide.org.au/geochronology-radioactive-dating-methods/>. Accessed 13 January 2019. These philosophers and scientists illustrate the fact that no one can deny the logical possibility that an omnipotent agent could recently create the universe and the earth with all of the cosmological and geological features that both entities exhibit.

¹² Refer to John Byron Manchak, "Can We Know the Global Structure of Spacetime?" *Studies in History and Philosophy of Modern Physics* 40 (2009): 53-56; and Jeremy Butterfield, "On Under-determination in Cosmology," *Studies in History and Philosophy of Modern Physics* 46 (2014): 57-69.

¹³ Plantinga, *Where the Conflict Really Lies*, 105.

ÖSTRING: BIG BANG COSMOLOGY

physical evidence that it does exhibit. God may have sufficient reason for creating the universe relatively recently, as his omnipotence certainly permits him to do. As Plantinga rightly pointed out with regards to special divine action, “It’s not as if, if he has such a reason, we’d be the first to know.”¹⁴ It is therefore necessary to recognize that scientists have no privileged insight with regards to making judicial statements on this theological issue. The fault with this objection lies with our attempts to impose our scientific assumptions and models, or more specifically our human expectations, on how God would create things. When we acknowledge God’s omnipotence and our own epistemic limitations, and relinquish our expectations, the alleged deception disappears.¹⁵

Scientific Problems with the Big Bang: Secondly, the big bang theory itself is not free of problems. It is based on an assumption called the cosmological principle, which holds that matter is distributed uniformly throughout the universe, when viewed on a large enough scale.¹⁶ However, this assumption is completely arbitrary, as the theoretical physicist Richard Feynman notes: “The assumption that we have just mentioned implies a very strong uniformity in the universe. It is a completely arbitrary hypothesis, as far as I understand it—and of course not at all subject to any

¹⁴ Ibid., 102.

¹⁵ Lennox has also exposed the reality that holding the position that God would not contravene the natural laws that He has established by intervening in the universe to cause a miracle, like a virgin birth or a resurrection, involves fallacious thinking. Lennox, *God and Stephen Hawking*, 86-94. The objection that God would be acting deceptively if he recently created this universe with the cosmological evidence that it exhibits involves the same type of fallacious thinking. Another objection is that a relatively recent creation of the entire created order leaves God idle without any creative work to do for billions of years. If God is timeless without creation, as William Lane Craig proposes, this objection vanishes—there is simply no time dimension associated with God’s being prior to creation. Refer to William Lane Craig, *Time and Eternity: Exploring God’s Relationship to Time*, (Wheaton, IL: Crossway, 2001), 78. Even in the case that God’s eternity past is actually temporal, it needs to be noted that any finite period of time from the creation of the universe is negligible with respect to eternity past. The Trinitarian nature of God, as revealed for example in John 1:1 and John 17:24, is a fascinating insight into God’s relational focus throughout eternity past.

¹⁶ G. Lemaître, translated by A. Eddington, “Expansion of the Universe, A Homogeneous Universe of Constant Mass and Increasing Radius Accounting for the Radial Velocity of Extra-galactic Nebulae,” *Monthly Notices of the Royal Astronomical Society* 91(1931): 483-490. Available at: <https://academic.oup.com/mnras/article/91/5/483/985165>. Accessed 13 January 2019.

kind of observational checking, since we have been and will continue to be confined to a very small region about our galaxy, and the time development of the universe follows a ‘cosmological scale’ a billion times longer than our lifetime.”¹⁷ The standard big bang theory also has other problems, and these problems have been summarized by Stephen Hawking’s Centre for Theoretical Cosmology at Cambridge University.¹⁸ Some of these problems include: (1) the horizon problem, (2) the flatness problem, (3) the magnetic monopole objection, (3) the rotation curves of spiral galaxies, and (5) distant supernovæ being dimmer than expected. It is fascinating to note that the horizon problem involves the issue that, within the standard big bang theory, there is insufficient time for information and energy to travel between regions of the universe, because of the physical limitation imposed by the speed of light. This is the same fundamental problem as the starlight travel-time problem for creationist cosmological models. It would appear that some Christians are unaware of how serious the horizon problem actually is, or the genuine attempts that have been proposed to solve the problem, because if they were, they would not raise the starlight travel-time problem as a potentially unresolvable physical objection to creationist cosmological models. As John Hartnett has observed, “Some of the solutions proposed [for the horizon problem], such as a massively higher speed of light in the past, or rapid inflation, have been no less exotic than

¹⁷ Richard P. Feynman, Fernando B. Morinigo, and William G. Wagner, Feynman *Lectures on Gravitation*, ed. Brian Hatfield, (Boca Raton, FL: Westview Press, 1995), 166. The ripples or anisotropies in the cosmic microwave background radiation are closely aligned to the same spatial axis, which would contradict the cosmological principle. Refer to M. Tegmark, A. de Coliveira-Costa and A. Hamilton. “A High Resolution foreground Cleaned CMB Map from WMAP,” *Physics Review D* 68:123523, 2003. Available at: <http://arxiv.org/abs/astro-ph/0302496>. Accessed 13 January 2019. The cosmological principle has always been open to debate, and a recently discovered structure called the Hercules-Coronona Borealis Great Wall, which is 10 billion light years wide, puts further doubt on this assumption. Refer to I. Horvath, J. Hakkila & Z Bagoly, “The Largest Structure of the Universe, defined by Gamma-Ray Bursts,” 7th Huntsville Gamma-Ray Burst Symposium, 2013. Available at: <http://arxiv.org/abs/1311.1104>. Accessed 13 January 2019. On theological grounds, the cosmological principle seems to be inconsistent with the frequent fractal patterns associated with God’s creation, where diversity and heterogeneity are typically observed even at the largest scales.

¹⁸ Available at: http://www.ctc.cam.ac.uk/outreach/origins/big_bang_five.php. Accessed 13 January 2019.

ÖSTRING: BIG BANG COSMOLOGY

any put forward by creationists.”¹⁹ To solve these problems, the standard model has been patched up with inflation and the introduction of dark matter and dark energy. One truly begins to get the sense that the big bang theory has been patched up in so many key ways that it needs to be traded in for a new model.

Scientists themselves see the need to explore other models of the universe. In 2004, thirty three scientists wrote an open letter to the scientific community, which was published by *New Scientist*, urging the scientific community to support the exploration of alternative models to the big bang theory.²⁰ Then, in February 2015, Ahmed Farag Ali and Sauray Das proposed a new cosmological model that includes quantum correction terms. This model eliminates the big bang and solves the problem of dark matter and dark energy at the same time.²¹ Since published cosmologists feel no intellectual obligation to defend and maintain the big bang theory indefinitely, there is no need for Christians to feel obligated to adopt the big bang theory by integrating it into their belief system.

Historical Warning: History actually warns us not to credulously adopt and defend the dominant cosmology of our day. Contrary to popular belief and according to Galileo’s own account, the Galileo affair was not initially a dispute between Galileo and the Church, but rather between Galileo and

¹⁹ John Hartnett, *Starlight, Time and the New Physics*, (Atlanta, GA: Creation Book Publishers, 2007), 21.

²⁰ Available online at: <https://web.archive.org/web/20140401081546/http://cosmologystatement.org/>. Accessed 13 January 2019; and Lerner, E. “Bucking the Big Bang,” *New Scientist*, 182(2448): 20, 22 May 2014. Available at: <http://www.newscientist.com/article/mg18224482.900-bucking-the-big-bang.html>. Accessed 13 January 2019. It has since been signed by 218 other scientists and engineers as well as 187 independent researchers.

²¹ This model was announced in <http://phys.org/news/2015-02-big-quantum-equation-universe.html>. Accessed 13 January 2019. The model was originally published in Ahmed Farag Ali and Saurya Das, “Cosmology from Quantum Potential,” *Physics Letters B* 741 (2015) 276-279. Available at: <http://www.sciencedirect.com/science/article/pii/S0370269314009381>. Accessed 13 January 2019. It is important to note that there have been many other cosmological models proposed, including oscillating models, Linde chaotic inflationary model, Vilenkin and Hartle-Hawking quantum gravity models, and the Carroll-Chen model that relies on a background de Sitter space-time. Refer to Craig, *Reasonable Faith*, 125-150. Many of these models are attempting to avert the cosmic beginning of the universe that is predicted by the big bang theory and restore an infinite cosmological history.

JOURNAL OF THE ADVENTIST THEOLOGICAL SOCIETY

the academic Aristotelian professors of the day.²² Galileo challenged the Aristotelean-Ptolemaic cosmology, and, as Hawking has noted, “This annoyed the Aristotelian professors, who united against him seeking to persuade the Catholic Church to ban Copernicanism.”²³ John Lennox has also confirmed this historical corrective: “Furthermore, Galileo enjoyed a great deal of support from religious intellectuals—at least at the start. The astronomers of the powerful Jesuit educational institution, the Collegio Romano, initially endorsed his astronomical work and fêted him for it. However, he was vigorously opposed by secular philosophers, who were enraged at his criticism of Aristotle. This was bound to cause trouble. But, be it emphasized, not at first with the church. . . . Finally another lesson in a different direction, but one not often drawn, is that it was Galileo, who believed in the Bible, who was advancing a better scientific understanding of the universe, not only, as we have seen, against the obscurantism of some churchmen, but (and first of all) against the resistance (and

²² In 1610, Galileo wrote to Kepler saying, “I think, my Kepler, we will laugh at the extraordinary stupidity of the multitude. What do you say to the leading philosophers of the faculty here, to whom I have offered a thousand times of my own accord to show my studies, but who with the lazy obstinacy of a serpent who has eaten his fill have never consented to look at planets, nor moon, nor telescope? Verily, just as serpents close their ears, so do these men close their eyes to the light of truth.” Available at: <http://law2.umkc.edu/faculty/projects/frivals/galileo/lettergalileokeplar1610.html>. Accessed 13 January 2019. Then in 1615, in the opening of his famous letter to the Grand Duchess Christina of Tuscany, Galileo wrote, “Some years ago, as Your Serene Highness well knows, I discovered in the heavens many things that had not been seen before our own age. The novelty of these things, as well as some consequences which followed from them in contradiction to the physical notions commonly held among academic philosophers, stirred up against me no small number of professors—as if I had placed these things in the sky with my own hands in order to upset nature and overturn the sciences.” Available at: http://scitech.au.dk/fileadmin/site_files/science.au.dk/NF/Komm/DenbevaegedeJord/Letter_to_the_Grand_Duchess_Christina_of_Tuscany.1615_Gallilei.pdf. Accessed 13 January 2019. Unfortunately, Galileo’s tendency towards being condescending and sarcastic is revealed in both letters and reveals a key contributing factor in the conflict he was rapidly becoming embroiled in. J. Moss, “Galileo’s Letter to Christina: Some Rhetorical Considerations,” *Renaissance Quarterly* 36 (4) (1983): 547-576. Available at: http://commonweb.unifr.ch/artsdean/pub/gestens/f/as/files/4740/29590_151541.pdf. Accessed 13 January 2019.

²³ Hawking, *A Brief History of Time*, 189.

ÖSTRING: BIG BANG COSMOLOGY

obscurantism) of the secular philosophers of his time who, like the churchmen, were also convinced disciples of Aristotle.”²⁴

Of course, the Catholic Church made serious mistakes, but the two key mistakes they made were: (1) credulously adopting the dominant pagan Greek cosmological theory of their day,²⁵ and then (2) repressively defending this theory by using their political power to silence Galileo.²⁶ Ironically, the Catholic Church is in great danger of actually repeating the first mistake by once again adopting the dominant cosmological theory of our day, namely the big bang theory. Christian academics would be wise to learn from the Galileo affair and not make the same mistake the Catholic Church did, by adopting or defending the dominant cosmological theory of our day.

Divergence Between Big Bang Eschatology and Biblical Eschatology: Finally, the reality is that we already reject key predictions of the big bang theory, namely what it predicts about the future. Current observations suggest that the universe is expanding at a rate that will end in what is known as the “big freeze.” Accordingly to this theory, the universe will become increasingly cold, dark, dilute and dead, and ultimately become one vast, cosmic graveyard.²⁷ The entire human race will become extinct in the process. However, we can legitimately reject the big freeze because of the Biblical prophecies that Jesus will come again in the near future and give eternal life to all those who believe in Him.²⁸ As Craig has pointed out, “Theological eschatology therefore takes the findings of physical eschatology to be at best *projections* of the future course of events rather than actual descriptions. They tell us with approximate accuracy what would take place were no intelligent agents to intervene. Thus, the findings of physical eschatology are in no way incompatible with Christian eschatology, since those findings involve implicit *ceteris paribus*

²⁴ John Lennox, *God’s Undertaker: Has Science Buried God?* (Oxford: Lion Books, 2009), 24, 26.

²⁵ Hawking, *A Brief History of Time*, 4. It is sobering to realize that, according to this analysis, Christian academics who are promoting the adoption of the big bang theory are at serious risk of playing the contemporary equivalent to the historical role of Professor Cosimo Boscaglia in the Galileo affair, rather than the role of Galileo Galilei.

²⁶ Hawking, *A Brief History of Time*, 190.

²⁷ Craig, *Reasonable Faith*, 143.

²⁸ John 6:40.

conditions with respect to the actions of intelligent agents, including God.”²⁹ In a similar way, physical cosmogonies can be taken to be at best projections of the past course of events rather than actual descriptions, as Stephen Hawking has acknowledged.

God will create a new heaven and a new earth and the former things will pass away.³⁰ Since we reject the future projections of the big freeze based on Biblical revelation, we should similarly choose to uphold God’s revelation regarding the history of the universe rather than adopt historical projections based on problematic scientific theories.³¹

Is Non-commitment to the Big Bang Theory Warranted?

A question that could be raised at this point is why we would disassociate ourselves from the current dominant cosmology when it is possible that it is the actual description of the history of the universe. This is a legitimate question and it would be unwise to remain cosmologically uncommitted simply to avoid the possibility of being in error. There are some clear reasons, though, why we would choose not to adopt the dominant cosmology of our day and the Galileo affair is illustrative. Firstly, Aristotle’s theory was based on the idealized presupposition that, since circular motion was considered perfect, all bodies in the universe must follow this motion. In a similar way, the big bang model is based on the idealized cosmological principle that the distribution of matter in the universe is homogeneous and the universe is isotropic. Now simplicity is

²⁹ William Lane Craig, “The End of the World.” Available at: <https://www.reasonablefaith.org/writings/popular-writings/science-theology/the-end-of-the-world/>. Accessed 13 January 2019.

³⁰ Isaiah 65:17 & Revelation 21:1-4. It should be noted that no evangelical Christian suggests that God will take billions or even millions of years to create the new heavens and the new earth. The biblical symmetry between protology and eschatology would then support shorter protological time scales.

³¹ It is important to note that we can hold that deep-time projections of the big bang theory are not actual descriptions of either the past or the future based not only on the grounds of Biblical revelation, but also on the philosophical grounds of the problem of induction. As David Hume pointed out, we cannot be sure that nature will continue to operate in the future according to our uniform observations in the past. He used the example that we cannot be certain the sun will rise tomorrow, even though we have experienced it rising every day of our lives. This is known as the problem of induction. However, as John Lennox has noted, “the same argument would work just as well backward in time, as forward.” Lennox, *God’s Undertaker*, 196.

ÖSTRING: BIG BANG COSMOLOGY

one of the legitimate criteria that is used in science to evaluate competing theories, however, as the quote that is commonly attributed to Albert Einstein says: *Everything should be made as simple as possible, but not simpler.*³² Aristotle was over-simplifying astronomical motion and assuming that astronomical entities would follow circular motion. It is quite plausible, in the same way, that the cosmological principle is an oversimplification of the cosmos. Reality is often much more complex than we assume, and these idealized, simplifying presuppositions should alert us to the possibility that the big bang model may be an oversimplification as well. Secondly, Aristotle's theory included the concept that the universe was eternal and unchanging. This contradicted the biblical teaching that the universe was finite and began to exist when God created it. This should have alerted the theologians of Galileo's day that the theory was inconsistent with what God had revealed about creation, and given strong reason not to attempt to defend a modified version of Aristotle's theory. Similarly, the big bang model predicts that the universe will continue to exist as it is currently operating for billions of years and that the human race will ultimately become extinct according to the fate of the universe. However, this contradicts the biblical eschatology, and this should also alert us to the possibility that the big bang model is broadly inconsistent with biblical teaching also. Finally, astronomical observations were challenging the Aristotelian-Ptolemaic system, yet the Aristotelian professors were continuing to defend the standard cosmology of their era. In the same way, the horizon problem and rotation curves of spiral galaxies, to name two examples, are challenging the big bang model, yet the academic consensus continues to maintain and defend the model. Thus, this should alert Christians to withhold endorsement of the dominant cosmological model when such indicators are present.

³² The quote is a popular paraphrase of the statement that Einstein made in his Herbert Spencer Lecture at Oxford University on June 10, 1933 titled "On the Method of Theoretical Physics": "It can scarcely be denied that the supreme goal of all theory is to make the irreducible basic elements as simple and as few as possible without having to surrender the adequate representation of a single datum of experience." Alice Calaprice, ed., *The Ultimate Quotable Einstein* (Princeton, NJ: Princeton University Press, 2013), 384-385.

Conclusion

We can certainly recognize the significant research capabilities of cosmologists in being able to skillfully handle the mathematics that they use to model the universe and to fit cosmological data to these models. However, we should not credulously adopt the big bang theory. Like the Catholics who defended Aristotle's view of the universe, Christians who mold their theology around the big bang theory are not only heading into unknown metaphysical waters without explicit biblical support, but are likely to be left behind as science moves on from the big bang.³³

God has given us an incredible ability to explore and discover amazing things about the universe. He has also given us the ability to grow in our faith in Him, to believe by faith in a God who can create a universe in any way He wants to. A God who can establish the universe to operate according to physical laws, and then intervene within that physical system to perform supernatural miracles and possibly even adjust the physical laws as He sees necessary, according to His infinite wisdom.³⁴ A God who is not limited by the theories conjectured and fabricated by finite human minds. A God who is not constricted by the current horizons of human studies. A God who is willing to enter into this physical world and become flesh, just to reveal to us His love and power. A God who is bigger than the "big bang" and wiser than the wisest human being. A God who gave us insights

³³ As Plantinga has wryly noted, "[S]cience has not spoken with a single voice about the question whether the universe has a beginning: first the idea was that it did, but then the steady state triumphed, but then big bang cosmology achieved ascendancy, but now there are straws in the wind suggesting a reversion to the thought that the universe is without a beginning. The sensible religious believer is not obliged to trim her sails to the current scientific breeze on this topic, revising her belief on the topic every time science changes its mind; if the most satisfactory (or theistic) theology endorses the idea that the universe did indeed have a beginning, the believer has a perfect right to accept that thought. Something similar goes for the Christian believer and special divine action." Plantinga, *Where the Conflict Really Lies*, 121.

³⁴ "Thousands become infidels because their finite minds cannot comprehend the mysteries of God. They cannot explain the wonderful exhibition of divine power in His providences, therefore they reject the evidences of such power, attributing them to natural agencies which they can comprehend still less. The only key to the mysteries that surround us is to acknowledge in them all the presence and power of God. Men need to recognize God as the Creator of the universe, One who commands and executes all things. They need a broader view of His character, and of the mystery of His agencies." Ellen White, *The Desire of Ages* (Nampa, ID: Pacific Press, 2002), 606.

ÖSTRING: BIG BANG COSMOLOGY

into our origins that have outlasted the Babylonians, Aristotle, Einstein, and Hawking as well. Let us learn the hard lessons of the past and base our theology and our understanding of our origins on His word, not on the shifting sands of contemporary science.

Sven Östring completed a PhD in computer networking at the University of Canterbury in Christchurch, New Zealand. He then moved to holding a research fellow position at the University of Cambridge, where his research focused on optimizing optical ring networks and developing incentive-based algorithms for mobile ad hoc networks. After making a career shift to ministry, Dr. Östring held positions as the Seventh-day Adventist university chaplain in the Western Australian Conference and the Multi-Faith Officer at Curtin University in Perth, WA. Dr. Östring is currently the Director of Church Planting for the North New South Wales Conference in Australia.