

**Cosmology, Metaphysics, and the Origin of the Universe  
From Stephen Hawking to Thomas Aquinas**

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For as long as human beings have reflected on nature and their place in nature, they have been fascinated with questions of origins: their own individual origins, the origins of their family, of the human race, and, ultimately, the origin of the universe itself. We move carelessly at times among different senses of what we mean by "origins," resulting in ambiguity and confusion. We can speak of origins in terms of cosmology, philosophy, and theology, but, if we fail to keep distinct the different senses of "origin" and the different modes of analysis with respect to various disciplinary inquiries, our understanding is seriously compromised. The sub-title of my lecture today, "From Stephen Hawking to Thomas Aquinas," could be re-phrased as "from confusion to clarity," for, as I will argue, discussions in the European Latin Middle Ages concerning the insights of cosmology, philosophy, and theology with respect to the origin of the universe are considerably clearer and indeed more profound than those we encounter today. When Western thinkers refer to the ultimate origin of the universe, the term they usually employ is "creation," but, again as we shall see, there is considerable confusion in the use of this term.

Surely the most famous cosmologist today is Stephen Hawking of Cambridge University and I would like to begin my remarks by quoting from his book, *The Grand Design*, which he wrote with Leonard Mlodinow. "Spontaneous creation is the reason there is something rather than nothing, why the Universe exists, why we exist. It is not

necessary to invoke God . . . to set the Universe going." The fundamental point is that there is no need for a creator since science offers a more compelling account of the origin of the universe than does any appeal to a creator. Using insights from quantum mechanics, Hawking and Mlodinow think that space and energy, the primary components of the universe, were, as they say, "spontaneously created out of nothing." Note, already, that they speak of creation and Creator, if only to dismiss the need to appeal to some external agent; contemporary cosmology, for them, eliminates any need for divine agency.

A similar dismissal of appeals to a creator can be found in the work of an American theoretical physicist, Lawrence Krauss. In his book, *A Universe from Nothing. Why There is Something Rather Than Nothing*, Krauss offers a striking landscape of ever deeper senses of "nothing," beyond that even of vacuums and empty space, and he concludes: "We have discovered that all signs suggest a universe that could and plausibly did arise from a deeper nothing -- involving the absence of space itself -- and which one day may return to nothing via processes that may not only be comprehensible but also processes that do not require any external control or direction." (183) Krauss is aware of philosophical and theological objections to any attempt to relate his sense or senses of nothing with the "nothing" central to the traditional doctrine of creation out-of-nothing. Nevertheless, he writes: "[S]ome philosophers and many theologians define and redefine 'nothing' as not being any of the versions of nothing that scientists currently describe. But therein, in my opinion, lies the intellectual bankruptcy of much of theology and some of modern philosophy. For surely 'nothing' is every bit as physical as 'something,' especially if it is to be defined as the 'absence of something.' It

then behooves us to understand precisely the physical nature of both these quantities. And without science, any definition is just words." (xiv) I will have occasion to return to the claims of Hawking and Krauss later in my talk. For now you will have to listen to "just words."

What can cosmologists tell us about the creation of the universe? An answer to this question requires us to be clear about the explanatory domains of the natural sciences, philosophy, and theology. It requires us, as well, to be clear as to what kind of beginning cosmology addresses. Theories concerning what happened "before the Big Bang" as well as those which speak of an endless series of big bangs are often attractive because they appear to deny a fundamental beginning to the universe and thus appear to make a Creator irrelevant.

Much of the discussion about the implications for creation based on developments in contemporary science – and, in particular, in cosmology, the focus of my remarks -- is part of a wider intellectual framework in which scientific developments have been used to support a kind of "totalizing naturalism." This is the view that the universe and the processes within it need no explanation beyond the categories of the natural sciences. This is Stephen Hawking's point: the laws of nature explain all that needs to be explained -- including the origin of the universe itself. It is this broad topic, namely, that the natural sciences have shown us that we do not need a Creator, which I wish to explore in this talk. It is a claim ostensibly made on the basis of developments in science, but it is really a metaphysical judgment, frequently advanced without a sound philosophical foundation.

Whether we speak of scientific explanations of the Big Bang itself (such as quantum tunneling from nothing) or of some version of a multiverse hypothesis, or of

self-organizing principles in biological change (including, at times, appeals to randomness and chance as ultimate explanations), the conclusion that seems inescapable to many is that there is no need to appeal to a creator, that is, to any cause which is outside the natural order. The argument is that contemporary science is fully sufficient, at least in principle, to account for all that needs to be accounted for in the universe.<sup>1</sup>

Many of those who are in opposing camps about the philosophical and theological implications of contemporary cosmology tend to share similar views concerning creation and the origin of the universe. That is, those who think cosmology shows us that there is a Creator understand what it means to be a Creator in essentially the same way as those who think that recent developments in cosmology eliminate the need for a Creator.

Historically, Big Bang cosmology which affirms a "singularity" or starting point for our universe – a point beyond the categories of space and time, and beyond the explanatory realm of physics – has been used to provide a kind of scientific confirmation for the traditional doctrine of creation. If there were a Big Bang, so this argument contends, then the universe began to be and *thus* there must be a Creator who caused the universe to begin to be. For Christians, the traditional reading of the Book of Genesis, confirmed by the solemn pronouncement of the Fourth Lateran Council (1215), is that the opening words of the Bible, "in the beginning," mean that the universe is temporally finite; the world and time began to be as the result of God's creative word.

To speak of creation and the beginning of time as intimately connected – such that one necessarily entails the other – has often informed not only those who support creation but also those who use new theories in cosmology to deny creation. If creation necessarily means that the universe has a beginning, then an eternal universe, one without

a temporal beginning, could not be a created universe. Thus, those who embrace new cosmological theories which propose an eternal series of "big bangs," or a multiverse scenario according to which our universe is but one in an infinite number of universes, call into question the intelligibility of an absolute temporal beginning, and hence, so it is thought, they call into question the intelligibility of creation itself.

Many cosmologists who now routinely speak of what happened "before the Big Bang" think that to reject some original Big Bang is to eliminate the need for a Creator. They deny the need for a Creator because they think that "to be created" must mean to have a temporal beginning, which, as I have said, is fundamentally the same view of creation as that of those thinkers who use the idea of a primal Big Bang as evidence for a Creator. In such a scenario, accepting or rejecting a Creator is tied to accepting or to explaining away an original Big Bang. This is a fundamental error which each side shares, which I wish to examine further.

In *The Grand Design*, Stephen Hawking and Leonard Mlodinow argue that just as the universe has no edge, so there is no boundary, no beginning to time. Therefore to ask what happened before the beginning – or even at the beginning – would be meaningless:

In the early universe – when the universe was small enough to be governed by both general relativity and quantum theory – there were effectively four dimensions of space and none of time. That means that when we speak of the 'beginning' of the universe, we are skirting the subtle issue that as we look backward toward the very early universe, time as we know it does not exist! We must accept that our usual ideas of space and time do not apply to the very early universe. That is beyond our experience, but not beyond our imagination.

In a television interview, Hawking expanded on this analysis. Nothing caused the Big Bang, he said, because there is no time at any putative beginning. Since time does

not exist, there can be no cause of the Big Bang. Hawking thinks that the relationship between cause and effect is essentially temporal -- that is, that any cause must exist temporally before an effect of which it is the cause. His cosmology allows for no time in which a creator could exist prior to the supposed effect. No time; hence, no causal sequence; therefore, no creator.<sup>2</sup>

Citing a version of contemporary string theory, known as "M-theory," Hawking and Mlodinow tell us that the coming into existence of a great many universes out of nothing "does not require the intervention of some supernatural being or god." Rather, these multiple universes "arise naturally from physical law." Ultimate questions about the nature of existence which have intrigued philosophers for millennia are, so they claim, now the province of science, and "philosophy is dead." Theology, if mentioned at all, is simply dismissed as irrelevant. The principal argument they offer is that once we recognize that our universe is but one of an almost infinite number of universes then we do not need a special explanation – a Grand Designer – for the very precise initial conditions which account for life and our existence. As they say, "just as Darwin . . . explained how the apparently miraculous design of living forms could appear without intervention by a supreme being, the multiverse concept can explain the fine-tuning of physical law without the need for a benevolent creator who made the universe for our benefit." But, the Grand Designer rejected by Hawking is not the Creator, at least not the Creator which traditional philosophy and theology affirms.<sup>3</sup>

As I have already noted, there are some scholars who have embraced traditional Big Bang cosmology as affirming an absolute beginning to the universe, and thus as providing scientific support for, if not actual confirmation of, the Genesis account of

creation. The relationship between the temporal finitude of the universe and the conclusion that it is created can be found in the work of the Jesuit theologian and cosmologist, Robert J. Spitzer. In his recent book, *New Proofs for the Existence of God: Contributions of Contemporary Physics and Philosophy*, Spitzer claims that modern physics reinforces the mediaeval Muslim Kalam cosmological argument and shows us that the past time of the universe is finite, and since the past is finite it must have a beginning, *therefore* the universe must be created.. Several of you may be familiar with the work of William Lane Craig, who provides arguments similar to the ones offered by Spitzer.

In a way, the debate is about whether or not cosmology discloses a beginning of the universe: Stephen Hawking denies the intelligibility of such a notion and others argue for variations of an eternal universe. William Lane Craig and Robert Spitzer claim that cosmology does indeed point to a beginning. The debate, framed in such terms about a beginning, lead the exponents either to reject or to embrace the idea of creation. Despite fundamental differences as to what contemporary cosmology tells us, all these views tend to identify what it means for the universe to be created with its having a temporal beginning. This emphasis on beginnings, as I have suggested, is indicative of confusion about creation. I would call this the "error of beginnings," which leads to the beginning of all sorts of other errors.

The alleged conflict between creation and science, based on developments in cosmology, is often the result of confusions about what creation is and what the explanatory extent of the natural sciences is. Creation, as a metaphysical and theological notion, affirms that all that is, in whatever way or ways it is, depends upon God as cause.

The natural sciences have as their subject the world of changing things: from subatomic particles to acorns to galaxies. Whenever there is a change there must be something that changes. Whether these changes are biological or cosmological, without beginning or end, or temporally finite, they remain processes. Creation, on the other hand, is the radical causing of the whole existence of whatever exists. Creation is not a change. To cause completely something to exist is not to produce a change in something, is not to work on or with some existing material. When God's creative act is said to be "out of nothing," what is meant is that God does not use anything in creating all that is: it does not mean that there is a change from "nothing" to "something."

Cosmology, and all the other natural sciences, offer accounts of change; they do not address the metaphysical and theological questions of creation; they do not speak to why there is something rather than nothing. It is a mistake to use arguments in the natural sciences to deny creation. This is precisely the mistake that Stephen Hawking and others make. Similarly, it is a mistake to appeal to cosmology as a confirmation of creation. Reason (as well as faith) can lead to knowledge of the Creator, but the path is in metaphysics not in the natural sciences.

Already in Europe in the 13<sup>th</sup> Century the groundwork was set for the fundamental understanding of creation and its relationship to the natural sciences. Working within the context of Aristotelian science and aided by the insights of Muslim and Jewish thinkers, as well as his Christian predecessors, Thomas Aquinas provided an understanding of creation and science which remains true. Astronomers often note that to look out at the heavens is to look back in time. Perhaps to look back in time to Thomas' discussion of creation and science will help us to look out more clearly and to avoid



confusions about both what we are seeing and what the implications of contemporary science are.

One of the great intellectual debates in the Middle Ages, in Islam, Judaism, and Christianity, involved the examination of arguments concerning whether or not the world is eternal, that is, whether the world had or did not have a beginning. It is a debate that in many ways anticipates controversies today concerning what cosmology tells us about the origin of the universe. The traditions of ancient science, especially that of Aristotle, that mediaeval scholars inherited, affirmed that, indeed, there is no beginning to the universe. Aristotle thought that there could be no first motion, nor a first instant of time; the universe, he concluded, is eternal.

Just as we have seen with debates in our own day, it seemed clear to mediaeval thinkers that an affirmation of an eternal universe contradicted their belief that God created the world and for the world to be created it could not be eternal. One difference between mediaeval discussions about cosmology and creation and those discussions today is that mediaeval analyses were far more sophisticated. In particular, the thought of Thomas Aquinas on cosmology and the origin of the universe can help us today to avoid many errors and encourage a deeper reflection about the relationship among science, philosophy, and theology.

From his earliest to his last writings on the subject, Thomas Aquinas maintained that it is possible for there to be an eternal, created universe. Thomas, adhering to traditional Christian doctrine, believed that the universe is not eternal. But he thought that God could have created a universe which is eternal. Although reason affirms the intelligibility of an eternal, created universe, Thomas thought that reason alone leaves

unresolved the question of whether or not the universal is eternal. The development by Thomas of an understanding of creation out-of-nothing, and in particular, his understanding of the possibility of an eternal, created universe, offers, I think, one of the best examples of Thomas' account of the relationship between faith and reason. In fact, his magisterial treatment of the doctrine of creation is one of the enduring accomplishments of the thirteenth century.

When speaking about the origin of the universe, understood as God's causing it to come into existence, Thomas observes that there are two complementary senses of creation out-of- nothing: one philosophical, the other theological. The philosophical sense means that God, with no material cause, makes all things to exist as beings that are radically different from Himself and yet completely dependent upon His causality. This philosophical sense of creation has two essential elements: 1) there is no material cause in creation -- no 'stuff' whatsoever out of which God makes the world; and 2) the creature is naturally non-being rather than being, which means that the creature is completely dependent, throughout its entire duration, upon the constant causality of the Creator. This philosophical sense of creation is the sense in which creation out of nothing can be proven by reason alone, according to Thomas. It is a demonstration in the discipline of metaphysics and concerns a recognition that existence itself needs a cause.<sup>4</sup>

He is able to make this claim because of the distinction he draws between creation and change. As he wrote: "Over and above the mode of becoming by which something comes to be through change or motion, there must be a mode of becoming or origin of things without any mutation or motion, through the influx of being." [Thomas Aquinas,

*On Separated Substances*, c.9.] The Creator does not *change* "nothing" into "something."<sup>5</sup>

Creation is not primarily some distant event; rather, it is the on-going complete causing of the existence of all that is. At this very moment, were God not causing all that is to exist, there would be nothing at all. Creation concerns first of all the origin of the universe, not its temporal beginning. Indeed, it is important to recognize this distinction between origin and beginning. It may very well be that the universe had a temporal beginning, but there is no contradiction in the notion of an eternal, created universe: for were the universe to be without a beginning it still would have an origin, it still would be created. This was precisely the position of Thomas Aquinas, who accepted as a matter of faith that the universe had a temporal beginning but also defended the intelligibility of a universe, created and eternal. The distinction Thomas draws between creation understood philosophically, in the discipline of metaphysics, and creation understood theologically allows him to defend the intelligibility of an eternal, created universe. The philosophical understanding of creation tells us nothing about the temporality of the universe.

Thomas also thought that neither science nor philosophy could know whether the universe had a beginning. He did think that metaphysics could show us that the universe is created, that is, that it has an origin [note the present tense "has"], but he would have warned against those today who use Big Bang cosmology, for example, to conclude that the universe has a beginning and *therefore* must be created. He was always alert to reject the use of bad arguments in support of what is believed. The "singularity" in traditional Big Bang cosmology may represent the beginning of the universe we observe, but we cannot conclude that it is the absolute beginning, the kind of beginning which would

indicate creation. Experiments being performed at the Large Hadron Collider – the huge underground particle accelerator on the Swiss-French border – may bring us closer to what happened just after the Big Bang; but they will tell us nothing about creation. The distance between minute fractions of a second after the Big Bang and creation is, in a sense, infinite. We do not get closer to creation by getting closer to the Big Bang. Furthermore, as some contemporary cosmologists recognize, there could very well be something before the Big Bang.

Some cosmologists have used insights from quantum mechanics to offer accounts of the Big Bang itself. They speak of the Big Bang in terms of "quantum tunnelling from nothing," analogous to the way in which very small particles seem to emerge spontaneously from vacuums in laboratory experiments. Thus, they think that to explain the Big Bang in this way, as the fluctuation of a primal vacuum, eliminates the need to have a Creator. But the Big Bang "explained" in this way is still a change and, as we have seen, creation, properly understood is not a change at all. Similarly, the "nothing" in these cosmological models which speak of "quantum tunnelling from nothing" is not the nothing referred to in the traditional sense of creation out of nothing. This is true even in the case of recent theories which speak of space, time, and the laws of physics, themselves, emerging from nothing. The "nothing" in cosmological reflections may very well be nothing like our present universe, but it is not the absolute nothing central to what it means to create; it is only that about which the theories say nothing. The crucial point here is that to offer a scientific account of the Big Bang is not to say anything about whether or not the universe is created.

Lawrence Krauss, whom I mentioned at the beginning of my talk, simply rejects any appeal to notions of "nothing" which are beyond the explanatory domain of the natural sciences. As he said in an interview last year: "the question of why there is something rather than nothing is really a scientific question, not a religious or philosophical question, because both nothing and something are scientific concepts, and our discoveries over the past 30 years have completely changed what we mean by nothing." It surely is the case that contemporary physics offers various accounts of how something comes from the "nothing" to which contemporary physics refers.<sup>6</sup>

Despite the fascination that some scientists have with "nothing," the fundamental question of why there is something rather than nothing is a metaphysical and theological question – and with respect to such a question the natural sciences necessarily have nothing to say. Simply stipulating that it is only the natural sciences that properly speak to the origin and evolution of the universe, as Krauss does, is a kind of summary dismissal of metaphysics and theology as legitimate areas of discourse. Remember the passage from Krauss I quoted earlier: "without science, any definition is just words." One wonders what scientific evidence supports such a claim! The desire to separate the natural sciences from the alleged contamination of the "word games" of philosophy and theology is not new; now, as always, it reveals an impoverished philosophical judgment.

Those contemporary cosmological theories which employ a multiverse hypothesis or an infinite series of big bangs do not challenge the fundamental feature of what it means to be created, that is, the complete dependence upon God as cause of existence. An eternal universe would be no less dependent upon God than a universe which has a beginning of time. To be created out-of-nothing does not mean that a created universe

must be temporally finite. For one who believes that the universe has a temporal beginning, any theory of an eternal universe would have to be rejected, but a believer should be able to distinguish between the question of the kind of universe God creates (e.g., one with or without a temporal beginning) and the fact that whatever kind of universe there is, God is its Creator.

As I have already noted, it was the genius of Thomas Aquinas to distinguish between creation understood philosophically, with no reference to temporality, and creation understood theologically, which included the recognition that the universe does have an absolute temporal beginning. I have identified the disciplines which Thomas thinks speak to what it means to be created and I have identified the distinctions he draws for any account which seeks to defend that all that is depends upon God as cause. To provide the specific arguments he uses to support his view that "reason demonstrates" that God creates everything that is, is itself another task, and at least another lecture.

Throughout my comments I have emphasized what it means to be created from a philosophical point of view, that is, based on reason alone: an analysis which is found in the discipline of metaphysics and speaks to the ultimate cause of existence. What faith informs a Christian as to what it means to be created includes all that philosophy discloses, and adds much more: not only that the created universe has a temporal beginning, but that creation is an act of divine love and that the opening phrase of Genesis, "in the beginning," also means in and through the second Person of the Trinity. My purpose, however, in discussing the relation between the doctrine of creation and science, is to emphasize a common starting point: human reason; not to appeal to

revelation.<sup>7</sup> Creation, understood philosophically is, in principle, accessible to anyone, at any time, and in any place.

No explanation of cosmological processes, nor biological change for that matter, regardless of how radically random or contingent such an explanation claims to be, challenges the metaphysical account of creation, that is, of the dependence of the existence of all things upon God as cause. When some thinkers deny what they call "creation" on the basis of theories in the natural sciences, or, on the other hand, reject the conclusions of these sciences in defense of creation, they misunderstand creation or the natural sciences, or both.

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<sup>1</sup> A good example of this claim of the self-sufficiency of the universe, from the point of view of cosmology, can be seen in the following passage from Lee Smolin (with emphases added by me):

"We humans are the species that makes things. So when we find something that appears to be beautifully and intricately structured, our almost instinctive response is to ask, 'Who made that?' The most important lesson to be learned if we are to prepare ourselves to approach the universe scientifically is that this is not the right question to ask. It is true that the universe is as beautiful as it is intrinsically structured. **But it cannot have been made by anything that exists outside of it, for by definition the universe is all there is, and there can be nothing outside it.** And, by definition, neither can there have been anything before the universe that caused it, for if anything existed it must have been part of the universe. **So the first principle of cosmology must be 'There is nothing outside the universe.'** . . . **The first principle means that we take the universe to be, by definition, a closed system. It means that the explanation for anything in the universe can involve only other things that also exist in the universe.**" Lee Smolin, *Three Roads to Quantum Gravity*.

Note that Smolin thinks that the universe "cannot have been made by anything that exists outside of it, for by definition the universe is all there is, and there can be nothing outside it." Accordingly, "the first principle of cosmology must be 'There is nothing outside the universe.' . . . The first principle means that we take the universe to be, by definition, a closed system. It means that the explanation for anything in the universe can involve only other things that also exist in the universe." But, as we shall see, to speak of God as Creator does not mean that He is either outside or before the universe, even though He is radically other than the universe of created things.

<sup>2</sup> Such an analysis involves two fundamental assumptions -- both of which I would deny: 1) that the relationship between cause and effect is necessarily temporal, rather than being essentially a relationship simply of dependency, with no reference to temporality; and 2) that God is a cause in

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the same sense that causes in the world are causes; rather than seeing God's causality as radically different from any created causality. These claims involve large philosophical issues which I hope we can discuss.

<sup>3</sup> The desire in some cosmological circles to get rid of "the troubling singularity" of the Big Bang itself can be seen in the work of Neil Turok. Using a development of "super string theory," Turok offers a model in which the birth of the present universe is the result of a collision of enormous three-dimensional membranes. Turok's universe is an endless cycle of universes in collision with other universes. Turok notes that his model is, as he says, "philosophically very appealing. . . . Time is infinite, space is infinite, and they have always been here . . . . It is exactly what the steady-state-universe people wanted. Our model realizes their goal." As Turok points out, many cosmologists in the 1950s and early 1960s were reluctant to accept the Big Bang theory because if the universe were thought to have such a beginning then the initial conditions would have to be in some sense accidental, that is, not included within the explanatory framework of the natural sciences. The initial conditions, thus, would have to have a source beyond the explanatory domain of the natural sciences: such conditions might seem to offer evidence for the existence of God. Turok is critical of the linear, inflationary model of the development of the universe and argues that the cyclical model he sets forth fits as well with all the evidence. Turok has presented his cosmological speculations in a book written with Paul Steinhardt of Princeton University, the title of which is suggestive: [*The Endless Universe: Beyond the Big Bang* (2007)]. As we have seen, for them, "the big bang is not the beginning of space and time, but, rather, an event that is, in principle, fully describable using physical laws. Nor does the big bang happen only once. Instead the universe undergoes cycles of evolution."

<sup>4</sup> Here is an excerpt from the first of four times in which Thomas Aquinas writes in a magisterial way about creation:

*In II Sent.*, dist. 1, q. 1, a. 2.

Article 2: Whether things come from the one principle by way of creation

"I answer that not only does faith hold that there is creation but reason also demonstrates it [*creationem esse, non tantum fides tenet, sed etiam ratio demonstrat*]. It is clear, for instance, that whatever is imperfect in some category arises out of that in which the nature of the category<sup>a</sup> is found primarily and perfectly. In [the category of] hot things, for example, [the degrees of] heat arise from fire.<sup>b</sup> Since every thing and whatever is in the thing shares in *being* in some way, and since every thing has imperfection mixed in, every thing must, in its entirety, arise from the first and perfect being. This, however, we call to create: to produce a thing into being according to its entire substance. Hence it is necessary that all things proceed from the first principle by way of creation [*Unde necessarium est a primo principio omnia per creationem procedere*].

It ought to be known, moreover, that the meaning of creation includes two things. The first is that it presupposes nothing in the thing which is said to be created. In this way it differs from other changes, because a generation presupposes matter, which is not generated, but rather which is transformed and brought to completion through generation. In other changes a subject which is a complete being is presupposed. Hence, the causality of the generator or of the alterer does not extend to everything which is found in the thing, but only to the form, which is brought from potency into actuality. The causality of the Creator, however, extends to everything that is in the thing. And, therefore, creation is said to be out of *nothing*, because nothing uncreated pre-exists creation.



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The second thing is that non-being is prior to being in the thing which is said to be created. This is not a priority of time or of duration, such that what did not exist before does exist later, but a priority of nature, so that, if the created thing is left to itself, it would not exist, because it only has its being from the causality of the higher cause. What a thing has in itself and not from something else is naturally prior in it to that which it has from something else. (In this way creation differs from eternal generation,<sup>5</sup> for it cannot be said that the Son of God, if left to Himself, would not have being, since He receives from the Father that very same being which the Father has, which is absolute being, not dependent upon anything.)

Because of these two points, creation is said to be "out of nothing" [*ex nihilo*] in two ways. On the one hand, the negation [in the word "nothing"] denies the relation implied by the preposition "out of" [*ex*] to anything pre-existing. Thus, the creature is said to be "out of nothing" because it is "not from something pre-existing." And this is the first point. On the other hand, the order of creation to a pre-existent nothing remains affirmed by nature, such that creation is said to be "out of nothing" because the created thing naturally has non-being prior to being. If these two points are sufficient for the meaning of creation, creation is able to be demonstrated and in this way philosophers have held [the doctrine of] creation.

If, however, we should add a third point to the meaning of creation, that the creature should have non-being prior to being [even] *in duration*, so that it is said to be "out of nothing" because it is temporally after nothing, in this way creation cannot be demonstrated and it is not granted by philosophers, but is taken on faith."

Notes for the passage above:

- a. Any category or genus of beings is a category because all of the members of it share the same nature. If the members of the category share the same nature but do so to different degrees, then the fact that there are less perfect members indicate that there is a most perfect member. The nature that is shared by all the members of the category – the "nature of the category"-- is found in its most perfect instance in one member.
- b. Thomas regarded fire in its elemental, pure form to be the hottest of things. The fire of a burning match or of a camp fire would be a derivative fire and would be less hot than pure fire.
- c. "Eternal generation" describes the relation between the Son and the Father in the Trinity: the Son is "eternally begotten" of the Father, not created by the Father. Since the Son is not a creature, it is not true to say that non-being is prior to being in the Son, since the being of the Son and the Father is just the same. The Son is "one in being with the Father" and "not made".

<sup>5</sup> "Creation is not change, except according to a mode of understanding [*creatio non est mutatio nisi secundum modum intelligendi tantum*]. For change means that the same something should be different now from what it was previously. Sometimes, indeed, the same actual thing is different now from what it was before, as in motion according to quantity, quality and place; but sometimes it is the same being only in potentiality, as in substantial change, the subject of which is matter. But in creation, by which the whole substance of a thing is produced, the same thing can be taken as different now and before only according to our way of understanding, so that a

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thing is understood as first not existing at all, and afterwards as existing [*Sed in creatione, per quam producitur tota substantia rerum, non potest accipi aliquid idem aliter se habens nunc et prius, nisi secundum intellectum tantum; sicut si intelligatur aliqua res prius non fuisse totaliter, et postea esse*]. . . . But because the mode of signification follows the mode of understanding as was said above (Question 13, Article 1), creation is signified by mode of change; and on this account it is said that to create is to make something from nothing. And yet "to make" and "to be made" are more suitable expressions here than "to change" and "to be changed," because "to make" and "to be made" import a relation of cause to the effect, and of effect to the cause, and imply change only as a consequence." Thomas Aquinas, *Summa theologiae* I, q. 45, a. 2, ad 2.

<sup>6</sup> In *The Mystery of Existence: Why is There Anything at All?*, Robert Lawrence Kuhn provides a sophisticated taxonomy of nine different senses of nothingness. He also describes twenty-seven possible explanations for the mystery of existence itself, explanations that he calls "ultimate reality generators." Another new book (2014) offers a series of essays by contemporary philosophers on *The Puzzle of Existence: Why There is Something Rather Than Nothing?*, edited by Tyron Goldschmidt. Finally, there is a good essay by Mary Sim, "The Question of Being, Non-being, and 'Creation Ex Nihilo' in Chinese Philosophy," in *Ultimate Why Question: Why is There Anything at All, Rather than Nothing Whatsoever?* edited by John Wippel (Catholic University of America Press, 2011).

<sup>7</sup> Thomas' analysis of creation, and its relationship to what the natural sciences and philosophy tell us, is a good example of the importance of science and philosophy for theological reflection – indeed, of the appropriate autonomy of these disciplines in any theological view of the world.

#### **Further Reading:**

<http://www.thepublicdiscourse.com/2010/09/1571/> ["Stephen Hawking's Creation Confusion"]

<http://www.thepublicdiscourse.com/2012/02/4852/> ["Landscapes of Nothingness"]

<http://www.firstthings.com/web-exclusives/2014/06/modern-cosmology-and-creation> ["Modern Cosmology and Creation"]

Steven E. Baldner and William E. Carroll, *Aquinas on Creation* (Toronto: Pontifical Institute of Mediaeval Studies, 1997).

William E. Carroll, *Creation and Science* (London: CTS, 2011).

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