

THOMAS AQUINAS ON CREATION AND SCIENCE

AN INVITATION FOR CHINA, AND
NOT ONLY FOR CHINA

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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, biology, 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. These distinctions are especially important if one wishes to compare philosophical traditions about origins found in Western and Chinese cultures.¹

When Western thinkers refer to the ultimate origin of the universe, the term they usually employ is “creation,” but there is con-

siderable confusion in the use of this term. Although “creation” as a theological and philosophical doctrine has a provenance in traditions connected to Judaism, Christianity, and Islam, there is an important sense in which one might compare various religious traditions, West and East, as to what they claim about the ultimate origin of the universe. Furthermore, there is a philosophical sense of creation that allows for common discourse among those whose religious traditions are diverse. Philosophical discourse about the origin of the universe can transcend, in a sense, accounts that are rooted exclusively in different faith traditions.

For those who would wish to limit their analysis simply to what reason tells us about the universe and its origin, and thus wish to ignore or reject various religious accounts, a philosophical approach to creation can have a legitimacy that a purely religious account does not. So, for example, when

contemporary cosmologists such as Stephen Hawking or Lawrence Krauss deny the intelligibility of claims that the universe is created, we can show that their notion of what creation means is limited to a religious concept and often even to a perverted version of a religious concept. Their cosmological reflections, despite what the authors may claim, have no bearing whatsoever on a philosophical notion of creation, one that recognizes that there is an ultimate cause of existence of all things. Indeed, as I will argue, the natural sciences tell us nothing as to whether the universe is created. All this, thus far, is a series of assertions, with perhaps the strangest being that there is a philosophical sense of creation, open, in principle, to the investigation of reason alone.

The understanding of creation forged by Thomas Aquinas (1224–1274) offers an especially fruitful common theme about the origin of the universe, a theme intelligible to people across historical periods and cultures and perhaps of value for Chinese culture. Before proceeding with an analysis of Thomas's understanding of what it means for God to create, we need to remember an important point about the use of the verb "to create." We can speak of the ways in which human beings "create" a whole variety of things, from literature and machines, to cities and societies. These types of making or creating are radically different from what "to create" means when one refers to God as Creator, as we shall see. Our understanding of what it means for God to create *begins* with our experiences of various kinds of making that occur *in* the world, but we then greatly expand our understanding of making to refer to that making or creating that is the ultimate causing by God, the Creator, of the very existence of all the features of the universe. We need to be careful not to confuse these very different senses of "to cre-

ate." Each time I use the word *creation*, I am referring to God's act of creating.

Thomas would also distinguish the doctrine of creation from what might be called creation myths or stories: those accounts of the world's origin and development found in traditions of the Ancient Near East and, by extension, of related accounts in the Americas (e.g., Aztec and Incan), Africa, Asia (especially Chinese and Japanese), as well as the narrative in the opening of the Book of Genesis. Different "creation stories," such as those in Genesis, may be a source for theological and philosophical reflection, but they remain distinct from theology and philosophy, properly speaking.

Various contemporary debates in the West about the relationship between developments in the natural sciences, especially evolutionary biology and cosmology, and creation often employ a concept of creation, or better a "creationism," that is based on a literalistic reading of Genesis. Too often, "creation" is identified with what are sometimes referred to as accounts of the "six days of creation." Analyses of the "six days" are essentially commentaries on the biblical text and not really a theology of creation. Thomas Aquinas noted that what is essential in the biblical account is the "fact of creation," not the manner or order of formation of the world.

Biblical scholars in the West generally agree that there is no explicit statement of creation out-of-nothing in the Hebrew Bible.² The doctrine of creation developed as believers reflected on what the relationship between God and the world must be. In the Christian tradition, before Thomas Aquinas, important contributions were made, notably by Augustine (354–430), Pseudo-Dionysius (c. sixth century), and Anselm (c. 1033–1109).

It was clear that creation had to be "out-of-nothing," since were God to use something

in creating the universe, there would be this “something” that would be independent of God. There are some theologians and philosophers today, working within the Christian tradition, who deny the doctrine of creation out-of-nothing. Notable in this regard are “process thinkers,” who, following in the tradition of Alfred North Whitehead, reject this doctrine because they think it is incompatible with what science tells us about the world and emphasizes divine omnipotence too much. Indeed, in the Middle Ages, Averroes rejected the doctrine for similar reasons. For him, to say that something can come from nothing, even by divine power, destroys the possibility of a science of nature, a science that discovers true causal connections among things.

Despite flirtations with Neoplatonic emanationism, scholars came to recognize that creation was God’s free choice. God does not have to create, nor is God somehow “better off” because He creates. For many in the Middle Ages and today, both believers and nonbelievers, creation has to mean that the universe has a beginning, that it could not be eternal. Thus, it seems that were cosmology to disclose a universe without a beginning, it would call into question the intelligibility of a created universe.

When Thomas Aquinas came to reflect on what creation means, there was already a rich tradition of analysis within Christianity. In addition, he benefitted from discussions of creation in medieval Judaism (especially Maimonides) and Islam (especially Avicenna and Averroes). The reception of Greek philosophy and, in particular, Aristotelian science provided the broad intellectual context in which these discussions occurred. But this common intellectual patrimony brought with it significant difficulties. Of special note was Aristotle’s insistence

that the world is eternal. For Christians an eternal universe challenged the traditional reading of the opening of Genesis (“In the beginning...”) and what the Fourth Lateran Council (1215) declared as dogma: that the world was created out of nothing and in the beginning of time. The latter phrase (*ab initio temporis*) is a denial of the world’s being eternal.

In affirming as a first principle of the natural sciences that from nothing, nothing comes, ancient science would seem to call into question the intelligibility of any claim that creation was “out-of-nothing.” Any philosophical approach to creation or any rational defense of the theological understanding of creation had to take into account this principle of science as well as arguments for the eternity of the world. Discourse in all three religious communities in the Latin West did both.

One of the notable features of Thomas Aquinas’s analysis is his insistence that there is a distinction between creation understood philosophically and creation understood theologically. The philosophical sense, forged in the discipline of metaphysics, affirmed that all that is, in whatever way or ways it is, depends completely upon God’s causal agency. To say that creation is “out-of-nothing” means that God does not use anything at all, other than His own omnipotence, to cause things to be. Creation, so understood, does not mean that God changes “nothing” into “something.” The “nothing,” often discussed in contemporary cosmological theories, from which the universe somehow emerges, is not the “nothing” in creation out-of-nothing.

For Thomas, God’s creative act does not produce a change in and among things, or, as he often reiterates, creation is not a change.³ The natural sciences study change, and all change requires a prior something

that changes—just as the ancients thought. 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.”⁴ Or, as Thomas says in the *Summa theologiae*:

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. . . . 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 thing is understood as first not existing at all, and afterwards as existing.⁵

Creation refers to the complete metaphysical dependence of all that is on God as cause and thus its intelligibility is not challenged by the principles of the natural sciences. They refer only to the changing world, as changing. Creation is not primarily some distant event; it is the ongoing, complete causing of all that is. Were God not causing things to be at this very instant, they would not exist in any way.

Notice that Thomas distinguishes between “the mode of becoming by which something comes to be through change or motion,” some types of which we can call human acts of creating, from the more fundamental sense of creation, which he identifies as the “influx of being.” The latter, the influx of being, is the causing of existence, existence as such. The “as such” is an important phrase. It helps us to recognize the difference between causing something to exist in the ways in which,

for example, animals produce (cause to exist) offspring, and the causing of the complete actuality of whatever is (i.e., God’s act of creating), as it is. There is in this analysis a profound sense of existence, of what Thomas calls *esse*.

In speaking of the need for a cause of existence as such, Thomas is working within a rich Aristotelian understanding of cause, and especially of agent or efficient cause. Thomas broadens Aristotle’s notion of agent cause to include the cause of being. He thinks that being itself needs a cause because there is an actuality, an act of being, that requires an explanation. Furthermore, he thinks that cause and effect refer to an extramental relationship of dependency and ought not to be seen primarily in epistemological terms (as they are often viewed by those who follow in the tradition of David Hume). Cause and effect are features of one and the same act, an act or series of acts that cannot involve an infinite regress, since they all exist together in a special unity. Accordingly, Thomas is able to conclude that there must be an Uncaused Cause of the existence of all beings. These are key features of Thomas’s philosophical argument for a Creator. Hence, any appreciation of Thomas’s analysis requires an engagement with his sense of cause and with his metaphysical notion of being (*esse*) as an actuality (*actus essendi*).

A common objection to Thomas’s approach to creation is that the natural sciences are fully competent to explain all that needs to be explained about nature and human nature and that existence itself is simply a “brute fact” that does not require any explanation or cause. To know whether the natural sciences are fully competent to explain the world, however, requires an engagement with the broader philosophical topic of what the sphere of competence of the

natural sciences is. Even elementary thinking about the scope and limits of the natural sciences requires us to enter philosophical discourse. To claim that existence itself is a “brute fact” is to make a philosophical claim. It may well be that whether the world is created makes no difference to the practice of scientific investigation, but, in another and more profound sense, whether the world is created makes all the difference in the world.

Thomas’s metaphysics of creation offers an important insight into the proper autonomy of the natural sciences, since, for Thomas, God creates things to have their own natures, their own sources/causes of characteristic behavior, behavior that the natural sciences study. For Thomas, to be created means to have existence, to have being, from the primal source of being, and thus to possess a unity and intelligibility essential for the study of nature. In this sense, for the world to be created makes the natural sciences possible.

Thomas thinks that this philosophical understanding of creation prescind from any question of the world’s temporality. Contrary to many in his own day, and in our day, he thinks that an eternal, created universe is intelligible. Those contemporary cosmological theories that 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 that has a beginning of time. To be created out-of-nothing does not mean that a created universe must be temporally finite.

Whether the world is eternal or temporally finite concerns the kind of world God creates, not whether the world is created. God is the cause of time regardless of whether there is a beginning to time. Here Thomas differs from his teacher, Albert the

Great, and his colleague at the University of Paris, Bonaventure, both of whom thought that to be created *necessarily* means to have a temporal beginning. For them, any claim for the intelligibility of a world created *and* eternal (that is, without a temporal beginning) is absurd. Thomas, however, sees more clearly than Albert and Bonaventure that creation is not a change and thus does not require the kind of beginning that Albert and Bonaventure think necessary.

As a Christian, Thomas has a rich theological notion of creation that builds upon the philosophical sense. As a matter of faith, Thomas believes that there is an absolute beginning to the world, that creation is an act of the entire Trinity, and that creation is a manifestation of divine love. But what is important for our reflection is the relative autonomy Thomas grants to a philosophical account of creation. Indeed, this allows him to profit significantly from reflections on creation that occur in traditions other than Christianity. He finds, for example, in Avicenna (c. 980–1037) an important intellectual ally, since Avicenna also thinks that creation can be understood philosophically, even if, for Avicenna, creation is a kind of necessary emanation from a primal source of being.⁶

A philosophical understanding of creation also allows Thomas to draw comparisons with ancient Greek thought; indeed, to argue that on Aristotelian principles one can conclude that the world is created (remembering that he means the world has an ultimate cause of its existence).⁷ Throughout his career Thomas affirms what he first wrote in *Writings on the “Sentences” of Peter Lombard*: “not only does faith hold that there is creation, but reason also demonstrates it” (*In II Sent.*, dist. 1, q. 1, a. 2). The demonstration begins with the distinction between essence and existence in things—between what things are and that

they are—and concludes to the necessity of a reality in which essence and existence are identical. To be created, for Thomas, is to have being by participation: participation, that is, in the very ground or foundation of all being.⁸

On several occasions, Thomas reflects on the history (in the West) of attempts to understand the origin of things. In a relatively early work, *On Separated Substances*, he observes:

For human ability is seen to have progressed slowly in investigating the origin of things. In the beginning men thought that the origin of things consisted only in an external change, by which I mean an external origin that takes place according to accidental changes. For those who were first to philosophize about the natures of things held that to become is nothing other than to be altered, so that the substance of things which they called matter is a completely uncaused first principle. For they were not able by their intellect to surmount the distinction between substance and accident. Others, proceeding a little further, likewise investigated the origin of the substances themselves, asserting that certain substances had a cause of their being. But because they were not able by their minds to see anything beyond bodies, they did indeed reduce substances to certain principles but corporeal principles, and they posited that other substances come to be through the combining of certain bodies, as though the origin of things consisted solely in combining and separating.

Later philosophers proceeded by reducing sensible substances into their essential parts, which are matter and form. Thus they made the “becoming” of physical things to consist in a certain

change, according as matter is successively made subject to different forms.

But beyond this mode of becoming, it is necessary, according to the teaching of Plato and Aristotle, to posit another and higher one. For since it is necessary that the first principle be most simple, this must of necessity be said to be not as participating in being but as being itself. Therefore there must take place a common resolution in all such things in the sense that each of them is resolved by the intellect into that which is, and its being. Therefore, above the mode of coming to be by which something becomes when form comes to matter, we must preconceive another origin of things according as being is bestowed upon the whole universe of things by the first Being that is being.⁹

This is a difficult passage from Thomas, since he employs many philosophical terms not well-known outside the medieval Scholastic tradition and perhaps especially alien to audiences in, for example, China. Here Thomas offers us a kind of template that we can use to map different explanations of origins. It is a template that need not refer to a mere chronological account, but could be descriptive of various positions that continue to be affirmed. Those whom Thomas identifies in the first paragraph as pre-Socratic materialists are well represented by many twenty-first-century cosmologists and all those who share an exclusively materialist view of reality.

The Creator, for Thomas, transcends the created order, but not in the sense simply of being “other” than or “beyond” what is created. Transcendence in this context is not to be contrasted with immanence such that one necessarily excludes the other. We may *begin* to think of transcendence

as contrasted with immanence, but as we reflect more on the radical otherness of the Creator, we come to recognize that the Creator differs from creatures in a way different from the ways in which creatures differ from one another, and in a way different from the difference between all the created order and nothingness. The Creator's transcendence is such that he can be the abiding cause of all that is created, more immanent, in fact, to creatures than they are to themselves. The Creator is not the highest being in a hierarchy of beings. The Creator is not a thing *among* things, not a cause *among* causes, however true it is to say that the Creator is the Uncaused Cause.

Thomas was able to examine the history of philosophical discourse on the "origin of things" and consider that discourse in the context of his own understanding of creation precisely because he had a philosophical understanding of creation—an understanding not necessarily connected to any particular religious tradition, an understanding that, in principle, is open to reason alone. Although the Christian *theological* sense of creation depends on revelation and, for a Christian, is grasped fully only in the context of faith, the theological sense incorporates the philosophical. The crucial features of God's creative act—that it is out-of-nothing, is a free act of the Creator, and that the Creator is the transcendent source of all that is—are, for Thomas, accessible to reason alone. As I have suggested, not all reflections on the origin of things have involved these crucial features; yet, for those open to Thomas's philosophical analysis, these features are comprehensible even if not yet evident in particular explanations of origins.

It is true that Thomas's analysis of creation occurs in the Latin Middle Ages and is certainly influenced by his Christian faith.¹⁰

That Thomas is able to embrace features of Greek philosophy, drawn from diverse sources (from Neoplatonism to Aristotelianism), shows that he considers it possible to cross cultures and centuries when examining fundamental questions such as the origin of things. Just as Thomas sought insights about the origin of the universe—and about many other areas of knowledge—in ancient Greek thought, he would have surely recognized, or at least searched for, connections with the rich intellectual traditions of China.

However much human thinking is imbedded in particular times, places, and cultures and expressed in diverse languages, and however much these characteristics need to be taken into account in understanding what is being thought, Thomas is convinced that rational inquiry is able to rise above these particularities. That we need to be very careful in drawing comparisons across cultures, religious traditions, languages, and historical epochs does not mean that the task is, in principle, impossible. The difficulties as well as the promise of such comparisons were evident in the exchange between Jesuits and Chinese scholars in the sixteenth and seventeenth centuries.

More recent scholarship seeking to compare Chinese philosophical traditions with traditional notions of creation expressed in Western thought have emphasized the importance of Taoism as well as the thought of the Neo-Confucian scholar Zhu Xi (1130–1200), who lived during the Southern Song Dynasty (1127–1279). Zhu offered a profound reflection on *li* [理], often referred to as the underlying order and reason in/of nature. Sometimes it is associated with notions of *taiji* [太极] (the "great ultimate"), *tian* [天] ("heaven"), and *tao* [道] ("way"). *Lixue* ("learning of *li*") may well prove to be a good place to find connections with the notion of creation, since there is a

suggestion that all reality issues forth from a primal source. It seems that the views set forth by Zhu Xi resemble Neoplatonic emanationism. One problem, however, is that too often emanationist views affirm a fundamental continuity between an undifferentiated source of being and the existence of all features of the world. As I have already indicated, the Creator for Thomas is not at the summit of a hierarchy of being but rather is the transcendent source of all existence.

There is also a lively debate concerning whether the Chinese language allows for the metaphysical question of being. The claim is that the Chinese word *you* [有], often translated as “being” or “existing,” really means “to be present” and, if contrasted with *wu* [无], often translated as “nothing,” only suggests presence or absence. *Wu* does not capture the fundamental sense of “nothing” central to the doctrine of creation out-of-nothing. Accordingly, Chinese philosophical reflection leads to sophisticated cosmologies but not to metaphysical analyses of being or existence as such.¹¹

A great deal of work needs to be done to find connections with the notions of transcendence, causing of existence, and, indeed, the “nothing” in creation out-of-nothing, all central to the traditional doctrine of creation. In mentioning Zhu Xi and Taoism, as well as questions about the Chinese language, I wish only to suggest a

path for further comparative philosophical reflection.

We find in Thomas’s discussion of creation an excellent example of his broader understanding of the relationship between faith and reason. It is this broader understanding that allows Thomas to engage with those who do not share his faith. Creation is a particularly good venue for such dialogue since, as I suggested at the beginning, reflection about the origin of things is a constant concern for human cultures, even though, as Thomas recognized, not all reflections on origins resulted, or result, in an adequate grasp of creation. The relationship between creation and what the various sciences and philosophical systems tell us about the world is as crucial a topic for dialogue today as it was in the Latin Middle Ages.

One of the hallmarks of Thomas’s understanding of creation is an affirmation of the proper autonomy of causes in nature, including the causality exercised by human beings. For those in China and in the West who mistakenly think that one must choose between a robust notion of creation (especially the constant exercise of divine omnipotence) and science, Thomas Aquinas offers a potent antidote. The principles he sets forth for the possibility of informed discourse about creation are not limited to Paris in the thirteenth century. They can be employed in China today, and not only in China. ¶

- 1 For an account of some of my experiences speaking on this subject in China, see “Thomas Aquinas in China,” on *Public Discourse*: <http://www.thepublicdiscourse.com/2014/12/14165/>.
- 2 See Gerhard May, *Creatio Ex Nihilo: The Doctrine of “Creation out of Nothing” in Early Christian Thought*, trans. A.S. Worrall (Edinburgh: T. and T. Clark, 1994).
- 3 It is true that God is the cause of the changes that occur in the world, in the sense that changes do exist and God is the cause of all that is. There would be no change without God’s causing it, but, in causing things (including the reality of change) to be, God’s action itself is not, properly speaking, a change.
- 4 The sentences prior to this quotation set the context for the conclusion: “In every order of causes, a universal cause must exist prior to the particular cause, since particular causes act only in the power of universal causes. Now it is clear that every cause that makes something through motion is a particular cause, since it has a particular effect. For every motion is from this determinate point to that determinate point, and every change is the terminus of some motion.” Thomas Aquinas, *On Separated Substances*, c. 9, 49.
- 5 Thomas Aquinas, *Summa theologiae* I, q. 45, a. 2, ad 2.
- 6 Although Thomas finds much to accept in Avicenna’s metaphysics, he rejects any kind of necessary emanationist scheme for creation since, among other things, it would deny that the Creator’s act is free.
- 7 Indeed, on several occasions Thomas attributes to Aristotle himself a philosophical understanding that the world is created.
- 8 It is not my purpose here to provide in detail—and to defend—Thomas’s metaphysical argument that he thinks demonstrates that there is a Creator of all that is. I simply wish to note Thomas’s claim and give an account of what it entails.
- 9 *On Separated Substances*, c. 9, 48 (see also *De potentia Dei* 3; *Summa contra gentiles* 2, c. 37; *Summa theologiae* I, q. 44, a. 2; *Physics* VIII, lectio 2).
- 10 There are some authors, like Étienne Gilson, who think that the doctrine of creation, even as set forth by Thomas Aquinas, is a feature of “Christian philosophy,” having its source in the biblical revelation of God as “I am Who I am.” Albert the Great and Bonaventure thought that creation is only a theological notion. See Steven E. Baldner and William E. Carroll, *Aquinas on Creation* (Toronto: PIMS, 1997).
- 11 David L. Hall, “Culture of Metaphysics,” in *Interpreting Neville*, eds. J. Harley Chapman and Nancy K. Frankenberry (Albany, NY: SUNY Press, 1999), 271–7. See also Mary Sim, “The Question of Being, Non-Being, and ‘Creation ex Nihilo’ in Chinese Philosophy,” in *The Ultimate Why Question: Why Is There Anything at All Rather Than Nothing Whatever*, ed. John F. Wippel (Washington, DC: Catholic University of America Press, 2011), 43–64. For a reading of *wu* as “ontic nonbeing and ontological nothingness,” see David Chai, “Meontological Generativity: A Daoist Reading of the Thing,” *Philosophy East and West* 64, no. 2 (April 2014): 303–18.

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