

Was the Big Bang the Big Beginning?

An Analysis of the Attempt to “Scientifically” Account for the Creation of the Universe Out of Nothing

Major paper for PHSC 450
God, Science, and the New Atheism
Dr.s John Lennox and John Bloom

by Gary Jensen (garyj10)

January 21, 2015

Dec. 22, 2014

Dear Dr. Bloom,

My paper will first of all expand on the substantial body of scientific and historical evidence that points to a Big Bang beginning of the cosmos (space, time, energy, and matter) out of a “zero volume singularity: (Stephen Hawking). Then I will address the *philosophical* (contra Hawking) implications that logically follow from that beginning which absolutely preclude a scientific *explanation* of that beginning. In the spirit of my degree program (*Science and Religion*), I request permission thirdly to correlate the text of Genesis 1:1 and Genesis chapter 1 (from the Hebrew text), with Big Bang cosmology as a whole.

Dec. 24, 2014

“Good topic. Sounds like fun!”

JB

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“[B]ecause... they worshipped and served the creature rather than the Creator...” (Romans 1:25)

The answer to the question, “*Did the universe have a beginning?*” provides the single most decisive of all *scientific*¹ factors for clarifying whether the heavens and the earth have a Maker.² The stakes on this matter are especially high for those who deny God’s existence. On the one hand theists³ may argue that, whether or not one can document such a beginning *scientifically*, reasoned faith nevertheless holds that God must of *necessity* be the cause of all of existence.⁴ On the other hand, from the first time suspicions were raised by mathematicians that the universe might be expanding,⁵ those who willfully denied God’s existence (for my purpose identified as “materialists”) resisted the data which was relevant to that paradigm⁶ for the reason that the notion of a cosmos with a beginning logically implies the existence of a transcendent⁷ (theistic?) cause of that creation event. I take issue with my fellow theists who assign their highest evidential weight to the *fine-tuning* aspect of the initial conditions of the cosmos at the first moment of creation.⁸ My argument to the contrary is that it is the very *existence* of conditions of *any kind at all* that is the greatest possible miracle.⁹ Indeed, the creation of all material existence (space-time, matter, and energy) out of absolutely nothing points definitively to the existence of the transcendent, intelligent, and omnipotent God of the Bible. Roy Abraham Varghese doth most logically simplify the matter: “*Take your pick: God or universe. Something has always existed.*”¹⁰

It is ironic that two such widely disparate groups of people as young-earth creationists¹¹ (henceforth “YEC’s”) and committed materialists both resist Big Bang cosmogony¹² for ideological reasons that, in part, are at bottom fundamentally similar. As widely divergent as these two groups are in virtually every other aspect, for both parties it is their philosophical/theological (henceforth,

¹ Evidence from nature as opposed to philosophical arguments or appeals to revelation, specifically from the Holy Bible.

² No other god than the declared subject of Genesis 1:1 (“*In the beginning God created the heavens and the earth.*”) merits serious attention at existence-of-God debates these days. So notes Dr. John Lennox in his Gunning for God. (Lion Hudson, 2011), p.19-23.

³ People who believe in a personal God of a kind who is engaged with His world.

⁴ Thomas Aquinas argues such in Summa Theologiae, unabridged, v.1, pt.1, q.1-13, (Doubleday, 1964, p. 63f. ** Langdon Gilkey, in his doctoral thesis Maker of Heaven and Earth (Doubleday & Company, 1959) stated, “*The myth of creation does not tell us about a first moment of time...What it tells us is that every moment of time, like every contingent thing, comes to be from the creative power of God*” (p.260). Scholars at times employ the word “myth” to distinguish between the normal course of human history and the working of God in history (See John Macquarrie. God Talk: An Examination of the Language and Logic of Theology. (Harper and Row, 1961), p.34f, and Helmuth Thielicke. “Prologomena: The Relation of Theology to Modern Thought Forms.” The Evangelical Faith, v. I. (Eerdmans, 1974), p. 66f). ** William Lane Craig extensively employs the Kalam Cosmological argument which states that since one cannot cross over an actual (as opposed to potential) infinite period of time, the history of the universe *must* be finite (On Guard. (David Cook, 2010), p.78-86).

⁵ Alexander Friedmann applied Einstein’s general theory of relativity to cosmology and first suggested mathematically that the universe is expanding (<http://www.decodedscience.com/alexander-friedmann-unsung-hero-of-modern-cosmology/19423>). ** Likewise, Willem de Sitter concluded that Einstein’s equations could not allow for a static universe (Fred Heeren. Show Me God. (Daystar, 2004), p. 135). Show Me God. (Day Star, 2004), p.135). ** Expanding on Einstein’s same equations, Belgian priest and astronomer, Georges Lemaitre further suggested *mathematically* that the universe must indeed have had a beginning (Lennox. Op.cit (2), p.29. ** In 1912 Vesto Slipher noted by *observation* how many “nebulas” were red shifted, while Edwin Hubble later in the 1920’s discovered by *observation* that such *nebula* were actually galaxies lying outside our own Milky Way, which were all moving away from us. Thus, *empirical* evidence, too, implies a beginning. (Heeren, p.140-149).

⁶ This list initially included most prominently Albert Einstein (Walter Isaacson. Einstein: His Life and Universe. (Simon & Schuster, 2007), p.353), and Sir Arthur Eddington (Lennox. Op.cit (2), p. 30). They had been committed to the predominant scientific viewpoint of that time that the cosmos is eternal and consequently without beginning.

⁷ To “transcend” in the context of this paper is to *ontologically* stand outside of the created order. I.E. God’s essence is of a different order.

⁸ I am emphatically not denying the power of fine-tuning arguments. I am rather highlighting the greater argument of an absolute beginning.

⁹ The ancient Greeks argued the existence of finite artisan gods who fashioned preexisting material.

¹⁰ From his essay, “The New Atheism,” Antony Flew. There is a God. (Harper One, 2007), p. 165.

¹¹ Those who believe God created the world in six-24-hour days approximately six thousand years ago.

¹² “Cosmos” means “orderly arrangement” in Greek. “Cosmology” (note *logos* in italics) pertains to the *over-all* study of the cosmos. “Cosmogony” (*gony* is related to *genesis*) considers specifically matters of the *beginning* of the cosmos.

“philosophical”) *a priori* commitments that, when push comes to shove, effectively triumph over the authority of rational and empirical data. For example, YEC’s insist on dismissively filtering out certain scientific data (pertaining to the manner and duration of the creation days) on the basis of their *interpretation*¹³ of the English text of Genesis ch. 1. For instance, at a recent pastor’s conference in my predominantly self-identified “young-earth” denomination¹⁴ where I had just lectured on our denominational study text, “The Natural Knowledge of God,”¹⁵ my colleagues during our conversation together over lunch refused to entertain any evidence for the existence of God which conflicts with their 24-hour-day view of the opening chapter of Genesis. The three aspects of the cosmological evidence that are most threatening to the young-earth position can be summarized as follows: (1) the implications from the size (hence the age) of the universe that it is over thirteen billion, as opposed to six thousand, years old; (2) implications from the observable history of the universe that the starry heavens (including our Sun) were created before day four; and (3), that the position of *tiny* planet Earth within the vastly larger cosmos which has no apparent center fits poorly with their literalistic¹⁶ reading of Genesis 1. In the face of such apparent contradictions YEC’s call the “faulty” testimony of nature into question.¹⁷

At the same time, at the other end of the ideological spectrum, committed materialists categorically refuse to consider as evidence any indication which hints of an intervention into nature by an intelligent God of creation, design, and providence.¹⁸ To be fair, with respect to the central theme of this paper, the default position of materialists is not to *explicitly* deny or suppress the empirical facts pertaining to Big Bang cosmology (since the weight and extensive array of empirical supporting evidence is so enormous) as it is to insist on limiting the roster of candidates for potential *causes* of the Big Bang to entities that exist *within* (inside of) nature. Yet even here, as I intend to demonstrate, the integrity of the data to which they consistently appeal, becomes every bit as much distorted from reality as the fishbowl analogy illustrated by Stephen Hawking.¹⁹ At bottom, materialists as a whole refuse to consider the barest possibility that the universe came into existence from a being or entity lying ontologically²⁰ outside of the material cosmos. In summary, YEC’s *suppress* troubling facts, while committed materialists, on the other hand, effectively *assume* the existence of the very “facts” whose existence they intend to demonstrate.²¹ Neither party receives the evidence as a whole and at face value.

¹³ “Back to Genesis” founder, Ken Ham says the stars were created on day four a few thousand years ago just because “the Bible says so” (AM820 radio station, Seattle, WA, 09/20/2006). That dismissive attitude contradicts the warning that the Apostle Paul issues in Romans 1:18-20 to **not** dismiss or suppress the testimony of nature.

¹⁴ I wrote my essay, “*The Biblical Demand to Take Another Look: Ten ‘Compelling’ Exegetical Reasons the Days of Creation are Non-24-Hour*” (found at my website, <http://www.christianityontheoffense.com>) to directly answer the following challenge posed by a Lutheran Church-Missouri Synod Q&A statement: “*Unless there is compelling reason on the basis of the biblical texts themselves* [boldface mine]... *we are to believe God created the world in six 24-hour days*” (found at <http://www.lcms.hughes-stl.com/pages/internal.asp?NavID+2210>). On the other hand, when I submitted the same paper to the official arbitrating board of our denomination on doctrinal matters (The Commission on Theology and Church Relations) for their judgment, the Executive Director, Dr. Joel Lehenbauer replied on official letterhead that such statements “*do not, as such, constitute the official position of the Synod*” (boldface mine).

¹⁵ *A Report of the Commission on Theology and Church Relations. The Natural Knowledge of God in Christian Confession and Christian Witness.* (LCMS, 2013).

¹⁶ My argument is not that the Bible is *never* intended to be read literally, but that the question persists of whether a given text *demand*s that reading.

¹⁷ LCMS theologian the late Francis Pieper wrote, “*Nor are [the days of Genesis] to be extended...to bring Scripture into agreement with the ‘assured results’ of science*” (*Christian Dogmatics*, V.1. (Concordia, 1950), p.468).

¹⁸ Richard Lewontin, quoted in Stephen Meyer. *Darwin’s Doubt.* (Harper One, 2013), p. 386, has stated, “*We take the side of science in spite of the patent absurdity of some of its constructs, in spite of its failure to fulfill many of its extravagant promises of health and life, in spite of the tolerance of the scientific community for unsubstantiated just-so stories, because we have an a priori commitment, a commitment to materialism. It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but on the contrary, that we are forced by our priori adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counter-intuitive, no matter how mystifying to the initiated. Moreover, that materialism is absolute, for we cannot allow a Divine foot in the door.*”

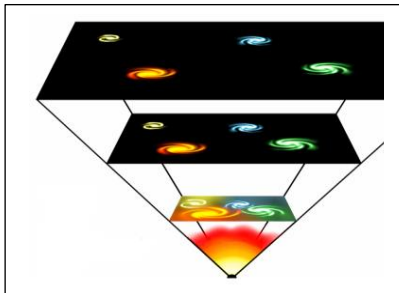
¹⁹ Stephen Hawking and Leonard Mlodinow. *What is Reality? The Grand Design.* (Bantam, 2012), ch. 3.

²⁰ *Ontology* considers the status and nature of existence.

²¹ John C. Lennox. *God and Stephen Hawking.* (Lion Hudson, 2011), p. 29f.

There is one specific *characteristic* of the body of evidence supporting Big Bang Cosmogony which most effectively sets it apart as a model superior to all others. Precisely because the speed of light is *finite* (though much faster than a Corvette!), it provides a non-controversial²² standard of measurement for determining both the history, and consequently the size of the universe. The light from each celestial object that reaches our optical instruments (including our eyeballs) represents that specific time in the past when the rays first left their respective sources. The process of looking across the distant heavens is therefore literally peering back in time and noting the trajectory of development, much like watching a movie in reverse. This reality allows scientists to both reflect on the history of the cosmos, and publicly recheck their measurements. Contemporaries can correlate their calculations with documentations made by every other scientific observer across our globe, regardless of philosophical bias. That is an amazing investigational package! In sum, evidence relevant to the Big Bang entails empirical, archived, and retrievable history whose contents can be accessed first-hand by any investigator who possesses the necessary technology.

The best historical narrative on the parade of discoveries leading to the present scientific consensus from the record of nature that the cosmos had a beginning, is, in my opinion, laid out in the highly-engaging work of science journalist, Fred Heeren.²³ Space restrictions limit a fully adequate recounting of that story in this paper. The *mathematical* arguments pointing to an expanding universe have already been discussed in footnote 5. What is in order now, in light of my purposes, is a recitation of the cumulative body of *empirical* evidence that stands in favor of the Big Bang. It is at this point that I acknowledge my heavy indebtedness to the writing of astrophysicist Dr. Hugh Ross on this core theme.²⁴ That text inspired me to read scores of publications arguing all sides of this controversial position.²⁵ To my astonishment, even though writers have taken differing positions on the actual bearing of Big Bang cosmology on the question of its theistic implications, never once have I encountered Ross's factual assertions being contradicted by another scientist. That observation alone further serves to underscore the central point of my previous paragraph. In my mind it also provides sufficient grounds for limiting my references here largely to his work.



Refer to the illustration on the left²⁶ as I summarize the relevant empirical evidence under the following six categories: (1) Edwin Hubble's discovery at the Mount Wilson Observatory that over the passage of time (moving from bottom to top in the picture) almost all²⁷ galaxies are moving apart from each other.²⁸

(2) Hubble's calculated formula (called the "Hubble Constant") drawn from redshift measurements taken of twenty four separate galaxies,²⁹ each of them lying at various distances, demonstrated that the

²² Although YEC's contest such conclusions, they are only able to do so by alleging, without evidence, that the speed of light has changed.

²³ Op.cit. (5), "The Big Bang Theory." [Show Me](#). ch. 6, p.139-179.

²⁴ Hugh Ross. *The Creator and the Cosmos*. (NavPress, 2001).

²⁵ To name a few references: Dennis Danielson, ed. "Beginnings and Ends." *The Book of the Cosmos*. pt. 6. (Persius, 2000), p.418-522; ** David Filkin. *Stephen Hawking's Universe*. (Basic, 1997); ** Brian Green. *The Elegant Universe*. Vintage, 2003; ** Stephen Hawking. *A Brief History of Time*. (Bantam, 1988). ** Stephen Hawking and Leonard Mlodinow. *The Grand Design*. (Bantam, 2010); ** Fred Hoyle. *Astronomy: A History of Man's Investigation of the Universe*. (Crescent, 1962); ** Martin Rees. *Just Six Numbers*. (Persius, 2000; ** Stephen E. Schnieder and Thomas T. Arney. *Pathways to Astronomy, v. II: Stars and Galaxies*. (Custom, 2007), and Giles Sparrow. *Cosmos: A Field Guide*. (Quercus, Oct. 30, 2006).

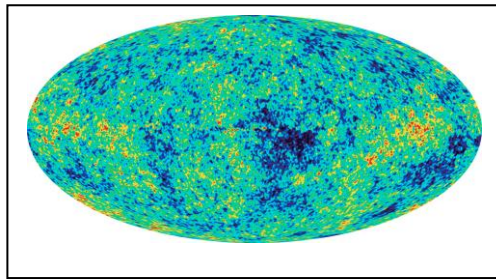
²⁶ I beg acceptance of this illustration which, in a modified form, I have drawn from http://en.wikipedia.org/wiki/Big_Bang.

²⁷ Virtually the only exceptions are the galactic members of our "Local Group," which, to the contrary, are *gravitationally* bound to each other.

²⁸ Ross. Op.cit. (24), p. 73, 5, 8; **Heeren. Op.cit. (5), p.145f.

²⁹ Ross. Ibid, p. 60; ** Heeren. Ibid, p146, 7.

rate of expansion of the universe has been slowing down since its' beginning³⁰ in a manner that is consistent with a Big Bang explosive³¹ beginning; (3) The scientific observation of galaxies farther back in time, hence closer to the moment of creation, shows them to be closer together than are galaxies that are observed at a time closer to the present (see top of p. 3, above);³² (4) Temperatures taken from differing eras in the history of the universe reveal that the expanding universe is as a whole cooling off from its initial intensely hot beginning, much like the opening of an oven door so that its hot air can dissipate into the kitchen;³³ (5) Arno Penzias and Robert Wilson, quite by accident (because they were seeking to resolve an unrelated problem), discovered a "black body" form of radiation (called "cosmic background radiation") whose source cannot have been from anything other than the initial blast of the Big bang itself;³⁴ (6) While the cosmic background radiation just described, was powerful enough to overthrow the two competing cosmological theories: the "steady state" theory,³⁵ and the "oscillating universe" theory,³⁶ early measurements achieved with primitive instruments implied that that same radiation was so smooth as to raise questions about where planets could possibly have arisen from.³⁷ (7) That early concern, however, was allayed when increasingly sensitive equipment was produced which revealed the required level of discomformity which could account for the later development of stars, galaxies, rocky planets, and ultimately, human beings.³⁸ Notice below that the differing colors are the fluctuation in the cosmic background radiation (the oldest light in the history of the universe). That light represents a "lumpiness which was existent when the universe first began" (Genesis 1:3).³⁹



In my assessment, it is empirical evidence specifically of the nature I just described which utterly undermines the young earth claim about the history of the universe. That evidence has the capacity to do so, first of all, because the data just considered is accessible to the senses of every person who is willing to receive it. The language of Psalm 19:1, "*The heavens declare the glory of God, and the firmament proclaims His handiwork,*" is phenomenal, as opposed to analytical, in nature. It describes what people can perceive. Together with Psalm 8:3, 4, these passages encourage people to enjoy the

³⁰ The deceleration trend of the expansion continued up until between 6 and 7 billion years ago. Since then that expansion has been accelerating (Ross. Ibid, p. 45f.). That acceleration however is irrelevant to the thesis I am arguing, that the expansion we are considering initially slowed down for the first half of its history.

³¹ The Big Bang explosion was not chaotic, but astonishingly precise. Stephen Hawking stated, "*If the rate of expansion one second after the big bang had been smaller by even one part in a hundred thousand million million, the universe would have recollapsed before it ever reached its present state*" (Brief History. Op.cit. (25), p.123). ** On the other hand astronomers John Barrow and Joseph Silk state, "*Worlds expanding much faster than the critical rate would almost certainly be devoid of stars and galaxies, and hence the building blocks out of which living beings are made*" (cited in Heeren. Op.cit. (5), p. 211).

³² Ross. Op.cit. (24), p. 42.

³³ Ross. Ibid, p.40, 1.

³⁴ Heeren. Op.cit. (5), p. 153f.

³⁵ Ross. Op.cit. (24), p. 78.

³⁶ Ross. Ibid, p.87f.

³⁷ Sparrow. Op.cit. (25), p. 217.

³⁸ Sparrow. Ibid, p. 214-217.

³⁹ <http://www.bing.com/images/search?q=cosmic+microwave+background&qpv=cosmic+microwave+background&FORM=IGRE#view=detail&id=512D69C8A513E3A2A23BC777DA7230FE5CAED954&selectedIndex=3>

heavenly show! The Bible **never** commands humans to ignore the testimony of nature. To the contrary, human beings are effectively commanded to receive its truthful witness precisely *in order to* draw our conclusions about God's existence from what it tells us (Romans 1:18-20).

Secondly, as I have already stated, that same body of data has also effectively overthrown the prominent competing naturalistic cosmological paradigms; namely the steady-state,⁴⁰ and the oscillating universe models⁴¹ Virtually all cosmologists today concede both the epistemic security of Big Bang cosmology as the correct model of the history of the universe (p. 5, 6, above), and its implications which lead back to a singular beginning.⁴² Since the **multi-faceted** aspect of that evidence is substantially **historical** in nature (see top, p. 3), it is hard to imagine how it could, even in principle, be altogether overthrown in the future. Modified? Of course. Altogether overturned? No! Indeed, the weight of the evidence that has so far been laid out is largely non-controversial for those scientists committed to following the data where it leads.⁴³ At the same time, however, there remains one potential refuge for committed materialists which is hidden enough from the scientist gaze as to allow them a glimmer of hope that materialism might remain in the game.

That place of "refuge" in question is located at that intersection lying between two sets of disparate entities: (1) Between the "zero-volume singularity"⁴⁴ and the actuality of the material cosmos; and (2) between the domain of quantum physics and the realm of physics described by Einstein's General Theory of Relativity.⁴⁵ Visible access to this region is forever hidden from every finite observer by the impenetrable barrier known as "cosmic background radiation."⁴⁶ Giles Sparrow indeed states that, "*Without a quantum theory of gravity we cannot scientifically venture any closer to the universe's origins.*"⁴⁷ Stephen Hawking's speculations (together with Leonard Mlodinow) are amply laid out in their book *The Grand Design*,⁴⁸ where the arguments are based on possibilities which logically follow from mathematical calculations. It is critical however to highlight two fallacies that are at work in that line of reasoning. First of all, *allowable* possibilities do not equal *actualities*. For example, the *strength* of the foundation undergirding the fine-tuning argument entailing both the four major physical laws, and the initial conditions in place at the very beginning of the universe, lies in the conviction that they were contingent, that is, not in put in place by necessity.⁴⁹ For example, popular models of the so-called multiverse, assume out of *necessity* that each separate so-called "universe" exists under its own unique set of scientific laws, most of which yield conditions that are hostile to life. Furthermore, Hawking's very fixation on seeking a *mathematically* tenable theory of everything seems founded on an illegitimate assumption that the cause of the beginning (whether immanent or transcendent in relation to the material order) is bound to but one ultimate set of laws. That stricture is based on an arbitrary (materialistically bound) philosophical assumption. The very birth of science as a disciplined exploration of nature, on the other hand, was inspired by the biblical conviction that God can choose His own natural (as opposed to *moral*) laws. Such intellectual scientific pioneers as Galileo, Kepler, and Newton⁵⁰

⁴⁰ Op.cit. (25), p. 53.

⁴¹ Op.cit. (36), p. 87f.

⁴² Sir Patrick Moore has stated, "*It is generally thought that the universe began with the Big Bang 13.7 billion years ago. How this Big Bang happened we do not know. According to this theory space, time, and matter were created the same moment. This means you can't ask what happened before the Big Bang, as there wasn't a before.*" (<http://www.sirpatrickmoore.com/faq>).

⁴³ Former atheist Antony Flew cited Socrates' dictum as a fundamental reason for his turn to theism. (*There is a God*. (Harper One, 2007), p. 89).

⁴⁴ Stephen Hawking's Universe: <http://www.pbs.org/wnet/hawking/strange/html/singular.html>

⁴⁵ At the end of the recent movie, "The Theory of Everything" (which I, for one, loved!) Stephen Hawking stated that the discontinuity of these two paradigms stood in the way of finalizing Hawking's search for his "theory of everything" (M-Theory). ** Also Hawking. Op.cit. (25), p. 82.

⁴⁶ Sparrow. Op.cit. (25), p. 214-17.

⁴⁷ Ibid, p. 217. ** Schneider. Op.cit. (25), p. 666.

⁴⁸ Op.cit. (25).

⁴⁹ Dr. John Roberts. <http://philsci-archive.pitt.edu/4760/>

⁵⁰ Alan Richardson. *The Bible in the Age of Science*. (Westminster, 1961), ch. 1.

considered that since God chose to create freely,⁵¹ as opposed to conceding to the strictures of ideal forms or pre-determined natural laws, the only way to understand nature was to investigate it by means of what is now known as hands-on scientific method.⁵² So I ask, what new scientific insights have materialists to offer now as proof to the contrary, that the Maker of heaven and earth cannot have chosen to create just as He wishes?

Dr. Hawking clearly assumes that the cause of the natural order lies within nature itself, just as Antony Flew anticipated such thinking would appear broadly within the scientific community in its future deliberations on this matter.⁵³ Hawking notoriously began his pro-naturalistic argument in his Grand Design by commending philosophy to its final resting place.⁵⁴ He grounded that “burial” on his judgment (a *philosophical* consideration) that philosophical studies have not kept up with the latest scientific discoveries.⁵⁵ Yet his same book proceeds to expose his own commission of philosophical errors that are interwoven into his line of argumentation, the most basic of which is how one can suppose that something part and parcel with nature can be the cause of nature’s own existence. Because Dr. Lennox has written a devastating critique revealing Hawking’s string of logical fallacies,⁵⁶ I need not (and *cannot*) devote space here to address them. I simply conclude here that in spite of Hawking’s assertion to the contrary, there is nothing in the aspect of hiddenness⁵⁷ surrounding the singularity creation point that raises legitimate objection to the biblical assertion that the entire cosmos came into existence from outside of the physical order. Stephen Hawking’s famous term “zero-volume singularity” is both ambiguous and, consequently, ambivalent.⁵⁸ Can “zero-volume” mean at the same time both (a) literally absolutely nothingness and (b) infinite density (which, by definition, cannot be zero-volume)? No. Yet it is highly significant that by neither of these interpretations of that term can his materialistic agenda be in anyway served. It is therefore clear that the burden of identifying a *scientific* cause for the cosmos clearly belongs on the shoulders of the materialists.⁵⁹

The fundamental challenge I wish then to pose in conclusion is, given the multi-faceted interpretation of Dr. Hawking’s “zero volume singularity,” and the reality that scientific investigation involves the examination of processes that by definition take place *within* the natural order, then when or where is this first material *event* supposed to have happened? At the Big Bang, it must be repeated, all of time, space (space-time), matter, and energy came into existence. Physical *events* entail duration and so, consequently, must take place *within* time, which precisely began at the creation moment. In what sense, then, could the cause of such a beginning event be called scientific? Furthermore, events involve the interaction of matter and energy (both of which are *spatial* entities) in a given field (which is also (spatial)). Where then was that arena where these events were supposed to have taken place?

⁵¹ Gilkey. Op.cit. (4), p.43.

⁵² John. C. Lennox. God’s Undertaker. (Lion Hudson, 2009), p. 23.

⁵³ Flew. Op.cit. (41), p. 136.

⁵⁴ Op.cit. (25), p.5.

⁵⁵ Had he *conditioned* his stark assertion that “*philosophy is dead*” on his assessment of the present reality that it is broadly uninformed about recent scientific discoveries in mathematical physics he would have been expressing a logically valid criticism that could in fact *actually* be true. But his actual statement within the text stands on its own as a naïve denigration of philosophy as a field of inquiry. In truth, scientists cannot, even in principle, conduct even *pure* (as distinguished from *applied*) science without bringing philosophical investigative tools into the laboratory. After all, every scientist moves back and forth between the gathering of data, on the one hand, and hypothesizing (which is a philosophical task) on the other.

⁵⁶ God and Stephen Hawking. (Lion Hudson, 2011).

⁵⁷ Hawking. Op.cit. (25), “*Quantum physics tells us that no matter how thorough our observation of the present, the (unobserved) past, like the future, is indefinite and exists only as a spectrum of possibilities. The universe, according to quantum physics, has no single past or history*” (p. 82).

⁵⁸ Op.cit. (42). “*A singularity marks a point where the curvature of space-time is infinite, or, in other words, it possesses **zero volume and infinite density***” (boldface mine).

⁵⁹ “*Cosmologists do not know what caused our universe to come into existence. So, let’s assume that the universe just is...and go on to the next fraction of a millisecond of its life.*” (Allan R. Glanville, Chief Consultant. All of Science. (Millenium, 2010), p. 198).

Hawking's second lexical suggestion that matter and energy can exist within a zero volume⁶⁰ is in actuality, an oxymoron.

On the other hand, should that "zero volume singularity" involve infinite density (the second facet of his usage), then its' very existence logically demands a cause. Yet to this challenge Hawking can only effectively regard the existence of matter as axiomatic. Let it be duly noted that an axiom, by definition, cannot be a scientific concept. In his program matter remains unexplained with no prospect of being accounted for in scientific terms. Yet there is an answer outside of science. Although human sight has no direct access to that beginning moment of creation, the light of reason may safely enter there and proclaim the bold truth that there is but one rational answer to the question of the cause of the creation of the heavens and the earth. He is God, the transcendent "Maker of heaven and earth"⁶¹ who brought it into existence by His word of command.⁶²

Gary Wayne Jensen

⁶⁰ Op.cit. (42). "A singularity marks a point where the curvature of space-time is infinite, or, in other words, it possesses **zero volume and infinite density**" (boldface mine).

⁶¹ The opening statement of the Apostles' Creed.

⁶² Hebrews 11:3.

"Grade: 29 (30 points possible) thorough and very nicely supported. It is obvious that you have a great passion in this field. I must also say that your paper is one of the finest works that I have read in my time as a TA. It was truly a pleasure reading it. Aside from some small mistakes (see my comments on the paper itself) it is incredibly well written. Good luck in your future studies, and God bless."

Troy Peiffer. Jan 24 at 1:51pm