

Creatio ex nihilo: A Critique of the Mormon Doctrine of Creation

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SUMMARY

A critique of the Mormon doctrine of the eternity of matter in light of philosophy and science.

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In the co-authored book *How Wide the Divide? A Mormon and an Evangelical in Conversation*, Mormon scholar Stephen E. Robinson declares that Mormons "do not accept the councils and creeds" of "orthodox" Christianity. However, they "do accept the Bible without its theological add-ons." [1] At the end of this volume, the question is posed, "Do the classic early Christian creeds accurately elaborate biblical truths about God and Christ, while admittedly rephrasing them in later philosophical language, or have they so imported Hellenistic concepts into their formulations as to distort biblical truth?" [2]

To hear the charge issued by Mormons that the doctrine of creation *ex nihilo* is one example of imposing unwarranted philosophical or theological grids upon Scripture is not unusual. Traditionally, Mormonism has held that matter is eternal, and God is (roughly speaking) an Artificer or Shaper or Reorganizer of this eternal matter—or perhaps some semi-substantial *Urstoff* which is neither being nor non-being. [3] *This*, Mormons have claimed, is what "creation" is - not creation out of nothing. B.H. Roberts, a Mormon elder and a member of the First Council of Seventy, declared that "Christians converted into dogma the false notion of the creation of the universe out of 'nothing,' assuming God's transcendence of the universe. They accepted the idea that 'creation' meant absolutely bringing from non-existence into existence, and ultimately pronounced anathema upon those who might attempt to teach otherwise. [4]

In Part I, we shall present the relevant biblical and theological support for the doctrine of *creatio ex nihilo*. In Part II, we shall put forth philosophical and scientific support for *creatio ex nihilo*, which lays out various deductive and inductive arguments against an infinite past. We close with some reflections on how the biblical, philosophical, and scientific evidence for *creatio ex nihilo* might best be accommodated within the scope of Mormon theology.

I. Biblical and Theological Support for *Creatio ex nihilo*

In an article entitled "A Mormon View on Life," Lowell Bennion states: "Latter-Day Saints reject the *ex nihilo* theory of creation. Intelligence and the elements have always existed, co-eternal with God. He is tremendously creative and powerful, but he works with materials not of his own making." [5] Much earlier, Orson Pratt asserted in 1876 that the materials of which the earth is composed are "eternal." [6] God did not create out of nothing, Pratt continues. He claims that *no* "Scripture" (*i.e.*, the Bible and Mormon holy writings such as the *Book of Mormon* or the *Doctrine and Covenants*) "intimates such a thing." [7]

Mormon theologian John Widtsoe maintains that belief in creation out of nothing does nothing but cause confusion: "Much inconsistency of thought has come from the notion that things may be derived from an immaterial state, that is, from nothingness." [8] In addition to this assertion, Widtsoe asserts that God cannot create matter [out of nothing] nor can he destroy it: "God, possessing the supreme intelligence of the universe, can cause energy in accomplishing his ends, but create it, or destroy it, he cannot." [9] The sum of matter and energy, whatever their form, always remains the same.

Does the biblical evidence *really* bear out the reorganized creation of the Latter-Day Saints? Is the doctrine of creation out of nothing *simply* a patristic fabrication?

A. Biblical Arguments

The traditional Christian doctrine maintains that God is the ultimate Originator of the material universe and all *other* reality. [10] For instance, the Fourth Lateran Council of 1215 formally declared: "We firmly believe and simply confess that there is only one true God . . . creator of all things invisible and visible, spiritual and corporeal; who by his almighty power at the beginning of time created from nothing [*de nihilo condidit*] both spiritual and corporeal creatures." There are two main features to the doctrine of creation out of nothing:

(1) all things are *ontologically dependent* upon God for their very being

(2) the universe and all other reality apart from God *began* and have not always existed. [11]

Now O. Kendall White, Jr., asserts that the "typical" Mormon criticism of *ex nihilo* creation as absurd misses the point of *ex nihilo* creation, which is that everything that exists is totally dependent upon God for its being. [12] It is undeniable that some Christian theologians [13] believe creation is nothing more

than ontological dependence (*i.e.*, God's providential sustenance of all existing things, preventing them from lapsing into nonbeing); these thinkers see temporal origination as irrelevant - or nearly so. [14] We shall argue, though, that this view of creation does not capture the thrust of this key Christian doctrine, which declares that God is distinct from all other reality, *which he not only sustains but also has brought into being a finite time ago.*

Augustine captures the Christian doctrine nicely when he argues that since God alone is Being, he willed to exist what formerly did not exist or had no being. God is not a mere shaper of formless and eternal primordial matter. He adds, "You did not work as a human craftsman does, making one thing out of something else as his mind directs. . . . Your Word alone created [heaven and earth]." [15] For Christians, creation *ex nihilo* more properly refers to the temporal origination and ontological dependence of the material world on God's decree. [16]

Now according to B.H. Roberts, "there is nothing in the word [*create*] itself . . . that demands any such interpretation [*i.e.*, an *ex nihilo* one] of its use in Holy Scripture." [17] And again, "there is nothing in the word 'create' itself that requires its interpretation to mean 'create out of nothing.'" [18]

Now it would certainly be unwise to consider the particular word *bârâ'* and the Greek word for "create" (*ktizô*) by themselves as the entire basis for making a case for creation out of nothing since there is more to meaning than that of words alone. (Think of the multiple ways in which the word "run" can be understood: a run in a stocking, a run for the presidency, a run for a medal, etc.). Words by themselves are insufficient to determine meaning. Considerations of context, linguistic structure, authorial corpus, literary genre, and the like must also be taken into account. For instance, when we study Paul's doctrine of justification or righteousness (*dikaïosunê*) by faith and see its forensic or imputed nature, [19] we do not simply say the word *dikaïosunê* is up for grabs simply because Matthew always uses it to express an individual's behavior rather than an imputed righteousness by faith. [20] While there may be a range of possibilities regarding the meaning of particular words, they are not infinite. So the real question before us is: When we are speaking of the word, how is it to be understood within the particular setting in which the author wrote?

One tack Mormons use is the appeal to a word's *etymology* to grasp its meaning. B.H. Roberts does so in the instance of the word *create*, which is indeed a precarious route to take. He admits what The Jewish Encyclopedia indicates - namely, that "most of the Jewish philosophers find in Gen. 1:1 that 'creation' meant 'creation out of nothing.'" [21] This fact is quite telling and, of course, supports the traditional understanding of creation, as opposed to the LDS view. Then Roberts commits the exegetical fallacy of appealing to etymology to support the LDS interpretation of the text: "The Jewish Encyclopedia says that the etymological meaning of the verb ('create') is 'to cut out and [to] put into

shape' [fashion], and thus presupposes the use of material." [22] He then extrapolates the theological point that God's creation involved a fashioning "out of pre-existent material." [23] He adds later: "the etymology of the verb 'create' implies creation from pre-existing materials." [24]

However, modern linguists and exegetes have shown that using etymology to establish word meaning is misguided. For example, the English word *nice* has apparently been derived from the Latin *nescius*, which means "ignorant." [25] So we do not therefore imply that a "nice" person is an ignoramus! In most cases, the synchronic [26] usage of a word *rarely* means what it originally meant (*i.e.*, etymologically). As biblical scholar Moisés Silva emphatically states: "Modern studies compel us to reject this attitude [*i.e.*, appealing to etymology as giving us the 'basic' or 'real' meaning of a word] and distrust a word's history." [27] Again, James Barr asserts: "The main point is that the etymology of a word is not a statement about its meaning but about its history." [28]

Now it is well-known *bârâ'* (create) is used for, say, God's creation of the people of Israel (*e.g.*, Isa. 43:15) or his creation of a clean heart (Ps. 51:12), but obviously this should not be understood as being *ex nihilo*. More to the point: when we look at specific texts related to God's creation of the universe, which viewpoint is (best) supported by Scripture—the LDS understanding or the Christian one? And if, at worst, the Bible is neutral about which of these two positions (relative or absolute creation) is true, then Mormon scholars have still failed to prove their claim that the Bible endorses their view.

In my analysis of this question, we shall refer frequently to Gerhard May, Professor of Theology at the Johannes Gutenberg Universitaet in Mainz, Germany. In his book *Creatio ex Nihilo: The Doctrine of "Creation out of Nothing" in Early Christian Thought*, he expresses the commonly-held LDS view that the text of the Bible does not demand belief in creation *ex nihilo*. [29] Unfortunately, May—along with Mormon scholars in general—does little to defend this claim. While he makes passing reference to certain biblical passages that seem to hint at the doctrine of *creatio ex nihilo*, he does not seriously interact with them, seeming to pass them off lightly. He focuses on patristic study (as his subtitle indicates) rather than on biblical exegesis. It is intriguing that Mormon scholars refer to May [30] or cite works which depend on May's analysis, but this ends up weakening their argument: *these sources tend to pass over the exegesis of biblical texts (as May does) and move immediately into the theological discussion of rabbis and theologians*. [31] Mormon scholarship itself is remarkably silent on biblical exegesis regarding creation.

May's own silence on scriptural analysis ends up weakening his position because, if properly done, sound biblical exegesis refutes the notion that creation out of nothing is a mere theological invention. For instance, Romans 4:17 (where God is said to call into being things that are not) and Hebrews 11:3 (where the visible world is not created from anything observable) are passages which May simply writes

off as fitting in with other statements of Hellenistic Judaism—statements that *seem* to affirm absolute creation out of nothing but are actually only asserting belief in world-formation out of pre-existent material.

One wonders if that is all there is to the matter. It seems that such assertions, given without any arguments whatsoever, can be rather misleading. Indeed, May gives the false impression that *creatio ex nihilo* was nothing more than the invention of well-meaning Christian theologians who were trying to defend what they believed to be the biblical notions of God's absolute sovereignty, freedom, and omnipotence in the face of heretical gnostic doctrines. We believe that examining the relevant biblical passages more extensively will adequately show that the traditional teaching of *creatio ex nihilo* has strong biblical grounds as opposed to the notion of creation from eternally pre-existent matter.

Walter Eichrodt expresses the implicit assumption that the Old Testament makes regarding absolute creation: "The idea of the absolute beginning of the created world thus proves to be a logical expression of the total outlook of the priestly narrator." [32] For example, Isaiah 40:21, which refers back to Genesis 1:1 but utilizes the parallel expression "from the foundation of the earth," is "a clear reference to an absolute beginning" and not an "arbitrary judgment," according to Eichrodt. [33] He considers the doctrine *creatio ex nihilo* as being "incontestable" [34]—especially in light of the author's strict monotheism as well as his radical distinction between ancient cosmogonies, in which the gods emerged out of pre-existing matter, and his own. Eichrodt argues that "the ultimate aim of the [creation] narrative is the same as that of our formula of creation *ex nihilo*." [35] Although this formula does not occur in the Old Testament, the object of God's creative activity is "heaven and earth and all that is in them"; so God's creation cannot be restricted to "the stars and things on earth" but must include "the entire cosmos." [36] The fact that "heaven and earth" is a merism signifying "the totality of cosmic phenomena" points us toward an absolute beginning of the universe—including matter. [37] In fact, there is "no single word in the Hebrew language" to express totality; thus this phrase is used. [38] Claus Westermann agrees: Genesis 1:1 does not refer to "the beginning of something, but simply The Beginning. *Everything* began with God." [39]

Another Old Testament scholar, R.K. Harrison, asserts that while *creatio ex nihilo* was "too abstract for the [Hebrew] mind to entertain" and is not stated explicitly in Genesis 1, "it is certainly implicit in the narrative." [40] The reader is meant to understand that "the worlds were not fashioned from any pre-existing material, but out of nothing"; "prior" to God's creative activity, "there was thus no other kind of phenomenological existence." [41] Similarly, Edwin Hatch admits that while Greek Platonic language helped give "philosophical form" to the developed Christian doctrine of creation, the belief that God was "not merely the Architect of the universe, but its Source" had "probably been for a long time the

unreasoned belief of Hebrew monotheism." [42] That is, metaphysical language and systematization would later flesh out what was indicated by the Old Testament creation texts.

Again, however much one loads this word with theological significance, *bârâ'* does not by itself entail creation out of nothing—or *reorganization*, for that matter. Shalom M. Paul, an Assyriologist cited by Stephen Ricks, [43] points out that *bârâ'* by itself "does not imply" creation *ex nihilo* (although Paul admits that 2 Maccabees 7:28 does). [44] However, the significance about *bârâ'* is that *God* is always the subject of this verb. A related Hebrew word '*asah* ("make") is different in that anyone could *make* something—that is, from preexisting materials. Moreover, when *bârâ'* is used, there is *never* any mention of preexisting materials that God used. The product is always mentioned—never any material. [45] Thus *bârâ'* is a word best-suited to express the concept of creation out of nothing. In fact, no other Hebrew term would do. Furthermore, the idea of *creatio ex nihilo* is implied in Genesis 1:1 as no "beginning" for God is mentioned. [46]

Because God is always the *subject* of *bârâ'*; thus interpreters regularly recognize that the word *create* inescapably refers to *divine* activity. [47] German theologian Jurgen Moltmann captures this well:

To say that God 'created' the world indicates God's self-distinction from that world, and emphasizes that God desired it. . . . It is the specific outcome of his decision of will. Since they are the result of God's creative activity, heaven and earth are . . . contingent. [48]

In light of this, Joseph Smith's understanding of the Hebrew word *create* is mistaken as he was applying *reorganization* to *bârâ'* when it should properly have been applied to *asah*.

In contrast to ancient cosmogonies, in which there was no absolute beginning, Genesis distinguishes itself by positing an absolute beginning. Elohim was not limited by chaos when creating (as was so in the Babylonian cosmogony) but is sovereign over the elements. Genesis 1:1 stands as an independent assertion, claiming that God created the entire cosmos. In fact, the very structure of Genesis 1:1 argues for creation out of nothing. Grammatically and contextually, a very good case can be made for seeing Genesis 1:1 as referring to absolute creation. [49] John Sailhamer remarks,

Biblical scholars have long believed the idea of "creation from nothing" can be found in the opening phrase of Genesis 1. . . . there is little else the text *could* mean other than "creation out of nothing." The simple notion that the world has a "beginning" would itself seem to necessitate that it was created "from nothing." [50]

Moltmann comments on *bârâ'*, which is used "exclusively as a term for the divine bringing forth." [51] He points out that since *bârâ'* does not take an accusative (*i.e.*, some object) of a material out of which

something has been made, this reveals that "the divine creativity has no conditions or premises. Creation is something absolutely new. It is neither potentially inherent or present in anything else." [52] As Werner Foerster has written, creation in Genesis 1 "arises out of nothing by the Word of God." [53] Consequently, Genesis should not be translated, "In the beginning, when God created the heavens and the earth, the earth was a formless wasteland . . .," as the New American Bible does. [54] Even Bernhard Anderson, who sees Genesis 1:2 as referring to creation out of chaos, concedes that "stylistic studies" favor Genesis 1:1 as being an "absolute declarative sentence." [55] This absolute understanding of Genesis 1:1 and its status as an independent clause is borne out by the Septuagint's rendering [56] as well as "all the ancient versions." [57] Commentators Keil and Delitzsch declare that the phrase translated "in the beginning" (*berêshît*) "is used absolutely," and a translation such as "In the beginning, when. . ." simply "cannot" be a reasonable treatment of the text. [58] In their estimation, "the context" indicates "the very first beginning." [59] Thus the eternity of the world or the existence of any "primeval material" is ruled out by language such as the absolute phrase "in the beginning" or the totalistic merism "the heaven[s] and the earth," which was, again, the very best the Hebrews could do to express entirety. [60] Bruce Waltke notes the unanimity in "both the Jewish and Christian tradition" about the first word in the Bible being in an "absolute state" and that the first verse is "an independent clause." He then comments: "Moses could not have used any other construction to denote the first word as in the absolute state, but he could have opted for a different construction to indicate clearly the construct state." [61]

Old Testament scholar Thomas McComiskey concurs that the word *bârâ'* emphasizes the *initiation* of the object, the bringing about of something new. [62] Further support is garnered from Edward P. Arbez and John P. Weisengoff, who show that besides there being nothing in the text of Genesis to affirm that chaotic matter existed before God's action, [63] the use of the verb *bârâ'* in the context of Genesis 1 makes the best sense if it is understood as creation *ex nihilo*. For instance, God's activity (expressed by *bârâ'*) brings about the universe ("heavens and earth") "in the beginning" (*i.e.*, the universe had a beginning through the action of God). Nor is there any mention of anything pre-existent which God used. "To create" is more fitting a translation than is "to fashion" or "to shape" or the like. [64] These scholars conclude quite forcefully that

the whole of Gen. 1 is permeated with the idea of the absolute transcendence of God and of the utter dependence of all being on God for its existence. The idea of a "creatio ex nihilo" seems to be so logically bound up with the author's view of God that one can hardly refuse to see it in his opening statement. [65]

Kenneth Mathews' analysis of Genesis 1 leads him to conclude: "The idea of *creatio ex nihilo* is a

proper theological inference derived from the whole fabric of the chapter." [66]

We must also clear away the confusion that comes with the Septuagint's rendering of Genesis 1:2 (*hê de gê ên aoratos kai akataskeuastos* = "And the earth was unseen/invisible and unformed") This translation of 1:2 clearly reflects a Hellenistic influence, [67] and English versions such as the AV and RSV hellenize the phrase *tôh° wabôh°* into "without form and void." Translating it thus has actually contributed to a somewhat Greek outlook in the thinking of many Christians. According to this reading, the earth is some amorphous mass. But the wording of this phrase, when taken in consideration to later biblical usage (some of which harks back to Genesis 1:2) leads us to the better (and less-hellenized) rendering of the land as being desolate and inhabitable: *a desert and a wasteland*, as Victor Hamilton translates it. [68] Medieval Jewish interpreters who were not influenced by the Septuagint took this perspective as well. [69] Further reinforcing the point is the fact that later Greek versions of the Septuagint *departed from* a Platonic view of creation to a more biblical one: (Aquila: "empty and nothing"; Symmachus ("fallow and undistinct"). [70] Furthermore, our earliest Semitic (Palestinian) Targums, which are interpretive renderings of the Hebrew Bible, have "no trace of the concepts" found in the Septuagint. [71] For example, the targum Neophiti I (which is no later than the third century A.D. and is possibly pre-Christian) renders Genesis 1:2 as "desolate without human beings or beast and void of all cultivation of plants and of trees," which captures the Hebrew usage. Ironically, it is the LDS cosmology that appears more influenced by Greek thought than they realize!

So there is no need to see Genesis 1:2 as referring to eternally pre-existent matter. As Keil and Delitzsch offer: "*and the earth was without form and void,*' not before, but when, or after God created it." [72] Rather, "there is nothing belonging to the composition of the universe, either in material or in form, which had an existence out of God prior to this divine act in the beginning." [73] Although LDS scholars appear to assign exegetical priority to Genesis 1:2, this is misguided. And the fact that, in the Hebrew, 1:2 begins with a *waw*-consecutive ["*and the earth/land . . .*"] indicates the temporal priority of verse 1:1 to 1:2. [74]

Lending further support to *creatio ex nihilo* in Scripture is that God (or Christ) is said to be the Creator or the ultimate Source of the totality of existing things. Although May leads one to believe that the biblical evidence for creation out of nothing is ambiguous, it is hard to improve upon the totalism of biblical language: "from him . . . are all things" (Rom. 11:36); "through [Christ] are all things" (1 Cor. 8:6); "God, who created all things" (Eph. 3:9); "by him all things were created" (Col. 1:16; cp. 20); "you created all things and because of your will they existed and were created" (Rev. 4:11). The clear implication of Yahweh's title "the first and the last" (Isaiah 44:6) or "the Alpha and the Omega" (Rev. 1:8) is that he is the ultimate originator and only eternal being. Proverbs 8:22-26 states that before the depths were

brought forth (*i.e.*, most likely the "deep" of Gen. 1:2), Wisdom was creating with God. Nothing else besides the Creator existed—and this would preclude any pre-existent stuff.

In addition, the notion of *creatio ex nihilo* is reinforced when Scripture declares the eternity and self-sufficiency of God in contrast to the finite created order (Ps. 102:25-27; cp. Heb. 1:10-12). The God "who called forth creation out of nothing has power also to reduce it to nothing again." [75] Implicit throughout Isaiah 40-48 is the supreme sovereignty and utter uniqueness of Yahweh in creation, besides whom there was no other god—or anything else—when he created: "I am the first and the last" (44:6; cp. 48:12); "I, the LORD, am the maker of all things" (44:24); "I am the LORD, and there is none else" (45:18; cp. 46:9). As Wolfhart Pannenberg comments,

"[Old Testament] statements about creation in, e.g., Ps. 104:14-30; 139:13; 147:8f. refuse to limit the creative power of God by linking it with preexistent matter. Like the thought of creation by the Word in Gen. 1, they imply the unrestricted freedom of God's creative action that the phrase 'creation out of nothing' would later express. [76]

Moreover, the doctrine of creation assumes that God's word *alone* is what brings the universe about—not simply God's word acting upon previously existing matter. Psalm 33 declares that it was simply "by the word of the Lord [LXX: *tô logô tou kyriou*]" and "the breath of his mouth" that "the heavens were made"; he "spoke" or "commanded," and it was "created/established [LXX: *ektisthêsen*]" (6, 9). [77] There are simply *no* preexisting conditions to which God is subject; it is God's commanding word that brings creation into being. [78]

Thomas McComiskey, summarizes nicely the thrust of the Old Testament understanding of *creation*

The limitation of this word to divine activity indicates that the area of meaning delineated by the root [of *bârâ*] falls outside the sphere of human ability. Since the word never occurs with the object of the material, and since the primary emphasis of the word is on the newness of the created object, the word lends itself well to the concept of creation *ex nihilo*, although that concept is not necessarily inherent within the meaning of the word. [79]

Regarding the New Testament, a passage that deserves significant attention is Hebrews 11:3: "By faith we understand that the universe was formed at God's command, so that what is seen [*to blepomenon*] was not made [*katêrtisthai*] out of what was visible [*mê ek phainomenôn*]." This text declares that the visible universe "was not made out of equally visible [pre-existent] raw material; it was called into being by divine power." [80] Jaroslav Pelikan states that this passage, along with Romans 4:17 "explicitly" teaches creation out of nothing. [81] LDS scholar Keith Norman actually misquotes Foerster (who,

ironically, presents a powerful defense of the biblical doctrine of creation out of nothing) in his comments on Rom. 4:17, claiming that Foerster says that "One can call forth only that which already exists" rather than out nothing, which is a "logical impossibility." [82] However, Foerster continues, "*But God calls forth what does not yet exist, and we must not try to take "the *mê onta* [things which do not (yet) exist] as though in some sense they were *onta* [existing things]."*" [83] In the preceding paragraph he said that creation "arises out of nothing by the Word of God." [84] Further, 2 Cor. 4:6 (echoing Genesis 1:3), where God calls the light out of darkness, is another reference to creation out of nothing by God's word. [85]

The word order of the phrase *mê ek phainomenon* is common in Classical Greek and should be rendered "from things unseen." [86] The philosophical sense of *ta phainomena* referred to sense experience. [87] The physical worlds (*tous aiônas*) are described as being that which is seen (*to blepomenon*); this is in contrast with that which is invisible—namely, the word of God. [88] Paul Ellingworth argues that the phrase in Hebrews 11:3 *rhêmati theou*—"the word/command of God" (which reflects the thinking of Psalm 33:6)—would "conflict" with any idea that the visible world was made out of materials in the invisible world. It is much more satisfactory to understand *tois aiônas* as referring to the visible world, and thus as synonymous with *to blepomenon*. [89]

In Hebrews 11:3, C.F.D. Moule states, "the reference seems to be to creation *ex nihilo*, the *visible* having come into being out of the *invisible*." [90] Commentator William Lane remarks that although Hebrews 11:3 does not state *creatio ex nihilo* in positive terms, but negatively, "it denies that the creative universe originated from primal material or anything observable." [91] Lane goes on to assert that the writer's insistence that the universe was not brought into being from anything observable

would seem to exclude any influence from Platonic or Philonic cosmology. It may, in fact, have been the writer's intention to correct a widespread tendency in hellenistic Judaism to read Gen 1 in the light of Plato's doctrine in the *Timaeus*. [92]

So contrary to May's assertion, Hebrews 11:3 states something that is quite distinct from Classical Greek concepts of creation.

Referring to creation, John 1:3 unambiguously states that all things—that is, "the material world," came into being through the Word. [93] The implication is that all things (which would include pre-existent matter, if that were applicable to the creative process) exist through God's agent, who is the originator of everything. [94] This is borne out by the fact that though the Word *was* (*ên*), the creation *came to be* (*egeneto*). [95] Raymond Brown comments: "Thus the material world has been created by God and is good." [96] So when Scripture speaks of God's creation, there is an all-embracing nature to it. Despite

their lack of precise formulation of a doctrine of *creatio ex nihilo*, the biblical writers have "a natural habit of speaking as comprehensively as possible about Yahweh's creative power." [97]

Colossians 1:16-17 speaks comprehensively when it declares that *all things* were created *in* and *through* Christ. The totalistic merism in Genesis 1:1 ("the heavens and the earth") is expressed in the phrase "all things." The mention that he has created things "in heaven and on earth"—which corresponds to or parallels [98] "things visible and invisible" (*ta orata kai ta aorata*)—indicates that these expressions "embrace everything for there are no exceptions." [99] N.T. Wright declares that "all things" could be translated "the totality." [100] Not only this, but Christ is *before* all things. The implication is that there was a state of being in which Christ existed and the universe did not. As F.F. Bruce notes: "the words ['before all things'] not only declare His temporal priority to the universe, but also suggest his primacy over it." [101] The text of Colossians 1:16-17 suggests *two affirmations*: [102] (a) Christ's creating (bringing all things into being) and (b) his sustaining them in being. The fact that in him "all things hold together" (1:17) emphasizes his sustaining "what He has brought into being." [103] Without such an activity, "all would disintegrate." [104]

In light of the above discussion, it is a serious distortion to portray the doctrine of creation out of nothing as a purely post-biblical phenomenon, as Mormonism does. *Where in the relevant scholarly references to which LDS scholars point is there rigorous exegetical treatment of the relevant biblical passages on creation?* The silence is deafening. Yet the biblical data indicate that God was in some way prior to all that is (*i.e.*, there was a state in which God existed and nothing else), which is the basis for the doctrine *creatio ex nihilo*. Just as the doctrine of the Trinity is clearly found within Scripture (despite the fact that Arianism later flourished) though it was not formulated until Tertullian's time, so the doctrine of creation out of nothing is biblical (despite the flourishing of Middle Platonist thought and its influence on Jewish and Christian thinkers) even though it was clearly articulated and expanded upon in the latter part of the second century.

Moreover, one wonders what LDS scholars would take as unambiguous evidence for creation out of nothing in Scripture (or even extra-biblical sources). It seems that they would not be satisfied with any formulation in a given text other than "creation out of absolutely nothing" or the like before admitting to the possibility of finding clear evidence of the doctrine *creatio ex nihilo*.

So the doctrinal formulation of creation out of nothing is, as Moltmann puts it, "unquestionably an apt paraphrase of what the Bible means by 'creation.'" [105] As Foerster notes: "creation out of nothing by the Word explicitly or implicitly underlies the NT statements [regarding creation]." [106]

Apart from the strong case just made for the biblical doctrine of creation out of nothing, we must note

that even if the biblical evidence *were* ambiguous and that the biblical writers took no position on this issue, the LDS view does not win by default. Rather, it has its own burden of proof to bear. We are not dealing with an either-or situation (*viz.*, either the Bible explicitly teaches creation out of nothing or the LDS view is true by default). On the one hand, Mormons have either refused or neglected to interact with biblical scholarship; on the other, have they put forth no significant positive exegetical evidence for their own position. The LDS view does not win due to the Bible's silence. So if the Bible were indeed silent, then Mormons should themselves keep silent about the typical charge that Church Fathers imposed their theology on the text. In this case, Mormons would be just as guilty. So we would challenge LDS scholars to interact more intentionally with the biblical text and with biblical scholarship and to set forth their case.

B. Theological Arguments

The noted philosopher of science Ian Barbour has boldly declared, "*Creation 'out of nothing' is not a biblical concept.*" [107] Rather, it was merely a post-biblical development to defend God's goodness and absolute sovereignty over the world against "Gnostic ideas regarding matter as evil or as the product of an inferior deity." [108] Furthermore, according to Barbour's thinking (as well as that of Mormons), the Bible is not simply ambiguous about the nature of God's relationship to creation but actually asserts that God created from pre-existent materials:

Genesis portrays the creation of order from chaos, and . . . the *ex nihilo* doctrine was formulated later by the church fathers to defend theism against an ultimate dualism or a monistic pantheism. We still need to defend theism against alternative philosophies, but we can do so without reference to an absolute beginning. [109]

Thus the doctrine of *creatio ex nihilo* is not theologically necessary: "this is not the main concern expressed in the religious notion of creation." [110]

In the last section, we pointed out—and gave reasons for rejecting—Gerhard May's statement that the doctrine of creation out of nothing is "not demanded by the text of the Bible." [111] May offers no substantiation for this claim. Indeed, we have seen that the *opposite* is the case. The substance of May's (and Barbour's) argument is that Christian thinkers in the second century tried to formulate a doctrine of creation in response to Gnosticism (with its emphasis on emanations) and Middle Platonic thought (with its emphasis on eternally preexistent matter), resulting in their formulation of the doctrine

of *creatio ex nihilo*. [112] Up until this point, there had been no explicit formulation of precisely how God created the world.

This is just the line of reasoning that Mormons take. LDS scholar Hugh Nibley says that it is not until we get to the "Doctors of the Church" that we hear of creation *ex nihilo*. [113] Prior to this time, we have "the creation everywhere being conceived of as the act of organizing 'matter unorganized' (*amorphos hylé*), bringing order from disorder" [114] Stephen Robinson makes a similar point: "There is no evidence for *creatio ex nihilo* in Judaism before the Hellenistic period, nor in early Christianity before the late second century." [115] The doctrine of creation out of nothing is a theological add-on to Scripture, and Robinson points to a particular article by B.W. Anderson on creation (as do Mormon scholars Daniel C. Peterson and Stephen D. Ricks). [116]

However, Robinson's own assertion is not quite accurate either. The *fuller* context of Anderson's point makes plain that the *Old Testament*—not the New Testament or the early church fathers—is in view:

In later theological reflection upon the meaning of creation, the sovereignty of the Creator was further emphasized by the doctrine that the world was created out of nothing (II Macc. 7:28; cf. Rom. 4:17; Heb. 11:3). It is doubtful, however, whether this teaching is explicitly in Gen. 1 or anywhere else in the OT. [117]

We have already dealt with matters biblical on the subject of creation. But what about the claim that this doctrine was a theological innovation or invention? We shall argue that this, too, is false.

Scholars agree that with Irenaeus, the doctrine of *creatio ex nihilo* was well established. Irenaeus also argued that the world was not coeternal with God:

But the things established are distinct from Him who has established them, and what [things] have been made from Him who has made them. For He is Himself uncreated, both without beginning and end, and lacking nothing. He is Himself sufficient for this very thing, existence; but the things which have been made by Him have received a beginning....He indeed who made all things can alone, together with His Word, properly be termed God and Lord; but the things which have been made cannot have this term applied to them, neither should they justly assume that appellation which belongs to the Creator. [118]

Later, Augustine himself simply declared that God "created heaven and earth out of nothing." [119]

Certainly some Christian theologians (not to mention Philo of Alexandria) who were influenced by Middle Platonist thought such as Justin Martyr, Clement of Alexandria, Basil of Caesarea, and Gregory of Nyssa maintained that matter had existed co-eternally with God. However, they did view matter as

being in some sense contingent and dependent upon God.[120] Incidentally, Mormon scholar Stephen Ricks misreads Gerhard May's analysis of the emergence of *creatio ex nihilo* in the second-century Gnostic thinker Basilides when he says, "At root, this orthodox Christian doctrine [of creation] may have been a Gnostic heresy." [121] May affirms that Basilides' (rather un-Gnostic) formulation of this doctrine arose *independently* from later orthodox Christian theologians, his thought being "left without any broad effect" on them. [122]

Despite the undeniably strong influence of Middle Platonism upon these thinkers, we must be cautious about attributing ambiguity to the biblical text about creation out of nothing simply because the overlapping of certain concepts common to both Middle Platonism and Scripture may blur one's perspective somewhat. F.F. Bruce reminds us that "the idea of imposing form on pre-existent matter is Greek rather than Hebrew in origin." [123] It must be remembered that Jewish thought was preoccupied with the God of the cosmos rather than with the cosmos itself, [124] with the *creatio* rather than the *ex nihilo*. [125] The Old Testament's writers viewed natural phenomena primarily as pointers to God who created them and whose glory was revealed through them. For example, Psalm 104, which describes the awe-inspiring natural world, begins:

O LORD my God, you are very great;
you are clothed with splendor and majesty.

To these writers, God was the "King of the Universe." [126]

We can go further by asserting that the *Umwelt* of Old Testament Judaism (and, by implication, that of early Christianity) furnished an appropriate context for belief in creation out of nothing. Such a belief would not have been foreign to the Hebrew (and early Christian) mentality. To give support to this claim, we will note a variety of relevant extra-biblical Jewish and Christian passages that attest to the fact that *creatio ex nihilo* was not alien to biblically-influenced thinking.

Many have suggested that the intertestamental book of 2 Maccabees (in 7:28) states clearly the traditional doctrine of *creatio ex nihilo*. There a mother pleads with her son to willingly accept torture rather than recant his beliefs:

I beg you, child, look at the sky and the earth; see all that is in them and realize that God made them out of nothing [*hoti ouk ex onton epoiêsen auta ho theos*], and that man comes into being in the same way.

Bernhard Anderson sees the doctrine of *creatio ex nihilo* set forth in this passage. [127]

Gerhard von Rad maintains, "The conceptional formulation *creatio ex nihilo* is first found" in this passage. [128] The Jewish understanding of creation was that "the world as a whole can only be understood in the context of its coming into being," [129] according to Claus Westermann. It is, then, not a far step from this assumption to state that 2 Maccabees 7:28 indeed speaks of creation out of nothing. [130]

Perhaps no better place do we see an *ex nihilo* understanding of creation during this period than we do with the writings of the Qumran community. For example, we see reference to creation out of nothing in "The Rule of the Community" (1 QS III.15-16):

From the God of knowledge stems all there is and all there shall be. Before they existed he made all their plans, and when they came into being, they will execute all their works in compliance with his instructions, according to his glorious design without altering anything. [131]

Another quotation from the same scroll (1 QS XI.11) echoes this same idea of God's absolute creation:

By his knowledge everything shall come into being,
and all that does exist
he establishes with his calculations
and nothing is done outside of him.

The Qumran writings notably stress God's absolute sovereignty: God creates for his own glory, and the very being of the universe originates from him. "[Without you] nothing is done, and nothing is known without your will" (1 QH IX.8). Not only has God created everything physical, but the invisible realm of spirits as well: "You have fashioned every spirit" (1QH IX.20-31). Another segment (1QH IX) that reinforces these themes reads:

And in the wisdom of your knowledge
you have determined their [i.e., humans'] course
before they came to exist.
And with [your approval] everything occurs
And without you nothing occurs (19-20).

God's creative action takes place by his wisdom (and power)—not pre-existing materials. Reading the "Hymn to the Creator in Psalms" (11 Q5 XXVI.9-15), we see that God "established the dawn with the knowledge of his heart"; he "made the earth with his strength" and established "the world with his wisdom." "With his knowledge he spread out the heavens." [132] Again, we are pointed toward creation *ex nihilo* rather than away from it.

The noted first-century rabbi, Gamaliel, seems to have reflected this concept of creation in his thinking. A philosopher challenged him, "Your God was indeed a great artist, but he had good materials [unformed space/void, darkness, water, wind, and the deep] to help him." Gamaliel, wishing that this philosopher's spirit burst (or "give up the ghost"), [133] declared, "All of them are explicitly described as having been created by him [and not as preexistent]." [134]

In the *Shepherd* of Hermas, the first command is to believe that God brought all things "into existence out of non-existence." [135] In light of this reference, Denis Carroll comments that this is the first allusion to *creatio ex nihilo* in Christian literature. [136]

The Jewish pseudepigraphal book *Joseph and Aseneth*, whose date ranges from as early as the second century B.C. through the second century A.D., contains a passage which also seems to imply *creatio ex nihilo*. Aseneth, having thrown her idols out of the window and put on sackcloth for a week, addresses the God of Joseph:

Lord God of the ages,
who created all (things) and gave life (to them),
who gave breath of life to your whole creation,
who brought the invisible (things) out into the light,
who made the (things that) are and the (ones that) have an
appearance from the non-appearing and non-being,
who lifted up the heaven
and founded it on a firmament upon the back of the winds....
For you, Lord, spoke and they were brought to life,
because your word, Lord, is life for all your creatures (12:1-3).

Second Enoch, which was written in the late first century A.D. also reflects the doctrine of creation out of nothing in a couple of places: "I commanded...that visible things should come down from invisible" (25:1ff.); "Let one of the invisible things come out solid and visible" (26:1).

Composed around 100 A.D., the *Odes of Solomon* (written originally in, most probably, Syriac) [137] indicate creation out of nothing:

And there is nothing outside of the Lord,
because he was before anything came to be.
And the worlds are by his word,
And by the thought of his heart (16:18-19).

In the early second century, the author of *Second Baruch* (21:4) penned these words: "O thou . . . that hast fixed the firmament by the word, . . . that hast called from the beginning of the world that which did not yet exist." In his dissertation on 2 Baruch, Frank James Murphy comments that *creatio ex nihilo* is being expressed here, indicating that the present visible world is not eternal. It had a beginning. [138]

A final example is taken from the *Apostolic Constitutions*, which was written perhaps as early as the mid-second century A.D. and which reflects a belief in creation out of nothing. The "one who is truly God" is "the one who is before things that have been made . . . the only one without origin, and without a beginning." The eternal God is the one through whom "all things" have been made. He is "first by nature and only one in being." [139]

One final point: Mormon scholars [140] will periodically cite a source such as Jonathan Goldstein, who says: "medieval Jewish thinkers still held that the account of creation in Genesis could be interpreted to mean that God created from pre-existing formless matter." [141] This is simply *not true* and is a *misreading* of these exegetes. Rather, all the medieval Jewish exegetes *uniformly* follow Rashi (Ibn Ezra, Rashbam, Rambam, *etc.*) in *presupposing* creation out of nothing. How so? They assume, for example, that because water *already* exists in Genesis 1:2, this could not be absolute creation (*i.e.*, out of nothing). That is, the creation described in 1:1 is not the first thing God creates. Interestingly, Rashi was the first, so far as we know, to read *berêshît* ("in the beginning") as construct ("in beginning") rather than absolute ("in the very beginning"). [142] Absolute creation took place before, and here God is working with his own created materials to create further. It was not *grammatical* grounds that led Rashi to formulate *berêshît* as a construct, but rather the subject matter (*e.g.*, water). Ibn Ezra, who followed Rashi in the "construct" view, believed that God had *previously* created the water, which he then *later* used to create within selective aspects of the universe. Old Testament scholar John Sailhamer summarizes:

Neither Rashi nor Ibn Ezra appears to have rejected the traditional view [of *berêshît* as absolute] on grammatical grounds, thinking the construct reading was the better reading. Rather they believed it was the only reading that would solve the apparent difficulty of the "water" in v.2 not being accounted for in v.1. In fact, Ibn Ezra warned his readers not to be "astonished" at the suggestion of a construct before a verb, which suggests that he himself felt some difficulty in reading *berêshît* before a finite verb as a construct and that he anticipated the same reaction in his readers.

Both Rashi and Ibn Ezra produced examples to show that a finite verb after a construct noun was permissible. Both the fact and the nature of their defense of their reading in 1:1 betrays their own uneasiness with such a reading. [143]

Thus, these medieval Jewish exegetes did not believe that God created out of eternally pre-existing material. Rather, according to their thinking, God was the very originator of *any* finite materials he may have used to create in Genesis 1. As Foerster comments, "In later Judaism, both in Rabb[inic] and pseudepigr[aphal] writings, it is clearly stated that God alone created the world by His Word, i.e., that He called it into existence from nothing," [144] he goes so far as to say that "the idea of a pre-existence of matter" was "alien" in rabbinic literature. [145] So in the end we see a remarkable *continuity* amongst those who penned 2 Maccabees, the Dead Sea Scrolls, the Septuagint in later Jewish translations, the Semitic Targums, and various medieval Jewish commentaries.

Hence, the conviction that God created absolutely everything is taken for granted by a good number of pertinent independent sources. The Mormon view of creation, which is perhaps most compatible with process theology, [146] cannot be sustained.

So despite the commonly-heard assertions of Greek influence upon Christian theology—that there was "wholesale adoption of Greek philosophical metaphysics," [147] it is clearly the Christian doctrine that is *not* influenced by Greek thought at this juncture. Ironically, it is the LDS conception of creation that is more obviously in line with Greek thought—a variation of neo-Platonic thinking, to be exact. It is the Mormons who follow Plato's character Timaeus, who asserted:

This is in the truest sense the origin of creation and of the world Wherefore also finding the whole visible sphere not at rest, but moving in an irregular and disorderly fashion, out of disorder [God] brought order, considering that this was in every better than the other. [148]

To sum up thus far: we have tried to show that LDS belief that God created the world out of eternally pre-existing, unorganized material or chaos does not square with the biblical text, and their cited literature consistently fails to grapple with it. To the contrary, we find the doctrine of creation *ex nihilo* faithfully formulates the biblical teaching. It is in truth extremely difficult to imagine how an un-Hellenized Hebrew would conclude from the biblical text that God and some unorganized matter (or chaos) co-existed from eternity. Moreover, there is good warrant for asserting that the doctrine of creation out of nothing was not itself constructed *ex nihilo* by second-century Christian theologians; this view was held by Jewish and Christian writers alike prior to this time. It is, rather, the LDS view which is found to be incompatible with Scripture.

II. Philosophical and Scientific Support

For *creatio ex nihilo*

Their commitment to the biblical doctrine of *creatio ex nihilo* brought the Church Fathers into head-on

collision with the Greek conception of the eternity of matter. For both Plato and Aristotle, the greatest of the Greek thinkers, creation consists, not in God's bringing the world into being out of nothing, but in His imposition of form upon formless prime matter, thereby fashioning a cosmos out of chaos. [149] As we have seen, despite the tremendous pressure exerted by Greek philosophical thought, the Church Fathers with few exceptions refused to relinquish a Hebraic understanding of creation for this Greek conception. Because Aristotle had not merely *asserted* but *argued* for the eternity of world, Christian theologians could not rest content with citing biblical proof-texts for the Judaeo-Christian view but engaged Greek thinkers in philosophical discussion of their competing paradigms. The last great champion of *creatio ex nihilo* prior to the advent of Islam was John Philoponus (d. 580?), an Aristotelian commentator from Alexandria, who in his works *Against Aristotle* and *On the Eternity of the World against Proclus* initiated a tradition of argumentation for *creatio ex nihilo* based on the impossibility of an infinite past, a tradition subsequently enriched by medieval Muslim and Jewish theologians and then transmitted back again into Christian scholastic theology. Any person who rejects the doctrine of *creatio ex nihilo* cannot responsibly ignore this tradition but must respond substantively to such thinkers as al-Ghazali, Saadia ben Gaon, Bonaventure, and to their modern counterparts.

In what follows we shall present two independent, deductive arguments and two independent, inductive arguments on behalf of the conclusion that the universe had an absolute beginning and consider Mormon responses to these arguments. We know of no good arguments, deductive or inductive, for the infinitude of the past, nor are we aware of any arguments for such offered by Mormon thinkers.

A. Deductive Arguments

1. Argument from the Impossibility of an Actual Infinite

The first argument we shall consider may be formulated as follows:

1. An actual infinite cannot exist.
2. An infinite temporal regress of events is an actual infinite.
3. Therefore an infinite temporal regress of events cannot exist.

It is usually alleged that this sort of argument has been invalidated by Georg Cantor's work on the actual infinite and by subsequent developments in set theory. But this allegation seriously misconstrues the nature of both Cantor's system and modern set theory, for the argument does not contradict a single tenet of either. The reason is this: Cantor's system and set theory are simply a universe of discourse, a mathematical system based on certain adopted axioms and conventions, whereas our argument concerns the real world. What we shall argue is that while the actual infinite may be a fruitful and

consistent concept within the postulated universe of discourse, it cannot be transposed into the real world, for this would involve counter-intuitive absurdities. The best way to show this is by way of concrete examples that illustrate the various absurdities that would result if an actual infinite were to be instantiated in the real world.

Take, for example, Hilbert's Hotel, a product of the mind of the great German mathematician David Hilbert. Let us first imagine a hotel with a finite number of rooms. Suppose, furthermore, that all the rooms are full. When a new guest arrives asking for a room, the proprietor apologizes, "Sorry, all the rooms are full." But now let us imagine a hotel with an infinite number of rooms and suppose once more that *all the rooms are full*. There is not a single vacant room throughout the entire infinite hotel. Now suppose a new guest shows up, asking for a room. "But of course!" says the proprietor, and he immediately shifts the person in room #1 into room #2, the person in room #2 into room #3, the person in room #3 into room #4, and so on, out to infinity. As a result of these room changes, room #1 now becomes vacant, and the new guest gratefully checks in. But remember, before he arrived, all the rooms were full! Equally curious, according to the mathematicians, there are now no more persons in the hotel than there were before: the number is just infinite. But how can this be? The proprietor just added the new guest's name to the register and gave him his keys—how can there not be one more person in the hotel than before?

But the situation becomes even stranger. For suppose an infinity of new guests show up at the desk, asking for a room. "Of course, of course!" says the proprietor, and he proceeds to shift the person in room #1 into room #2, the person in room #2 into room #4, the person in room #3 into room #6, and so on out to infinity, always putting each former occupant into the room number twice his own. Because any natural number multiplied by two always equals an even number, all the guests wind up in even-numbered rooms. As a result, all the odd numbered rooms become vacant, and the infinity of new guests is easily accommodated. And yet, before they came, all the rooms were full! And again, strangely enough, the number of guests in the hotel is the same after the infinity of new guests check in as before, even though there were as many new guests as old guests. In fact, the proprietor could repeat this process *infinitely many times* and yet there would never be one single person more in the hotel than before.

But Hilbert's Hotel is even stranger than the German mathematician made it out to be. For suppose some of the guests start to check out. Suppose the guest in room #1 departs. Is there not now one fewer person in the hotel? Not according to the mathematicians! Suppose the guests in rooms # 1, 3, 5 ... check out. In this case an infinite number of people have left the hotel, but according to the mathematicians, there are no fewer people in the hotel! In fact, we could have every other guest check

out of the hotel and repeat this process infinitely many times, and yet there would never be any fewer people in the hotel.

Now suppose the proprietor doesn't like having a half-empty hotel (it looks bad for business). No matter! By shifting occupants as before, but in reverse order, he transforms his half-vacant hotel into one that is jammed to the gills. One might think that by these maneuvers the proprietor could always keep this strange hotel fully occupied. But one would be wrong. For suppose that the persons in rooms #4, 5, 6 ... checked out. At a single stroke the hotel would be virtually emptied, the guest register would be reduced to three names, and the infinite would be converted to finitude. And yet it would remain true that the *same* number of guests checked out this time as when the guests in rooms # 1, 3, 5 ... checked out! Can anyone believe that such a hotel could exist in reality?

Hilbert's Hotel is absurd. Since nothing hangs on the illustration's involving a hotel, the above sorts of absurdities show in general that it is impossible for an actually infinite number of things to exist. There is simply no way to avoid these absurdities once we admit the possibility of the existence of an actual infinite. Laymen sometimes react to such absurdities as Hilbert's Hotel by saying that we really don't understand the nature of infinity and, hence, these absurdities result. But this attitude is simply mistaken. Infinite set theory is a highly developed and well-understood branch of mathematics so that these absurdities can be seen to result precisely because we *do* understand the notion of a collection with an actually infinite number of members.

The second premise states that *an infinite temporal regress of events is an actual infinite*. The second premise asserts that if the series or sequence of changes in time is infinite, then these events considered collectively constitute an actual infinite. The point seems obvious enough, for if there has been a sequence composed of an infinite number of events stretching back into the past, then an actually infinite number of events have occurred. Because the series of past events is an actual infinite, all the absurdities attending the real existence of an actual infinite apply to it.

We can therefore conclude that an infinite temporal regress of events cannot exist, that is to say, the temporal regress of events is finite. Since the temporal regress of events is finite, the universe began to exist.

Mormon philosophers have taken almost no cognizance of this argument. Blake Ostler, a determined critic of *creatio ex nihilo*, is one who has done so. Granting that "if this argument or any of its related variants is sound, then . . . certain formulations of Latter-day Saint theism [are] incoherent," Ostler nevertheless believes that the argument is unsound. He asserts,

The fallacy is that, as the mathematician Cantor has elegantly shown, not all infinite sets must be equal. Cantor bids us to consider two infinite but unequal sets, the set of all ordinal numbers and the set of all even numbers. The coherence of infinite sets that are unequal can be demonstrated by pairing members of each set into a one-to-one correspondence. Even though both sets are infinite, the set of even numbers is only half as large as the set of ordinal numbers. [150]

This analysis is, however, seriously mistaken. It is true that once one takes into account non-denumerable sets, there are in Cantorian set theory infinite sets of different sizes; but infinite sets which are denumerable are all the same size. Thus, the set of even numbers and the set of ordinal numbers both have the same cardinality, aleph-null, that is to say, they both have the same number of members or are the same size, even though the set $\{1, 2, 3, \dots\}$ has all the members which $\{2, 4, 6, \dots\}$ has, plus an infinite number besides. In erroneously asserting that the latter set is "only half as large" as the former, Ostler himself bears witness to the paradoxical nature of the actual infinite. Hence, when Ostler says that if we have an infinite number of baseball cards and we give away 100,000, we have fewer cards left, though still an infinite number, [151] he is flatly wrong, for both collections can be put into a one-to-one correspondence with the set of natural numbers. In order to avoid the contradictions involved in subtraction of infinite quantities, transfinite arithmetic simply prohibits such inverse operations by fiat—but if actual infinities can really exist, we cannot prevent our baseball fan from giving away some of his cards!

Ostler also protests that if the mathematical theory of infinite sets is logically coherent, then actual infinities must be really possible. "If the notion is logically coherent, then there is a possible world in which it can obtain." [152] But this objection conflates strict logical possibility with metaphysical possibility. The proponent of the argument need not deny that, granted its axioms and conventions, Cantorian set theory is internally consistent; but that says nothing about whether actual infinities are metaphysically possible, that is to say, whether there is a possible world containing actual infinities. The latter question is a metaphysical question which cannot be answered merely on the basis of a system's freedom from strict logical inconsistency.

Apart from these misconceived objections, we are unaware of any Mormon response to this first argument for the finitude of the past. Thus, we have good reason to think that the temporal series of past, physical events is not beginningless.

2. Argument from the Impossibility of the Successive Formation of an Actual Infinite

The second deductive argument may be formulated as follows:

1. The temporal series of events is a collection formed by successive addition.
2. A collection formed by successive addition cannot be an actual infinite.
3. Therefore, the temporal series of events cannot be an actual infinite.

Here we do not assume that an actual infinite cannot exist. Even if an actual infinite can exist, the temporal series of events cannot be such, since an actual infinite cannot be formed by successive addition, as the temporal series of events is.

The first premise seems obvious enough. The collection of all past events prior to any given point is not a collection whose members all co-exist. Rather it is a collection that is instantiated sequentially or successively in time, one event following upon the heels of another. The series of past events is not a tenselessly existing continuum, all of whose members are equally real. Rather the temporal series of events is a collection formed by successive addition.

The second premise asserts that a collection formed by successive addition cannot be an actual infinite. Sometimes this is described as the impossibility of traversing the infinite. In order for us to have "arrived" at today, existence has, so to speak, traversed an infinite number of prior events. [153] But before the present event could arrive, the event immediately prior to it would have to arrive; and before that event could arrive, the event immediately prior to it would have to arrive; and so on *ad infinitum*. No event could ever arrive, since before it could elapse there will always be one more event that had to have happened first. Thus, if the series of past events were beginningless, the present event could not have arrived, which is absurd! The only way in which an actual infinite could come to exist in the real world would be to be instantiated in reality all at once, simply given in a moment. As Russell states: "classes which are infinite are given all at once by the defining properties of their members, so that there is no question of 'completion' or of 'successive synthesis.'" [154]

If the series of past events is an actual infinite, the sequential nature of the temporal series of events actually intensifies the absurdities attending the real existence of an actual infinite. For example, if Cantor's system were descriptive of reality, the number of events that have occurred up to the present is no greater than the number that have occurred *at any point in the past*. This leads to bizarre conclusions. Imagine that Jupiter and Earth have been orbiting the sun from eternity past, such that for every revolution completed by Jupiter the Earth completes twelve. If the sequence of past events is

infinite, then which planet has completed the most revolutions? According to Cantor, if his system were descriptive of reality, the number of revolutions would be equal, for they could be placed in a one-to-one correspondence! But this is simply unbelievable, since every revolution of Jupiter generated twelve revolutions of Earth, and the longer they orbited the greater the disparity grew.

Hence, we may conclude that a collection formed by successive addition cannot be an actual infinite. Since the temporal series of events is a collection formed by successive addition, we conclude: therefore, the temporal series of events cannot be an actual infinite. This means, of course, that the temporal series of past, physical events had a beginning.

Ostler indicts this argument as "a slight-of-hand trick like Zeno's paradoxes, for even though a baseball must pass through an infinite number of halfway points to reach the catcher's mitt, somehow the baseball actually makes it to the mitt." [155] He thereby fails to note two crucial disanalogies of an infinite past to Zeno's paradoxes: whereas in Zeno's thought experiments the intervals traversed are *potential* and *unequal*, in the case of an infinite past the intervals are *actual* and *equal*. Ostler's claim that the baseball must pass through an infinite number of halfway points to the mitt is question-begging, for it already assumes that the whole interval is a composition of an infinite number of points, whereas Zeno's opponents, like Aristotle, take the line as a whole to be conceptually prior to any divisions which we might make in it. Moreover, Zeno's intervals, being unequal, sum to a merely finite distance, whereas the intervals in an infinite past sum to an infinite distance. Thus, it remains mysterious how we could have traversed an infinite number of equal, actual intervals to arrive at our present location.

Ostler also charges that the argument commits the fallacy of composition by inferring that because the number of past events is infinite, there must be an "infinitieth" event somewhere in the past. By contrast, "one who believes that the universe is infinitely old does not assert that one of those days was the infinitieth day which occurred an infinite number of days ago." [156] It should be evident from our exposition of the argument, however, that Ostler's charge is groundless. None of the versions of this argument reasons by composition. Moreover, most versions of this argument presuppose that every particular event in an infinite past would lie at a finite remove from the present so that there can be no talk of an infinitieth event.

Finally, Ostler offers a positive argument for the possibility of an infinitely old universe:

It seems that no matter how far back in time one goes to any particular past moment, it is logically possible that the world existed at that moment. But how large is the series or collection of moments at which it is possible that the world existed? The number certainly appears to be unlimited or infinite. But if the collection of times at which it is possible that the world exists is infinite, it follows that it is

coherent to assert that the world is infinitely old. [157]

The idea here seems to be that we regress in time to some point t_n in the finite past and ask, could there have been an earlier moment t_{n-1} at which the universe existed? The answer is that at every moment t_n , we can conceive of a possible world having a moment t_{n-1} at which the universe existed. So far so good; but how does it follow that there is a possible world in which t_n is preceded by an infinite number of moments? Ostler thinks that because the number of possible worlds with longer and longer finite pasts is unlimited, therefore there is a possible world having an infinite past. This is as logically fallacious as reasoning that because one can count higher and higher finite numbers without limit, therefore there must be an infinitieth number. Ostler has ironically fallen prey to the very fallacy which he charged above against the present argument. In his own words: "It is like saying that there cannot be an infinite number of integers unless one of them is the 'infinitieth' integer—which is clearly wrong-headed." [158] Thus, his positive argument for the possibility of an infinite past is unavailing.

B. Inductive Arguments

1. *The Expansion of the Universe*

In 1917, Albert Einstein made a cosmological application of his newly discovered gravitational theory, the General Theory of Relativity (GR). In so doing he assumed that the universe is homogeneous and isotropic and that it exists in a steady state, with a constant mean mass density and a constant curvature of space. To his chagrin, however, he found that GR would not permit such a model of the universe unless he introduced into his gravitational field equations a certain "fudge factor" L in order to counterbalance the gravitational effect of matter and so ensure a static universe. Unfortunately, Einstein's static universe was balanced on a razor's edge, and the least perturbation would cause the universe either to implode or to expand. By taking this feature of Einstein's model seriously, the Russian mathematician Alexander Friedman and the Belgian astronomer Georges Lemaitre were able to formulate independently in the 1920s solutions to the field equations which predicted an expanding universe.

In 1929 the astronomer Edwin Hubble showed that the red-shift in the optical spectra of light from distant galaxies was a common feature of all measured galaxies and was proportional to their distance from us. This red-shift was taken to be a Doppler effect indicative of the recessional motion of the light source in the line of sight. Incredibly, what Hubble had discovered was the isotropic expansion of the

universe predicted by Friedman and Lemaitre on the basis of Einstein's GR.

According to the Friedman-Lemaitre model, as time proceeds, the distances separating galactic masses become greater. It is important to understand that as a GR-based theory, the model does not describe the expansion of the material content of the universe into a pre-existing, empty, Newtonian space, but rather the expansion of space itself. The ideal particles of the cosmological fluid constituted by the matter and energy of the universe are conceived to be at rest with respect to space but to recede progressively from one another as space itself expands or stretches, just as buttons glued to the surface of a balloon would recede from one another as the balloon inflates. As the universe expands, it becomes less and less dense. This has the astonishing implication that as one reverses the expansion and extrapolates back in time, the universe becomes progressively denser until one arrives at a state of "infinite density" [159] at some point in the finite past. This state represents a singularity at which space-time curvature, along with temperature, pressure, and density, becomes infinite. It therefore constitutes an edge or boundary to space-time itself. P. C. W. Davies comments,

If we extrapolate this prediction to its extreme, we reach a point when all distances in the universe have shrunk to zero. An initial cosmological singularity therefore forms a past temporal extremity to the universe. We cannot continue physical reasoning, or even the concept of spacetime, through such an extremity. For this reason most cosmologists think of the initial singularity as the beginning of the universe. On this view the big bang represents the creation event; the creation not only of all the matter and energy in the universe, but also of spacetime itself. [160]

The term "Big Bang" is thus potentially misleading, since the expansion cannot be visualized from the outside (there being no "outside," just as there is no "before" with respect to the Big Bang).

The Standard Big Bang Model, as the Friedman-Lemaitre model came to be called, thus describes a universe which is not eternal in the past, but which came into being a finite time ago. Moreover—and this deserves underscoring—the origin it posits is an absolute origin *ex nihilo*. For not only all matter and energy, but space and time themselves come into being at the initial cosmological singularity. As Barrow and Tipler emphasize, "At this singularity, space and time came into existence; literally nothing existed before the singularity, so, if the Universe originated at such a singularity, we would truly have a creation *ex nihilo*." [161].

Now such a conclusion is profoundly disturbing for anyone who ponders it. For the question cannot be suppressed: *Why does the universe exist rather than nothing?* There can be no natural, physical cause of the Big Bang event, since, in Quentin Smith's words, "It belong analytically to the concept of the cosmological singularity that it is not the effect of prior physical events. The definition of a singularity . . .

entails that it is *impossible to extend the spacetime manifold beyond the singularity* This rules out the idea that the singularity is an effect of some prior natural process." [162] Sir Arthur Eddington, contemplating the beginning of the universe, opined that the expansion of the universe was so preposterous and incredible that "I feel almost an indignation that anyone should believe in it—except myself." [163] He finally felt forced to conclude, "The beginning seems to present insuperable difficulties unless we agree to look on it as frankly supernatural." [164]

Standard Big Bang cosmogony thus presents what Mormon theologian Keith Norman has called "a serious challenge to the Mormon version of the universe." [165] Observing that the Standard Model sounds remarkably like "the orthodox doctrine of creation *ex nihilo*," he observes,

both the theoretical physicist and the Christian philosopher give the same answer to the question of what preceded the universe: 'Nothing.' . . . 'prior to the beginning' has no meaning in the absence of space and time. The universe, therefore, was created 'out of literally nothing.' [166]

Given Mormon commitment to the eternity of matter and a spatio-temporal deity which does not transcend the laws of nature, Norman confesses that "In contrast to the apparent harmony between modern physics and traditional Christianity on the subject of creation and the substantiality of material being, Mormon doctrine now seems to be a relic of the nineteenth century." [167]

2. Thermodynamic Properties of the Universe

If this were not enough, there is a second inductive argument for the beginning of the universe based on the evidence of thermodynamics. According to the Second Law of Thermodynamics, processes taking place in a closed system always tend toward a state of equilibrium. Now our interest in the law is what happens when it is applied to the universe as a whole. The universe is, on a naturalistic view, a gigantic closed system, since it is everything there is and there is nothing outside it. What this seems to imply then is that, given enough time, the universe and all its processes will run down, and the entire universe will come to equilibrium. This is known as the heat death of the universe. Once the universe reaches this state, no further change is possible. The universe is dead.

There are two possible types of heat death for the universe. If the universe will eventually re-contract, it will die a "hot" death. As it contracts, the stars gain energy, causing them to burn more rapidly so that they finally explode or evaporate. As everything in the universe grows closer together, the black holes begin to gobble up everything around them, and eventually begin themselves to coalesce. In time, all the black holes finally coalesce into one large black hole that is coextensive with the universe, from which the universe will never re-emerge.

But suppose, as is more likely, that the universe will expand forever. In that case its death will be cold, as the galaxies turn their gas into stars, and the stars burn out. At 10³⁰ years the universe will consist of 90% dead stars, 9% supermassive black holes formed by the collapse of galaxies, and 1% atomic matter, mainly hydrogen. Elementary particle physics suggests that thereafter protons will decay into electrons and positrons so that space will be filled with a rarefied gas so thin that the distance between an electron and a positron will be about the size of the present galaxy. At 10¹⁰⁰ years, some scientists believe that the black holes themselves will dissipate by a strange effect predicted by quantum mechanics. The mass and energy associated with a black hole so warp space that they are said to create a "tunnel" or "worm-hole" through which the mass and energy are ejected in another region of space. As the mass of a black hole decreases, its energy loss accelerates so that it is eventually dissipated into radiation and elementary particles. Eventually all black holes will completely evaporate and all the matter in the ever-expanding universe will be reduced to a thin gas of elementary particles and radiation. Equilibrium will prevail throughout, and the entire universe will be in its final state, from which no change will occur.

Now the question that needs to be asked is this: if given enough time the universe will reach heat death, then why is it not in a state of heat death now, if it has existed forever, from eternity? If the universe did not begin to exist, then it should now be in a state of equilibrium. Like a ticking clock, it should by now have run down. Since it has not yet run down, this implies, in the words of one baffled scientist, "In some way the universe must have been *wound up*." [168]

Some people have tried to escape this conclusion by adopting an oscillating model of the universe which never reaches a final state of equilibrium. But even apart from the physical and observational problems plaguing such a model, the thermodynamic properties of this model imply the very beginning of the universe that its proponents sought to avoid. For entropy increases from cycle to cycle in such a model, which has the effect of generating larger and longer oscillations with each successive cycle. Thus, as one traces the oscillations back in time, they become progressively smaller until one reaches a first and smallest oscillation. Hence, Zeldovich and Novikov conclude, "The multicycle model has an infinite future, but only a finite past." [169] In fact, astronomer Joseph Silk estimates on the basis of current entropy levels that the universe cannot have gone through more than 100 previous oscillations. [170]

Even if this difficulty were avoided, a universe oscillating from eternity past would require an infinitely precise tuning of initial conditions in order to perdure through an infinite number of successive bounces. A universe rebounding from a single, infinitely long contraction is, if entropy increases during the contracting phase, thermodynamically untenable and incompatible with the initial low entropy condition

of our expanding phase. Postulating an entropy decrease during the contracting phase in order to escape this problem would require us to postulate inexplicably special low entropy conditions at the time of the bounce in the life of an infinitely evolving universe. Such a low entropy condition at the beginning of the expansion is more plausibly accounted for by the presence of a singularity or some sort of quantum creation event.

So whether one adopts a re-contracting model, an ever-expanding model, or an oscillating model, thermodynamics implies that the universe had a beginning. According to P. C. W. Davies, the universe must have been created a finite time ago and is in the process of winding down. Prior to the creation, says Davies, the universe simply did not exist. Therefore, he concludes, even though we may not like it, we must say that the universe's energy was somehow simply "put in" at the creation as an initial condition. [171]

The Alternatives Before Us

The advances in physical cosmology during the past century have put Mormon scientists, who take such empirical evidence seriously, in an extraordinarily difficult position. For if, in order to explain the origin of the universe *ex nihilo*, we postulate some causal agency responsible for the origin of the universe, such an ultra-mundane being, as the cause of space and time, must transcend space and time and therefore exist atemporally and non-spatially, at least sans the universe. This transcendent cause must therefore be changeless and immaterial, since timelessness entails changelessness, and changelessness implies immateriality. Such a cause must be beginningless and uncaused, at least in the sense of lacking any antecedent causal conditions. This entity must be unimaginably powerful, since it created the universe out of nothing. All of this, while consonant with traditional theism, stands in stark contradiction to the usual Mormon conception of God.

David Bailey, a Mormon NASA scientist, acknowledges that the Big Bang theory "is now generally accepted as the correct description of the origin of the universe" and adds, "the weight of evidence supporting the theory has increased to the point that it must be taken seriously by anyone attempting to form a scientifically tenable theology." [172] As an LDS scientist, Bailey wants a theology that is scientifically tenable; but the Mormon concept of God as a finite, physical product of a beginningless progression flies in the face of Big Bang cosmogony. According to Bailey,

The LDS concept of God posits that God is a real, tangible being who co-exists with natural laws in the

universe. Probably the most extreme Latter-day Saint 'heresy' in the minds of other Christian sects is the law of eternal progression ('as man is, God once was, and as God is, man may become'). This doctrine, first enunciated by Joseph Smith and later elaborated by other LDS presidents, is now a fundamental tenet of the faith. [173]

Unfortunately, he admits,

The notion that everything in our universe originated in a big bang approximately 15 billion years ago creates some problems for Mormon theology. A God who exists in space and time should reside within the observable universe. In that case God is not eternal in a literal and absolute sense but instead came into being after the big bang.

The traditional LDS concept of eternal elements (D & C 93:33) runs into a similar difficulty if it is literally interpreted to mean that matter has always existed and cannot be created or destroyed. The conversion of mass to energy and the transmutation of matter are well established physical phenomena.

Furthermore all matter originated in the big bang. [174]

The Big Bang represents the origin of all matter and energy, even of physical space and time themselves, as we have seen. Therefore, it is irreconcilable with the theory to hold that matter/energy are eternal or that God is the physical product of a beginningless progression. The problem posed by the Big Bang for Mormon theology is especially severe, not merely because the Big Bang theory supports creation *ex nihilo*, but because the Mormon concept of God as an extended, material object existing in the universe requires, in connection with Big Bang cosmogony, that God Himself (or His progenitors) came into being *ex nihilo*. Thus, Big Bang cosmogony is a veritable dagger at the throat of Mormon theology.

In fact, even if the universe did not have a singular beginning point, the Mormon concept of God seems hopelessly irreconcilable with contemporary cosmogony. For Mormon theologians construe God as a physical entity which is wholly immanent in the universe. A time-reversed extrapolation of the expansion of the universe constitutes a process of universal, gravitational self-collapse governed by the same Hawking-Penrose singularity theorems that determine the behavior of a black hole. Almost any textbook on astrophysics will contain a vivid description of what happens to the unfortunate space-traveler who happens to cross the boundary of a black hole. As he is pulled irresistibly into the maelstrom, tidal forces will tear his body to shreds before he is finally collapsed into an indistinguishable thread. The same fate awaits the Mormon God as we extrapolate backward toward the Big Bang. The idea that there has been an eternal progression of humanoid deities consorting with one another is worse than scientific poppycock—it is a fairy tale of Olympian proportions.

The thermodynamic evidence for the beginning of the universe has also put Mormon scientists in an awkward position. On the one hand, they recognize the implication of the present thermodynamic disequilibrium for the finitude of the past and will sometimes even employ the argument as part of a natural theology. Henry Eyring, professor of Chemistry at the University of Utah, for example, after explaining the inevitable heat death of the universe, asks, "How did the universe get wound up?" and ascribes the initial input of energy to the Creator. [175] But while such a conclusion accords well with the orthodox Christian concept of God as a non-physical, transcendent being who creates the universe *ex nihilo*, it is irreconcilable with the traditional Mormon understanding of God as a temporal, material being immanent in the universe. Not only must God on the Mormon conception have a beginning, but he must also come to an end, either being swallowed up and crushed into oblivion in the Big Crunch or else literally disintegrated into the cold, dark recesses of outer space—a pitiable deity, indeed!

In order to avoid this theologically unacceptable conclusion, some Mormon thinkers take the obvious route of denying that God is physically immanent in the universe. Thus, Harrison asks, "What happens to God in this recollapse? Hopefully [*sic*] he stands outside the universe and is not caught in the crunch!" [176] Eyring explains that there is a "sixth world" beyond the universe: "This is the world that existed before the 'big bang.' It is the world of the Creator, who provided the energy to wind up the watch . . . this sixth world is without beginning and end of space and time. Presiding over all is the Creator . . ." [177] But given the Mormon concept of God as a finite, physical, spatio-temporal being, the Creator must exist in some discrete space-time manifold, in which case it becomes unintelligible how he can be casually related to our world, [178] as we shall see. Eyring himself lapses back into thinking of God as immanent, for he confesses, "I worship the wisest being in the universe." [179] That this statement is meant literally is evident by his progressive comparison with the wisest person in the room, in the city, in the state, in the country, in the world, in the universe. But if the Mormon God is in the universe in this sense, he cannot escape the implications of the Second Law of Thermodynamics.

It might be thought that God, even if a physical object wholly immanent in the universe, might be able miraculously to escape the implications of natural laws. But an intriguing feature of Mormon theology is that most Mormon thinkers follow B. H. Roberts in his claim that God, as a finite, physical entity located wholly in space and time, does *not* transcend the laws of nature. According to Erich Paul, "the 'authorized' Mormon position" is that the laws of nature and the laws of God are identical so that there is no room for the supernatural. [180] Therefore, in Bailey's words, "there is no such thing as a miracle." [181] God's being is therefore governed by the same laws of gravitation and thermodynamics that govern any physical object in space-time.

Some Mormon thinkers have tried to preserve God's eternal existence by denying that God does exist

in our space-time manifold originating in the Big Bang. For example, Harrison asserts, "If we truly believe that our entire universe was created by God, then one naturally assumes that he existed prior to that creation, outside our perceived universe, implying that his time is different from our time." [182] God is thus able to create not only our universe via the Big Bang but other universes as well. But while this suggestion works well on an orthodox Christian concept of God, it is untenable on the Mormon concept of God as an extended, physical entity. Such a God would have to be a material object existing in a distinct space-time manifold; but, as Bailey explains, "current theories of fundamental physics and cosmology forbid any communication with or intervention by inhabitants of universes beyond the one created in the big bang." [183] It is impossible for the Big Bang singularity to have a physical cause since it is the termination of all past-directed space-time trajectories. Thus, it cannot be linked to a discrete space-time manifold or any object existing therein. Thus, Bailey actually understates the case when he says that the present suggestion leads to "a mere deist concept of God," [184] for the Deist God was at least the Creator of the universe, which cannot be said of a deity existing in another space-time.

Norman appeals to eleven-dimensional superstring theory in an attempt to justify the idea that God may exist in dimensions other than those of our four-dimensional space-time manifold. [185] But this suggestion is simply a misappropriation of science. In the first place, the six additional dimensions postulated in such theories are part of our space-time manifold. The idea is not that other manifolds exist, but rather that our manifold is not, as we have always thought, four-dimensional, but eleven dimensional. Since these are all dimensions of the same manifold, they all come to exist through the Big Bang and, moreover, any object that exists in one dimension of the manifold exists in them all. Secondly, these additional dimensions are compactified, that is, rolled up so tightly that they are sub-atomic in proportion. That is precisely why they are not perceived by us. But then it is impossible to think that they could be inhabited by humanoid deities. Thirdly, these additional dimensions are all of them *spatial* dimensions; there is no additional temporal dimension. But that entails that all of them evolve together in the one dimension of time that we know and ultimately have a common origin. It is simply science fiction to imagine these dimensions as separate spatio-temporal worlds in which transcendent deities live and move.

Other Mormon thinkers have sought to escape these difficulties by rejecting the Standard Model and availing themselves of alternative cosmogonic theories. Such attempts have about them something of an air of grasping at straws, however, since the alternative theories are never examined in detail nor is any attempt made to show that the models they offer are better explanations of the data than the Standard Model. The difficulty is that those alternatives which have been proposed turn out upon closer examination either to be untenable or not to avoid the absolute beginning predicted in the Standard

Model. For example, Bart Kovallis appeals to Linde's Chaotic Inflationary Model to justify Mormon belief in multiple "worlds," [186] but he fails to show how such a model can preserve God's eternal existence given the finitude of all its past-directed space-time trajectories. [187] Harrison appears to endorse Vacuum Fluctuation Models when he says with respect to the Big Bang, "this 'nothing,' the vacuum, seems to be remarkably active in modern physics, because particles, maybe even universes, can come into or out of existence from the vacuum." [188] But he is silent when it comes to the insurmountable difficulties such models face with respect to the infinitude of the past, not to speak of why we ought to adopt them rather than the Standard Model. [189] Norman appeals vaguely to the suggestion that "black holes. . . may constitute passageways or singularities into alternate dimensions or universes. The matter that disappears from our universe into a black hole could then explode into existence in another one. . . . our universe may have been an enormous black hole in a different universe." [190] But it is not clear what theory Norman means to endorse here. If black holes represent spacetime singularities, then, as we have seen, it is physically impossible that they constitute passageways to other space-time domains. If he means to suggest merely that wormholes to other regions of space-time or even other manifolds exist, that does nothing in itself to explain how the past could be beginningless. In any case, not only is there simply no evidence of such so-called "white holes" spewing out energy, in contradiction to the Second Law of Thermodynamics, into our universe, but the Big Bang itself is not a white hole, since it is a low entropy event, as we have seen. And even if there were such wormholes, no physical object, such as a Mormon deity, could pass through one to another universe but would instead be crushed to extinction. If Mormon scientists mean to offer or endorse alternative cosmogonic models, then they must get serious about examining the implications of such models for the past's finitude and showing us why such models constitute better explanations of the evidence than the Standard Model.

What to Do

So what to do? As if embarrassed by his own speculative suggestions, Norman finally confesses,

Rather than trying to explain away or simply ignore the implications of a Big Bang cosmology, perhaps Mormons should recognize the need to update their theology. . . . Given the dynamic nature of Mormon theology, and the mechanism of progressive revelation in accordance with our capacity to receive, such a reconciliation is by no means far-fetched. [191]

How might such a reconciliation look? Bailey, desirous of having a scientifically tenable theology,

advocates a reinterpretation of Mormon Scriptures. Referring to *Doctrine and Covenants* 93.33, he says, "A more tenable interpretation of this scripture is that it is intended to rebut the notion of the *ex nihilo* creation of the earth. . . . The question of whether or not the entire universe was 'created out of nothing,' however, is a different matter." [192] Indeed; and on Bailey's view Mormons may embrace *creatio ex nihilo* with respect to the universe.

But then what does this retrenchment imply for the doctrine of eternal progression and the Mormon concept of God? Again, Bailey advocates reinterpretation of the relevant Scriptures: "A straightforward solution to this dilemma is to abandon a strict interpretation of the word *eternal*, as is suggested in *Doctrine and Covenants* 19: 6-12. After all, 15 billion years may not be forever, but it is so far beyond our comprehension as to be eternal for all practical purposes." [193] On this interpretation the world is affirmed to be finite in its past temporal duration and to have had a beginning. But what, then, of the Mormon concept of God? Bailey's answer is startling: "In that case God is not the being who crafted the universe at the big bang. If there is such a being, it is a deity beyond him. Mormon theology, of course, allows the possibility of a hierarchy of deities (*D & C* 121: 28)." [194] In making this affirmation, Bailey implies that God—that is, the typical Mormon God Elohim described by Joseph Smith and worshipped by millions of Mormons—is *not truly God*. Rather the true God is beyond him; the true God is the Creator of the universe *ex nihilo*. Bailey hastens to add that Mormon theology permits a hierarchy of deities. But such an attempted mollification of Bailey's revisionary view cannot conceal its radical implications. As we have seen, no physical, spatio-temporal entity can be the Creator of the Big Bang. If there is a Supreme God who is the Creator of the universe (and any "deities" therein), He must be an immaterial, non-physical, non-spatio-temporal being with the power to create the world out of nothing. This is the classical concept of God, the Lord God *pantokrator*.

Bailey is, of course, merely a Mormon scientist and not a theologian. We harbor no illusion that many LDS theologians will adopt his solution. But Mormon theology in the past has shown itself to be remarkably fluid. Ostler remarks that "Many Mormons, and possibly most non-Mormons, have failed to grasp the wide latitude of possible beliefs which can be tolerated within the tradition of Mormon thought." [195] These range, he says, all the way from an absolutist view of God as omnipotent and omniscient to a finitist view of God. He notes that since 1960 a movement known as "Mormon neo-orthodoxy" has arisen in the LDS church, emphasizing such themes as God's absoluteness and complete otherness along with man's contingency and temporal creation. [196] Is it impossible that within the fold of such a movement Mormon thinkers might blend finitism's doctrine of eternal personalism with absolutism's emphasis on the complete otherness of God by means of the doctrine of *creatio ex nihilo*? Such a development would be welcome. [197] So long as a reconciliation such as Bailey's proffered solution is not officially repudiated by the LDS hierarchy, then Mormons should feel

free to affirm, on the basis of the biblical, philosophical, and scientific evidence, the doctrine of *creatio ex nihilo* and with it the traditional concept of God as the immaterial, transcendent, almighty Creator of the universe.

Footnotes

[1]

Stephen E. Robinson (and Craig L. Blomberg), *How Wide the Divide?* (Downers Grove, IL: InterVarsity Press, 1997), 138.

[2]

Ibid., 196.

[3]

Not all Mormon scholars take this view. For instance, Erich Robert Paul begins his book *Science, Religion, and Mormon Cosmology*: Since its founding in 1830, Mormonism has not only evolved a new canon that set the religious movement apart from mainline Protestantism but also fashioned an ethos that embraces a positive scientism in keeping with the roots of *Greek rationalism*. (Chicago: University of Illinois Press, 1992, 1, my emphasis) A few pages later, Paul speaks of Mormonism's "roots embedded in Greek and Hebrew traditions" (5).[4]

B.H. Roberts, *The Truth, the Way, the Life*, ed. Stan Larson (San Francisco: Smith Research Associates, 1994), 224.[5]

Lowell Bennion, "A Mormon View of Life," *Dialogue* 24/3 (1991): 60.

[6]

From Pratt's discourse given in the Tabernacle in Salt Lake City, 12 Nov. 1876. Cited in B.H. Roberts, *The Mormon Doctrine of Deity: The Roberts-Van Der Donckt Discussion*, repr. ed. (Salt Lake City: Signature, 1998), 278.

[7]

Ibid.

[8]

John A. Widtsoe, *A Rational Theology* (Salt Lake City: Deseret Books, 1915), 11.

[9] Ibid., 13.

[10] Much of the remainder of this essay is adapted from my article, "Is *Creatio ex nihilo* a Post-biblical

Invention?: An Examination of Gerhard May's Proposal," *Trinity Journal* NS 17 (Spring 1996): 77-93

[11]

Ted Peters, "On Creating the Cosmos," in Russell, Stoeger, and Coyne, *Physics, Philosophy, and Theology*, 273-4. To avoid a deistic flavor of *creatio ex nihilo*, the doctrine of *creatio continua*, God's continued creative and sustaining power in the universe, must be added to give a fuller, biblical picture of God's creation. See Thomas Aquinas' *Summa Theologica* I.q.45, art. 2.

[12]

O. Kendall White, Jr., "The Transformation of Mormon Theology," *Dialogue* 5/2 (1970): 11.

[13]

For example, Langdon Gilkey, *Maker of Heaven and Earth: The Christian Doctrine of Creation in Light of Modern Knowledge* (Garden City, NY: Doubleday, 1959), chapter 3.

[14]

Friedrich Schleiermacher was chiefly responsible for collapsing the ideas of Creation and Preservation. See his work, originally published in 1821-22, *The Christian Faith*, vol. 1, trans. Richard R. Niebuhr (New York: Harper & Row, 1963), 148-52.

[15]

Augustine, *Confessions* XI.5.7.

[16]

Robert John Russell, "Finite Creation Without a Beginning," in R.J. Russell, Nancey Murphy, and C.J. Isham, eds., *Quantum Cosmology and the Laws of Nature* (Vatican City: Vatican Observatory, 1993), 309.

[17]

Roberts, *The Truth, the Way, the Life*, 224.

[18]

Ibid., 225.

[19]

See Joseph Fitzmyer, *Romans ABC* (New York: Doubleday, 1993), 117-118.

[20]

See Benno Przybylski, *Righteousness in Matthew and His World of Thought* (Cambridge: Cambridge

University Press, 1980).

[21]

The Truth, the Way, the Life, 224. The work cited is Emil G. Hirsch, "Creation," in ed. Isidore Singer, *The Jewish Encyclopedia: A Descriptive Record of the History, Religion, Literature, and Customs of Jewish People from the Earliest Times to the Present Day* (New York: Funk and Wagnalls, 1903), 4:336.

[22]

The Truth, the Way, the Life, 224 (all brackets are Roberts').

[23]

Ibid.

[24]

Ibid., 228.

[25]

Anthony C. Thiselton, "Semantics and New Testament Interpretation," in ed. I. Howard Marshall, *New Testament Interpretation: Essays on Principles and Methods* (Grand Rapids: Eerdmans, 1977), 80.

[26]

That is, the way a word was used *at the time of writing* (as distinguished from the *diachronic* - how a word was used over periods of time, which is where the study of a word's etymology is quite useful). The etymological study is useful as a last-resort method - namely, when the occurrence of particular word is extremely rare and there is little else to go on.

[27]

Moisés Silva, *Biblical Words and Their Meaning: An Introduction to Lexical Semantics* (Grand Rapids: Zondervan, 1983), 51. See also D.A. Carson, *Exegetical Fallacies* (Grand Rapids: Baker, 1984), 26-32. Peter Cotterell and Max Turner state that the etymological fallacy is "a sufficiently dead horse in educated theological circles"! *Linguistics and Biblical Interpretation* (Downers Grove, Ill.: InterVarsity Press, 1989), 114.

[28]

James Barr, *The Semantics of Biblical Language* (Oxford: Oxford University Press, 1961), 109.

[29]

Gerhard May, *Creatio ex Nihilo: The Doctrine of "Creation out of Nothing" in Early Christian Thought*, trans. by A.S. Worall (Edinburgh: T&T Clark, 1994), 24. Originally published as *Schpfung aus dem Nichts* (Berlin: Walter de Gruyter & Co., 1978).

[30]

For instance, Daniel C. Peterson footnotes May's work when he claims that the doctrine of creation *ex nihilo* is a second- or third-century doctrine ("Editor's Introduction" in *FARMS Review of Books* 10/2 1998: xvi n)

[31]

For example, Peterson and Ricks (in *Offenders for a Word*, 96) mention an article by Frances Young, 'Creatio ex nihilo: A Context for the Emergence of the Christian Doctrine of Creation,' *Scottish Journal of Theology* 44 (1991): 139-51, which relies heavily on May and bypasses biblical exegesis (although Young argues, *contra* typical Mormon claims, that the formulation of the Christian doctrine of creation "is a clear sign that Christian intellectuals were not 'captured' by Greek philosophy" (139)! Peterson/Ricks (*Offenders for a Word*, 96) and Peterson ("Editor's Introduction," xvi) refer to Jonathan Goldstein's "The Origins of the Doctrine of *Creation ex Nihilo*," in the *Journal of Jewish Studies* 35 (1984): 127-35.

[32]

Walter Eichrodt, "In the Beginning: A Contribution to the Interpretation of the First Word of the Bible," in Bernhard W. Anderson, ed., *Creation in the Old Testament* (Philadelphia: Fortress Press, 1984), 72.

[33]

Ibid., 67.

[34]

Ibid., 72.

[35]

Walter Eichrodt, *Theology of the Old Testament*, 2 vols., trans. J.A. Baker (Philadelphia: Westminster, 1967), 2:101.

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Eichrodt, 2:102.

[37]

Nahum M. Sarna, *Genesis*, JPS Torah Commentary (New York: Jewish Publication Society, 1989), 5.

R.K. Harrison affirms that the phrase "the heavens and the earth" is a merism which indicates totality, not simply two antonymic elements. See Harrison, "Creation," in Merrill C. Tenney, ed., *The Zondervan Pictorial Encyclopedia of the Bible* (Grand Rapids: Zondervan, 1975), 1:1022; also Paul K. Jewett, *God, Creation, and Revelation* (Grand Rapids: Eerdmans, 1991), 457.

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C.F. Keil and F. Delitzsch, *Commentary on the Old Testament*, vol. 1 ("The Pentateuch"), trans. James Martin, repr. (Grand Rapids: Eerdmans, 1986), 47.

[39]

Claus Westermann, *Genesis: A Practical Commentary*, trans. David E. Green (Grand Rapids: Eerdmans, 1987), 7.

[40]

R.K. Harrison, "Creation," 1:1023.

[41]

Ibid.

[42]

Edwin Hatch, *The Influence of Greek Ideas and Usages upon the Christian Church* (London: Williams and Norgate, 1891), 197. Interestingly, though Mormon scholar Keith Norman cites Hatch ("*Ex Nihilo*, 299), he passes over this remark about creation. Overall, Hatch *overplays* the influence of Greek thought upon biblical doctrine and *overlooks* the deep Hebraic/Old Testament influence upon various New Testament texts and Christian doctrines.

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"*Fides Quaerens Intellectum: The Scholar as Disciple*," in *Expressions of Faith: Testimonies of Latter-Day Saint Scholars*, ed. Susan Easton Black (Salt Lake City: Desert and FARMS, 1996), 179.

[44]

"Creation and Cosmogony in the Bible," *Encyclopedia Judaica* (Jerusalem: Encyclopedia Judaica, 1972), 5:1059.

[45]

Brevard S. Childs, *Myth and Reality in the Old Testament* (Naperville, Ill.: Allenson, 1960), 40. Childs sees *creatio ex nihilo* implicit in the text. God's action in creation "could hardly be brought into a smooth harmony with the fact of a pre-existent chaos. World reality is a result of creation, not a reshaping of

existing matter" (40).

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John Sailhamer, *Genesis Unbound: A Provocative New Look at the Creation Account* (Sisters, OR: Multnomah, 1996), 247-49.

[47]

Francis Brown, et al., *The New Brown-Driver-Briggs-Gesenius Hebrew and English Lexicon*, repr. (Peabody, Mass.: 1979), 135.

[48]

Jurgen Moltmann, *God in Creation: A New Theology of Creation and the Spirit of God*, trans. Margaret Kohl (San Francisco: Harper & Row, 1985), 72-73. For commentary on the inconsistency between Moltmann's exegesis on Genesis 1 and his panentheism (i.e., the confusion between creation out of nothing *ex nihilo* and continual creation *continua*, rendering any distinction meaningless), see Allan J. Torrance, "Creatio ex Nihilo and the Spatio-Temporal Dimensions with Special Reference to Jurgen Moltmann and D.C. Williams," in Colin E. Gunton, ed., *The Doctrine of Creation: Essays in Dogmatics, History and Philosophy* (Edinburgh: T&T Clark, 1997), 83-103; also Wolfhart Pannenberg, *Systematic Theology*, vol. 2, trans. Geoffrey W. Bromiley (Grand Rapids: Eerdmans, 1994), 14-15.

[49]

See John Sailhamer's discussion in "Genesis" in Frank Gaebelin, ed., *Expositor's Bible Commentary* vol. 2 (Grand Rapids: Zondervan, 1990), 21-23n. See also U. Cassuto, *A Commentary on the Book of Genesis Part 1* (Jerusalem: Magnes Press, 1992 repr.), 20. Cassuto argues that beginning with verse 2, the focus changes from the cosmos to creation's relationship to humanity, stressing the themes of "land" and "blessing," which prevail throughout the Pentateuch.

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Sailhamer, *Genesis Unbound*, 250.

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Moltmann, *God in Creation*, 73.

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Ibid.

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Werner Foerster, "ktizô," in ed. Gerhard Kittel, *Theological Dictionary of the New Testament*, 10 vols.,

trans. Geoffrey W. Bromiley (Grand Rapids: Eerdmans, 1965), 3: 1010

[54]

A similar translation is endorsed by B.H. Roberts: "In the beginning, when God created the heavens and the earth, the earth was without form and void . . ." (*The Truth, the Way, the Life*, 227). Cp. E. Speiser who takes Gen. 1:1 as a construct rather than an absolute: "When God set about to create heaven and earth . . ." (*Genesis ABC 1* Garden City, N.Y.: Doubleday, 1964, 3); so also Luis I. J. Stadelmann (*The Hebrew Conception of the World: A Philological and Literary Study* Rome: Pontifical Biblical Institute, 1970, 11). However, if what we have just argued is true, this would mean that Ian Barbour's assertion that Genesis argues for "the creation of *order from chaos*" rather than from nothing is misguided (Barbour, *Religion in an Age of Science*, 130) - not to mention the LDS viewpoint as well.

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Bernhard W. Anderson, *Contours of Old Testament Theology* (Minneapolis: Fortress Press, 1999), 88-89. Kenneth A. Mathews' analysis concludes that "v. 1 is best taken as an absolute statement of God's creation" (*Genesis 1-11:26 NAC 1A* Nashville: Broadman & Holman, 1996, 139).

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En arch' epoi'sen ho theos ton ouranon kai t'n g'n. H' de g' . . . = "in the beginning God created heaven and earth."

[57]

Victor P. Hamilton, *The Book of Genesis Chapters 1-17* (Grand Rapids: Eerdmans, 1990), 107. The Vulgate also translates the verse as an absolute and treats it as an independent clause: *In principio creavit Deus coelum et terram*. Bruce Waltke lists "all ancient versions" - "LXX, Vulgate, Aquila, Theodotion, Symmachus, Targum Onkelos" - as understanding Genesis 1:1 as an "independent clause": "The Initial Chaos Theory and the Precreation Chaos Theory," *Bibliotheca Sacra* 132 (July 1975): 223.

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C.F. Keil and F. Delitzsch, *Commentary on the Old Testament*, vol. 1 ("The Pentateuch"), 46.

[59]

Ibid., 46. The same conclusion is drawn by Hamilton, *Genesis 1-17*, 106.

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Ibid. Cp. Foerster, who says that this merism "embraces the cosmos" (3:1012).

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"The Initial Chaos Theory," 225. See Waltke's entire essay, 217-28.

[62]

Thomas E. McComiskey, "*bârâ'*," in ed. R. Laird Harris, Gleason J. Archer, and Bruce K. Waltke, *Theological Dictionary of the Old Testament*, 2 vols. (Chicago: Moody Press, 1980) 1:127. McComiskey mentions that *y,tzar* primarily emphasizes the *shaping* of an object.

[63]

"Exegetical Notes on Genesis 1:1-2," *Catholic Biblical Quarterly* 10 (1948): 142; see also Foerster, "*ktizô*," 3:1010: *bârâ'* is used in the Old Testament "only of a divine action."

[64]

Ibid., 144

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Ibid. Arbez and Weisengoff point out that scholars such as Knig, Reuss, A. Heidel, and Wellhausen as drawing this conclusion as well (144-45n).

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Mathews, *Genesis 1-11:26*, 141.

[67]

So Armin Schmitt: "*Aus dieser Sicht ist es gut möglich, daß aoratos in Gen 1 2 platonisch beeinflusst ist. Auch akataskeuastos tendiert in diese Richtung* = From this view it is well likely that *aoratos* = unseen/invisible in Gen. 1:2 is influenced by Platonism. *Akataskeuastos* = unformed also tends in this direction" (*Interpretation der Genesis aus hellenistischem Geist*," *Zeitschrift für alttestamentliche Wissenschaft* 86 (1974): 150. Schmitt points out these particular terms are "an essential component of the Greek and especially the Platonic doctrine of origins that the world was conveyed/transformed from an initially disordered status to a condition of harmony and beauty = *eine wesentliche Komponente der griechischen und speziell der platonischen Weltentstehungslehre, daß die Welt aus einem anfänglich ungeordneten Status in einen Zustand der Harmonie und Schönheit überführt wird*"(151).

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See discussion in Hamilton, *Genesis 1-17*, 108-9; echoing this is Kenneth Mathews' extensive discussion in *Genesis 1-11:26*, 130-44.

[69]

Sailhamer, *Genesis Unbound*, 214; for a fuller discussion, see 213-22.

[70]

Sailhamer, *The Pentateuch as Narrative*, 85n.

[71]

Ibid., 85n.

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Keil and Delitzsch, 47-48.

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Ibid., 47.

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Keil and Delitzsch, 47-48.

[75]

Carl F.H. Henry, *God, Revelation, and Authority* 6 (Waco, TX: Word, 1983), 122.

[76]

Pannenberg, *Systematic Theology*, vol. 2, 17.

[77]

God's creation by divine fiat is also reflected in 2 Esdras 6:38: "I said, O Lord, You have indeed spoken from the beginning of creation; on the first day You said: 'Let heaven and earth be made,' and Your word accomplished the work."

[78]

Foerster, "ktizô," 3:1012; "God created everything (without precondition)": W.H Schmidt, "bârâ'," in *Theological Lexicon of the Old Testament*, 3 vols., ed. Ernst Jenni and Claus Westermann, trans. Mark E. Biddle (Peabody, Mass.: Hendrickson, 1997), 1:256.

[79]

McComiskey, "bârâ'," 1:173. See also Jewett's helpful discussion in *God, Creation, and Revelation*, 455-467; and, W.H Schmidt, "bârâ'," 1:253-56.

[80]

F.F. Bruce, *The Epistle to the Hebrews*, 280.

[81]

Jaroslav Pelikan, "Creation and Causality in the History of Christian Thought," in Sol Tax and Charles Callender, eds., *Evolution After Darwin*, vol. 3 (Chicago: University of Chicago, 1960), 34.

[82]

Keith Norman, "Ex Nihilo: The Development of the Doctrines of God and Creation in Early Christianity," *BYU Studies* 3 (Spring 1977): 301: "As Werner Foerster admits. . . ." He does *nothing* of the sort! In fact, Foerster refers once again to Rom. 4:17 to show that "creation involves the beginning of the existence of the world, so that there is no pre-existent matter" (3:1029).

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Foerster, "*ktizô*," 3:1010.

[84]

Ibid.

[85]

Ibid., 3:1029.

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Ellingworth, 569.

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Ellingworth, 571.

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Paul Ellingworth, *Commentary on Hebrews* NIGNT (Grand Rapids: Eerdmans, 1993), 568.

[89]

Ellingworth, 569. Ellingworth indicates that the two halves of the verse are parallel in meaning and form a chiasmus:

(1) *kat'rtisthai* (1') *gegonenai*

(2) *tous aiônas* (2') *to blepomenon*

(3) *rh'mati theou* (3') *m' ek phainomenôn*

[90]

C.F.D. Moule, *An Idiom Book of New Testament Greek* (Cambridge: University Press, 1968 repr.), 168. Moule adds, however, that the order of the negative *m'* before the preposition *ek*, "from" or "out of," is somewhat awkward grammatically.

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William L. Lane, *Hebrews 48 WBC* (Dallas: Word, 1991), 332.

[92]

Ibid. Without giving any substantial evidence for his assertion, Harold Attridge asserts that "a Platonic cosmogonic model" lies behind the formulation of this verse. See his *Epistle to the Hebrews* (Philadelphia: Fortress Press, 1989), 316.

[93]

Although Raymond Brown wrongly asserts that John 1:1-18 "does not necessarily have the same theology as the Gospel" (see D.A. Carson's discussion on how the John's prologue actually introduces the Gospel's major themes: *The Gospel According to John* Grand Rapids: Eerdmans, 1991, 111-112), Brown makes plain that the word *egeneto* ("come into being") is used consistently to describe creation in the Septuagint in Genesis 1 (Raymond E. Brown, *The Gospel According to John I-XII ABC* 29 New York: Doubleday, 1966, 6.)

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For a survey of the biblical data regarding creation, see Karl Hermann Schelkle, *Theology of the New Testament*, vol. 1, trans. William A. Jurgens (Collegeville, MN: Liturgical Press, 1971), 3-61.

[95]

Raymond Brown, *Gospel According to John I-XII*, 8.

[96]

Ibid., 26.

[97]

Eichrodt, 2:102.

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Corresponds, that is, in chiasmic fashion.

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P.T. O'Brien, *Colossians, Philemon* WBC 44 (Waco, Tex.: Word, 1982), 46.

[100]

N.T. Wright, *Colossians and Philemon* TNTC (Downers Grove, Ill./Grand Rapids: InterVarsity Press/Eerdmans, 1986), 73.

[101]

In E.K. Simpson and F.F. Bruce, *The Epistles of Paul to the Ephesians and to the Colossians*, NICNT (Grand Rapids: Eerdmans, 1957), 200. O'Brien also points out Christ's "temporal priority to the universe" (*Colossians, Philemon*, 47) as does N.T. Wright, *Colossians and Philemon*, 71 ("priority in both time and rank"; "the continuing temporal sense of the word is clear").

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O'Brien, *Colossians, Philemon*, 47.

[103]

Ibid.

[104]

Ibid.

[105]

Moltmann, *God in Creation*, 74.

[106]

Foerster, "*ktizô*," 3:1029. This is utterly contrary to the LDS claim made by Keith Norman that "a closer examination of various 'exploited' passages in the New Testament the text belies this *ex nihilo* interpretation" ("*Ex nihilo*," 301) - despite the fact that Norman cites Foerster.

[107]

an Barbour, *Issues in Science and Religion* (New York: Harper & Row, 1971, repr.), 384. Philosopher of science Ernan McMullin states that the doctrine of creation out of nothing, "an act of absolute bringing to be," took "firm shape only in the first centuries of the Christian era, in part at least in response to the prevalent dualisms of the day that represented matter as evil, or at least, as resistant to God's action." McMullin is at least willing to concede that hints of *creatio ex nihilo* can be found in Scripture (pointing to 2 Maccabees 7:28 and Romans 1:20): "Natural Science and Belief in a Creator," in *Physics, Philosophy, and Theology*, ed. Robert Russell, William Stoeger, and George Coyne (Vatican City: Vatican Observatory, 1988), 56. Anglican priest and physicist John Polkinghorne sees 2 Maccabees

7:28 as the "earliest unequivocal statement of the idea of creation out of nothing" although he believes Genesis 1 stresses at least "the dependence of all upon the sovereign will of God for its existence," which is "certainly consonant with the central significance of *creatio ex nihilo*." See Polkinghorne's *Reason and Reality* (Philadelphia: Trinity Press International, 1991), 72.

[108]

Ibid.

[109]

Ian G. Barbour, *Religion in an Age of Science*, The Gifford Lectures 1989-1991, vol. 1 (San Francisco: Harper & Row, 1990), 144.

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Ibid., 129.

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Ibid., 24.

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Ibid., 2

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Hugh Nibley, "Treasures in the Heavens: Some Early Christian Insights into the Organizing of Worlds," *Dialogue* 8/3-4 (1973): 77.

[114]

Ibid., 82.

[115]

Stephen Robinson, personal correspondence (20 April 1998).

[116]

Peterson and Ricks assert on the basis of Anderson's article that "it is highly doubtful that the doctrine of *ex nihilo* creation is to be found in Genesis or anywhere else in the Old Testament" (*Offenders for a Word Provo*: FARMS, 1992), 95.

[117]

Anderson, "Creation," *IBD* 1:728. Elsewhere, Anderson states that the view of *creatio ex nihilo* is "not supported explicitly by the biblical text" (*Contours of Old Testament Theology*, 87), but he apparently

means the specific creation text of Genesis, as the context indicates. Such a reading is reinforced by the present *IBD* quotation by Anderson, which cites New Testament evidence (Rom. 4:17; Heb. 11:3) for creation *ex nihilo*: Rom. 4:17; Heb. 11:3.

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Irenaeus, *Against Heresies* III:X.3; cf. II:10.4.

[119]

Augustine, *Confessions* 12.7.

[120]

May, *Creatio ex nihilo*, 257-8.

[121]

Stephen D. Ricks, "*Fides Quaerens Intellectum*: The Scholar as Disciple," in *Expressions of Faith: Testimonies of Latter-Day Saint Scholars*, ed. Susan Easton Black (Salt Lake City: Desert and FARMS, 1996), 179.

[122]

May, *Creatio ex nihilo*, 180. See my comments in "Is *Creatio ex nihilo* a Post-biblical Invention?", 81-84.

[123]

F.F. Bruce, *The Epistle to the Hebrews* NICNT (Grand Rapids: Eerdmans, 1964), 281n.

[124]

Ibid., 66.

[125]

I am grateful to D.A. Carson on this point.

[126]

Ibid., 67.

[127]

Bernhard W. Anderson, *Contours of Old Testament Theology*, 87.

[128]

Gerhard von Rad, *Old Testament Theology*, vol. 1, trans. D.M.G. Stalker (New York: Harper & Row, 1962), 142n.

[129]

Claus Westermann, *Creation*, trans. John J. Scullion (Philadelphia: Fortress Press, 1974), 36.

[130]

For a different perspective, cp. Jonathan A. Goldstein, *II Maccabees*, ABC 41A (Garden City, NY: Doubleday, 1983), 307-15; idem, "The Origins of the Doctrine of *Creation ex Nihilo*," in the *Journal of Jewish Studies* 35 (1984): 127-35; so also LDS scholar Keith Norman, "*Ex Nihilo*," 299. However, Westermann, who sees 2 Macc. 7:28 as affirming *creatio ex nihilo*, claims that it is "no accident" that this idea should arise in a Hellenistic setting in defense of a biblical worldview ("God created the heavens and the earth") - not to mention that Judaism would be influenced to think of formless matter before creation. Although Westermann believes that Genesis 1:1-2 does not explicitly affirm creation out of nothing (even though Westermann comes close to affirming this), he makes clear that the idea of matter's pre-existing creation was not in the thinking of the biblical writer (Claus Westermann, *Genesis 1-11* Minneapolis: Augsburg, 1984, 110.)

[131]

Cited from Florentino Garc" a Mart" nez, *The Dead Sea Scrolls Translated* 2nd ed. (Leiden/Grand Rapids: Brill/Eerdmans, 1996), 6. All other citations are taken from this translation.

[132]

For a brief discussion of the doctrine of creation in the Qumran texts, see Daniel J. Harrington, "Creation," in *Encyclopedia of the Dead Sea Scrolls*, 2. vols., ed. Lawrence H. Schiffman and James C. VanderKam (Oxford: Oxford University Press, 2000), 1:155-57.

[133]

This translation is rendered by Jonathan A. Goldstein in "Creation ex nihilo: Recantations and Restatements," *Journal of Jewish Studies* 38 (Autumn 1987): 189. Goldstein defends his reading of *creatio ex nihilo* in Gamaliel's statement, *contra* David Winston, "The Book of Wisdom's Theory of Cosmogony," *History of Religions* (1971): 185-202; and David Winston, "*Creation Ex Nihilo* Revisited: A Reply to Jonathan Goldstein," *Journal of Jewish Studies* 37 1986: 88-92. Mormon writers such as Peterson and Ricks cite Winston, but neglect Goldstein's 1987 article defending previously-made statements in his essay "The Origins of the Doctrine of *Creation Ex Nihilo*" (though recanting others). Despite Peter Hayman's siding with David Winston and announcing Goldstein's "conceding the weakness of his position" ("Monotheism - A Misused Word in Jewish Studies," 42 1991:3), Hayman

does not deal with the Gamaliel question, and Goldstein staunchly defends his position.

[134]

Unformed space/void was formed by God (Isa. 45:7) as were darkness (Isa. 45:7), water (Ps. 148:4-5), wind (Amos 4:13), and the depths (Prov. 8:24). Taken from Jacob Neusner *Confronting Creation* (Columbia: University of South Carolina Press, 1991), 41-42.

[135]

Shepherd of Hermas 1.6: *ktisas ek tou m'ontos ta onta*; 26.1: *poi'sas ek tou m'ontos eis to einai ta panta*.

[136]

Denis Carroll, "Creation," in Joseph Komanchak, et al., eds., *The New Dictionary of Theology* (Wilmington, Del.: Michael Glazier, 1987), 249.

[137]

James Charlesworth, "Odes of Solomon," in James Charlesworth, ed., *The Old Testament Pseudepigrapha* (Garden City, NY: Doubleday, 1985), 2:726-27.

[138]

Frederick James Murphy, *The Structure and Meaning of Second Baruch*, SBL Dissertation Series (Atlanta: Scholar's Press, 1985), 43.

[139]

Ap. Const. 8.12.6,8. May (22n) and others (such as W. Bousset) view this section (12) of the *Constitutions* as being a later Christian interpolation, but James Charlesworth, among others, does not think so ("Hellenistic Synagogal Prayers" in *The Old Testament Pseudepigrapha*, 1:690n). At least the lack of consensus should preclude us from hastily dismissing it.

[140]

Stephen Ricks, "*Fides Quaerens Intellectum*," 178.

[141]

Goldstein, "The Origins of the Doctrine of Creation *Ex Nihilo*," 127. Norbert M Samuelson, *Judaism and the Doctrine of Creation* (Cambridge: Cambridge University Press, 1994) takes this view, but fails to take into account the subtleties suggested by Sailhamer (below).

[142]

One can read Rashi's comments in "Genesis," in *The Pentateuch and Rashi's Commentary*, vol. 1 (Brooklyn: S.S. & R., 1949).

[143]

Sailhamer, "Genesis," 22. See Sailhamer's extensive note on 21-23 for further discussion. See in addition John H. Sailhamer, *The Pentateuch as Narrative* (Grand Rapids: Zondervan, 1992) not only for his discussion of Gen. 1:1ff., but for his comments on the inter-textuality and integrity of the Pentateuch. I am grateful to John Sailhamer for his discussion on this subject.

[144]

Foerster, "*Kitizô*," 1:1016.

[145]

Ibid., 1:1017

[146]

For instance, Max Nolan writes that the "most striking element in Mormon theology and process theology alike . . . is the idea that Deity is subject to process" ("Materialism and the Mormon Faith," 73). Moreover, in Mormon metaphysics we have "the material or unorganized matter constituents of the world, and the intelligences embodied in the world, are uncreated and co-eternal with Deity" (Ibid.). Nolan declares that "the open texture of process theology seems therefore to offer a useful way to approach the question of the Mormon metaphysical commitment" (Ibid.).

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Norman, "*Ex nihilo*," 306.

[148]

Plato, *Timaeus* 30a in ed. Edith Hamilton and Huntington Cairns, *Plato: The Collected Dialogues*, Bollingen Series 71 (Princeton: Princeton University Press, 1989), 1162.

[149]

See Plato *Timaeus* 30; Aristotle *Physics* 8. 1. 251a10-252a1; 8. 6. 259a10-15.

[150]

Blake T. Ostler, critical notice of *The Mormon Concept of God*, by Francis J. Beckwith and Stephen E. Parrish, *Farms Review of Books* 8/2 (1996): 130.

[151]

Ibid. I think his error arises partly from the misimpression that "there is no such number as infinity" (Blake Ostler, "Was The Doctrine of Creation *ex Nihilo* Created Out of Nothing?", unpublished paper, p. 14). This is a mistake; there is a whole system of transfinite arithmetic employing the transfinite cardinal numbers. $\aleph_0, \aleph_1, \aleph_2, \dots$ are just as much numbers as are 0, 1, 2,

[152]

Ostler, critical notice of *Mormon Concept of God*, p. 130.

[153]

Cf. Ostler 's intriguing comment that if we have a time machine,

"we cannot actually visit the infinite number of past times because no matter how long we spent going back to the past in the future, the number of times that we will have visited will be finite. . . . However, there is a way to visit each of the infinite number of past times--to have lived through all of them. And that is just what Mormonism claims we and God have done" (Ostler, "Doctrine of *Creatio ex Nihilo*," p. 17).

[154]

Bertrand Russell, *Our Knowledge of the External World*, 2d ed. (New York: W. W. Norton, 1929), p. 170.

[155]

Ostler, critical notice of *Mormon Concept of God*, p. 128.

[156]

Ibid., p. 129.

[157]

Ibid., p. 130.

[158]

Ibid., p. 129.

[159]

This should not be taken to mean that the density of the universe takes on a value of aleph-null \aleph_0 , but rather that the density of the universe is expressed by a ratio of mass to volume in which the volume is zero; since division by zero is impermissible, the density is said to be infinite in this sense.

[160]

P. C. W. Davies, "Spacetime Singularities in Cosmology," in *The Study of Time III*, ed. J. T. Fraser

[161]

John Barrow and Frank Tipler, *The Anthropic Cosmological Principle* (Oxford: Clarendon Press, 1986), p. 442.

[162]

Quentin Smith, "The Uncaused Beginning of the Universe," in *Theism, Atheism, and Big Bang Cosmology*, by William Lane Craig and Quentin Smith (Oxford: Clarendon Press, 1993), p. 120.

[163]

Arthur Eddington, *The Expanding Universe* (New York: Macmillan, 1933), p. 124.

[164]

Ibid., p. 178.

[165]

Keith E. Norman, "Mormon Cosmology: Can It Survive the Big Bang?" *Sunstone* 10/9 (1985): 10.

[166]

Ibid., p.21. The last phrase in inverted commas is from Paul Davies.

[167]

Ibid., p. 22.

[168]

Richard Schlegel, "Time and Thermodynamics," in *The Voices of Time*, ed. J.T. Fraser (London: Penguin, 1948), p. 511.

[169]

I. D. Novikov and Ya. B. Zeldovich, "Physical Processes near Cosmological Singularities," *Annual Review of Astronomy and Astrophysics* 11 (1973): 401-2.

[170]

Joseph Silk, *The Big Bang*, 2d ed. (San Francisco: W. H. Freeman, 1989), pp. 311-12.

[171]

P. C. W. Davies, *The Physics of Time Asymmetry* (London: Surrey University Press, 1974), p. 104.

[172]

David H. Bailey, "Scientific Foundations of Mormon Theology," in *The Search for Harmony: Essays on Science and Mormonism* (Salt Lake City: Signature Books, 1993), p. 4.

[173]

Ibid., p. 8.

[174]

Ibid., pp. 9-10. Cf. idem, "Science and Mormonism: Past, Present, and Future," *Dialogue* 29/1 (1996): 89.

[175]

Henry Eyring, "World of Evidence, World of Faith," in *Of Heaven and Earth*, ed. David L. Clark (Salt Lake City: Deseret Book Co., 1998), p. 60.

[176]

B. Kent Harrison, "Truth, the Sum of Existence," in *Of Heaven and Earth*, p. 173. Harrison believes that God's persistence in an eternally expanding universe "seems to be an unsatisfactory, passive, ungodlike way of prolonging existence or progression."

[177]

Eyring, "World of Evidence," p. 66.

[178]

If Eyring means to endorse some non-standard model of the universe, such as an oscillating model, then he will not have escaped the inevitable consequences of thermodynamics. Indeed, if God is a living, physical being, then the Second Law seems essential to his survival, for in the absence of the Second Law chaos would ensue. Thus in whatever space-time world God lives, the same thermodynamic problem arises.

[179]

Eyring, "World of Evidence," p. 61.

[180]

Erich Robert Paul, *Science, Religion, and Mormon Cosmology* (Chicago: University of Illinois Press, 1992), p. 31. This fact is not appreciated by Mormon physicist Russell T. Pack, "Quantum Cosmology,"

Sunstone 11/1 (1987): 2-4, who denounces the view that God is a physical object existing in the universe as "ridiculous." He erroneously claims that "the Mormon God is *not* part of our universe and He is apparently not limited by either space or time" (*Ibid.*, p. 4). Whether Pack's view can avoid falling into classical theism remains to be seen.

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Bailey, "Scientific Foundations of Mormon Theology," p. 8.

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Harrison, "Truth, the Sum of Existence," p. 166; cf. Pack, "Quantum Cosmology," p. 4.

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Bailey, "Scientific Foundations of Mormon Theology," p. 9.

[184]

Ibid.

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Norman, "Mormon Cosmology," p.23.

[186]

Bart Kowallis, "Things of the Earth," in *Of Heaven and Earth*, p. 41.

[187]

A. Borde and A. Vilenkin, "Eternal Inflation and the Initial Singularity," *Physical Review Letters* 72 (1994): 3305, 3307.

[188]

Harrison, "Truth, the Sum of Existence," p.160.

[189]

See Christopher Isham, "Creation of the Universe as a Quantum Process," in *Physics, Philosophy and Theology: a Common Quest for Understanding*, ed. R. J. Russell, W. R. Stoeger, and G. V. Coyne (Vatican City: Vatican Observatory, 1988), pp. 385-7.

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Norman, "Mormon Cosmology," p. 23.

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ibid.

[192]

Bailey, "Scientific Foundations of Mormon Theology," pp. 10-11.

[193]

Ibid., p. 9. Other Mormon thinkers will demur. For example, Bart Kowallis, a geology professor at BYU, noting that eternity is "one of the main characteristics of God and godhood," exclaims, "Compared to infinity, what are a few billion trillion?" (Bart Kowallis, "Things of the Earth," p. 42).

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Bailey, "Scientific Foundations of Mormon Theology," p. 9.

[195]

Blake Ostler, "The Idea of Pre-Existence in the Development of Mormon Thought," *Dialogue* 15/1 (1994): 73.

[196]

See also O. Kendall White, Jr., "The Transformation of Mormon Theology," *Dialogue* 5/2 (1970): 10-11. He emphasizes that it is on the basis of *creatio ex nihilo* that the distinction between God's necessity and creation's contingency is traditionally established.

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One gets the impression that some Mormon thinkers believe that eternal personalism is somehow incompatible with absolutism. But this is a mistake. See William Lane Craig, "Divine Timelessness and Personhood," *International Journal for Philosophy of Religion*. 43 (1998): 109-124 and the cited literature therein.