Three Lectures on Evolution & Creation

Thomistic Summer School
Birštonas, Lithuania
July 2000

I. The Doctrine of Creation

1. Introductory

"I believe in God, the Father Almighty, Creator of heaven and earth." The fact that God is creator of the world is almost the first thing we are told about him in the Apostle's Creed. It is, indeed, the first thing we are told about Him in Scripture itself. The doctrine of the creation of the world was carefully explored by the Fathers of the Church and the great minds of the Middle Ages, not least among them, of course, St. Thomas Aquinas.

Beginning in the seventeenth century, and with particular intensity since the nineteenth, the natural sciences have developed a variety of scientific theories purporting to explain the origin of various features of our world on the basis of natural processes.

What should we Christians make of all this? Is the doctrine of creation now out of date, a respectable idea in its day, but one which, like other great ideas of the past, has now to be set aside in favor of a newer and better alternative? Or are the new scientific ideas just the latest transient fashion, the latest temptation to abandon the truths of revelation?

In this series of lectures, I will explore the relation between theories of evolution and the doctrine of creation. I will begin with a consideration of the doctrine of creation, especially as it is found in the thought of St. Thomas. Next, I will discuss the evolutionary sciences, attempting to understand them both on their own terms and in juxtaposition with the doctrine of creation. In the final lecture, I will say something about the general relation between science and religion.

2. The Concept of Creation

What is creation? Sometimes the term is used, rather carelessly, to refer to any account of the origins of things. For example, some recent critics of evolution have adopted as a theme the idea the every culture has a creation story and that evolution is just the creation story advanced by materialists. This, I think, is a rather careless use of the term. We Christians should carefully safeguard the names of our religious concepts. We should object when the term "creation" is extended to include any account of the origins of things.

So how can we begin our search for the proper meaning of the term? Perhaps we should begin with the dictionary. The *Oxford English Dictionary* offers the following definitions:

> creation—“the action of bringing into existence by divine power or its equivalent”
>
> create—“said of the divine agent: To bring into being; cause to exist; *esp.* to produce where nothing was before; ‘to form out of nothing’”

The two semantic focal points it identifies are thus (1) divine action and (2) exnihilation. How are these two points related? In general usage, either seems to be sufficient to warrant application of the term “creation.” The reference is to divine action alone when students of mythology use the term “creation myths” to refer to origins stories which do not include exnihilation.[1] The reference is exnihilation (in a weak sense) alone when we use the term “creativity” to refer to distinguish really original musical compositions or scientific work from the kind of derivative work that most of us produce. The Hebrew *br’* is more clearly associated with divine action than with exnihilation, but it is more conducive to a scientific account of creation to take exnihilation as the fundamental concept and then to argue that exnihilation implies divine agency since only God is capable of bringing something into being out of nothing. Creation, then, can be defined as “production of the entire substance out of nothing.”

3. The Doctrine of Creation

So when has an act of creation occurred? Although the author of *Genesis* uses the word *br’* three times in the first chapter of that book, first for the creation of the world, second for the creation of living things, and third for the creation of man, the Church focusses its teachings on creation on only two of those events. According to Catholic doctrine the world (including both the material universe and the angels) was directly created by God and in addition God directly creates each human soul.

The Church’s full doctrine of the creation of the world contains more than this, however. It asserts that

(1) God (the Father, Son, & Holy Spirit) and not any other creature
(2) moved by His Goodness & for His Glorification
(3) created the world out of nothing
(4) freely (in the sense that He need not have created at all or, having created, He could have created a different world from the one He actually created)
(5) at the beginning of time

[1] David Leeming, *A Dictionary of Creation Myths* (Oxford, 1996)

All of these points, with the possible exception of the claim that he could have created a different world than the world he did are *de fide*.[2] All of them are proper aspects of a full understanding of creation, though the first, third, and fifth—divine exnihilation of the world at the beginning of time—seem to have more relevance to the evolutionary sciences than do others. Whether even these theses really have the relevance they seem to have will become clear only as we explore more carefully both the doctrine of creation and the theory of evolution.

The doctrine for human souls is only slightly different. It replaces two of the five points listed above:

(3) created each individual human soul out of nothing[3]
(5) at the beginning of the human being's life[4]

This thesis has not been explicitly promulgated by the Church with the same authority as the theses mentioned above. Perhaps it is not, strictly speaking, *de fide*, but only theologically certain.[5]

The doctrine of creation is treated by St. Thomas in a number of passages—in his *Commentary on the Sentences of Peter Lombard*,[6] in the *Summa contra Gentiles*,[7] in the *de Potentia Dei*,[8] and in the *Summa Theologiae*.[9] In these works, St. Thomas does three things. First, he undertakes a clarification of such key terms as *ex nihilo*. Second, he attempts to organize all the things we know by revelation into a science, i.e., into a systematic body of knowledge. Third, he asks whether all of the things we know about creation can be known by revelation alone or whether some might not be knowable as well by natural reason. This inquiry leads him to offer philosophical demonstrations of some, but not of all, the tenets of the doctrine of creation.

To deepen our understanding of the doctrine of creation, and of the work of St. Thomas on this topic, let us examine some of his central distinctions and arguments.

---

[2] All of these points have been made in the teachings of ecumenical councils. See in particular Lateran IV (1215), *De fide catholica* and Vatican I (1870); *Constitutio dogmatica de fide catholica*, c. 1.

[3] Pius XII, *Humani Generis.* (1950), 36.

[4] Although the most common opinion among Catholics is that this occurs at the moment of conception, the Church has never condemned the doctrine of delayed animation. See John Ford, *When Did I Begin?* (Cambridge, 1988).

[5] Ludwig Ott, *Fundamentals of Catholic Dogma* (TAN, 1960), p. 96.

[6] Bk. 2, Dist. 1, Q. 1.

[7] Bk. 2, Ch. 6-38.

[8] Q. 3.

[9] Ia, Qq. 44-46.

a. What does creation *ex nihilo* mean?

St. Thomas, as mentioned above, defines creation as bringing something into being *ex nihilo*, out of nothing. But what exactly does *ex nihilo* mean? In his *Commentary on the Sentences*,[10] St. Thomas distinguishes various senses of the term. "It ought to be known," Thomas wrote, "that the meaning of creation includes two things" both of which turn out to be elaborations on the meaning of *ex nihilo.*

The first thing included by St. Thomas in the concept of creation is the production of the totality of what is being created.

Aristotle's philosophy of nature had identified two kinds of change—accidental and substantial.

In accidental change, a subject becomes actually what it formerly was only potentially. Thus, when a person acquires a habit or learns a skill, the subject of the change (a particular substance or individual) merely acquires a feature (or accident) that he formerly lacked. Accidental change presupposes as the subject of the change some substance that undergoes the change.

In substantial change, it is the substance itself that is brought into being. These are cases of the very generation of a substance that did not exist before. There is no subject that persists through the change. Nevertheless, substantial change does presuppose something that persists—matter with the potential to be whatever it is that is being generated. In substantial change, there is a production of a new substance, to be sure, but, insofar as the production was in pre-existent matter, there was not a production of the total substance of the thing generated.

Creation is distinct from both of those kinds of change. Unlike them, creation does not presuppose the existence of anything out of which something is created. It is in that sense production "out of nothing."

The second thing included by St. Thomas in the concept of createdness is the priority in nature of a state of non-being to a state of being in that thing. Non-being is naturally prior to being in a thing when "if the created thing were left to itself, it would not exist because it only has being from the causality of the higher cause." Another way to put this is that creation is the production of a thing that does not have being as part of its nature.

Clarification of this point requires not a contrast, not so much with physical change, buit with eternal generation, the term St. Thomas uses to describe the origin of the Son in the Father. It is not true of the Second Person of the Holy Trinity that, if left to Himself, He would not exist. That is why, even though He proceeds from the Father, we cannot say that He was created by the Father. Ordinary objects, by contrast, if left to themselves would not exist.

St. Thomas believed that the createdness of the world, in both of those senses, was susceptible to philosophical proof.

---

[10] Bk. 2, Dist. 1., Q. 1.

b. Why must the world have been created?

What kind of philosophical reason can be given for the claim that the world must have been created by God? The question itself can be broken into parts:

(1) Why must the world have been created?
(2) Why must it have been created by God?

I will concentrate here on the first.

To say that the world was not created would be to say that it has being as part of its nature. This kind of subsistence, St. Thomas argued in the *Summa Theologiae*,[11] belongs to God and can only belong to one thing.

In his *Commentary on the Sentences*, St. Thomas relies on the principle that "Whatever is imperfect in some category arises out of that in which the nature of the category is found primarily and perfectly." The relevance of this principle can be seen by a series of specifications.

> Whatever is imperfect in some category arises out of that in which the nature of the category is found primarily and perfectly.
>
> Whatever is imperfect in *being* arises out of that in which the *being* is found primarily and perfectly.

Then, since the world is imperfect in being and God is Him in Whom being is found primarily and perfectly,

> *The world* arises out of *God*.

In this context, since it is the very being of the world which is at issue, we can replace "arises out of" with "is brought (in its entire substance) into being by" or, in short, with "is created by."

> The world *is created by* God.

Will this proof convince all interested inquirers? Perhaps not, for, like all arguments, it depends for its persuasive force on the readiness of its audience to acknowledge the truth of its premises. The key premise here requires the acceptance of Thomistic metaphysics, that is, of a general account of being.

In this respect, philosophy is both like and unlike science. Suppose one wanted to persuade someone of the truth of quantum mechanics. One would have to begin by presenting the results of various experiments. Only once the audience had been made aware of the very peculiar behavior of elementary particles would they be ready to consider a theory as weird as quantum

---

[11] *Summa Theologiae* 1a, Q. 3, a. 4 and Q. 11, aa. 3-4.

mechanics. Philosophy is unlike modern physics, introducing someone to Thomistic metaphysics unlike introducting them to quantum mechanics, in that philosophy is based on common experience, experiences readily accessible to all, not on experimental data that can only be observed by those who have the requisite experimental apparatus. But philosophy is like quantum mechanics at least in this, that one must think and think carefully about the data. The principles may not be immediately obvious to the casual inquirer.

c. Why must each individual human soul have been created?

In his discussion of the production of human souls,[12] St. Thomas considers two possibilities. One is that the soul is produced by an act of generation, just as any other form would be:[13]

> Every actuality of matter is educed from the potentiality of that matter. …But the soul is the act of corporeal matter, as is clear from its definition. Therefore, the soul is educed from the potentiality of matter.

This possibility he rejects on the grounds that the rational soul is therefore not just another form:[14]

> Since the rational soul does not depend for its existence on corporeal matter, and is subsistent, and exceeds the capacity of corporeal matter, … it is not educed from the potentiality of matter.

The second possibility considered by St. Thomas, the one he defends, is that "the rational soul can be made only by creation." Since he also believes, both as a matter of philosophical knowledge and as a matter of faith, that only God can bring things into being by an act of creation, he concludes that every human soul is directly created by God.[15]

St. Thomas argument for the creation of the human soul depends on two key premises. The first is that the human soul, unlike the souls (or forms) of dogs and trees, is a subsistent form. The second is the principle that a thing must be made in a way suitable to its mode of existence.

That principle distinguishes things that can properly be said to exist from things that cannot. Accidents (color, for example) cannot properly be said to exist; properly accidents are only modifications of things that exist. Substances, on the other hand, can properly be said to exist, i.e., existence

---

[12] *Ibid,.,* Q. 90.
[13] *Ibid,.,* Q. 90, a. 2, arg. 2.
[14] *Ibid,.,* Q. 90, a. 2 ad 2, which is based on Q. 75, a. 2.
[15] *Ibid.,* Q. 90, a. 3, based on Q. 45, a. 5.

belongs precisely to them, not to some other thing of which they themselves are merely some kind of modification.

When this principle is applied to the production of forms, a distinction must be made between subsistent forms (of which the human soul is the only kind mentioned by St. Thomas) and all other forms. Non-subsistent forms can no more properly be said to exist than can accidents. St. Thomas says of them:[16]

> properly speaking, it does not belong to any non-subsistent form to be made; but such are said to be made through the composite substances being made.

Ordinary forms emerge with the proper organization of matter. They are potentially present in matter in the sense that matter is capable (when suitably actualized) of doing whatever it is that things of a given type do—of being water or a dog or whatever. The form is, under the proper circumstances educed from, led out of, the matter.

Subsistent forms, on the other hand, like subsistent things, can be made. Material substances—dogs and trees—can be made by generation from pre-existing matter. The rational soul, however, not being a corporeal being, cannot be made from pre-existing matter. The mere proper organization of matter is not sufficient to bring it into being. It must, therefore be made from nothing, i.e., by creation.

4. Allied Doctrines

There are two Catholic doctrines which, while not logically entailed by the doctrine of creation itself are nevertheless part of the Catholic story of the origins of things. Because of their circumstantial connection to the doctrine of creation and their comparability to claims made in the natural sciences, they too require a place in our discussion.

The first is the doctrine of the eternity of the world. This was taught clearly at the Fourth Lateran Council in 1215, which declared:[17]

> God … by His almighty power, from the very beginning of time, has created … the corporeal and visible universe.

The second, the doctrine of monogenesis. This is taught most authoratitively by Pope Pius XII, who addressed this matter in his encyclical *Humani Generis*, where he wrote:[18]

> The faithful cannot embrace that opinion which maintains that either after Adam there existed on this earth true men who did

---

[16] *Ibid.,* Q., 90, a., 2, corpus.
[17] *De fide catholics.*
[18] *Humani Generis*, 37.

> not take their origin through natural generation from him as from the first parent of all, or that Adam represents a certain number of first parents.

a. The Non-Eternity of the World

In his above-mentioned discussion of the meaning of the phrase *ex nihilo*, St. Thomas mentions, but leaves to the side, a third possible sense of the phrase—"that the being should have non-being prior to being in duration." Non-being is prior of time or duration to being, according to St. Thomas, when "that which does not exist before does exist later." St. Thomas sharply distinguishes between these two kinds of priority.

The fact that the world was created (that is was exnihilated in the first two senses), he says, does not prove that it had a beginning in time. Nor would the fact that it existed from all eternity, if true, show that it was not a created world. Even of a world with no beginning in time, one would have to ask whether that world was self-existent or dependent for its existence on some other being. This point is easily missed by moderns. Many people think first of sequences of events when they think about cause and effect. On this billiard-table model of causality an earlier event, say a collision of one billiard ball into another, causes another, subsequent event, say the motion of a hitherto stationary ball. Not all causality is of this type. On a second, slippery-floor model of causality, a floor is slippery because it is wet. In the world we know, it might also be slippery because someone spilled water on it,but the transition from non-wet to wet is not necessary to the floor's present state of being slippery because wet. If the floor had existed from all eternity and had been wet and slippery from all eternity, the wetness would still be the cause of the slipperiness. The wetness would not be chronologically prior to the slipperiess, but it would still be the cause. Non-being might have a priority of nature over being, even in something that has existed for all eternity.

Aristotle had argued that the world is eternal. Some medieval authors, for example St. Bonaventure, argued that the world had a beginning in time. St Thomas Aquinas rejected the arguments offered by each side and believed that the matter could not be resolved by natural reason. The non-eternity of the world, unlike its createdness, could only be maintained as a matter of faith.

b. Monogenesis

A second example of such an allied doctrine concerns the origins of the human race. On this topic, three alternative theories must be distinguished. The set of alternatives can be generated by considering in turn two questions. First, did man come into being independently at several distinct places? The theory that he did—called polyphyletism in theology, multiregionalism in its current paleontological manifestation—is the first of the three alternatives. The theory that he did not—monophyletism—can itself be divided into two

theories on the basis of a second question: Was there a single original couple from which all future men were descended or can the origins of man only be traced to an original group? The former alternatives is usually called "monogenism;" the latter, "polygenism."

The choice among these alternatives is not logically connected to the doctrine of creation. Even if man is in some special sense created by God, God could have created a first couple or a whole tribe of "first" people, or, for that matter, ten tribes of them. Similarly, the doctrine that the human race originates in a first couple is independent of the question of whether that first couple originated by some act of divine creation or merely through some act of natural generation. The doctrine that he did not is nevertheless "allied" to the doctrine of creation in the sense that it, like the doctrine of creation, is an account of origins. One might say that it teaches us, not the fact of the creation of man, but, given the Church's teachings about creation, a circumstance of the first act of creating a man.

The reason for this teaching is given by Pope Pius XII in the following terms:[19]

> It is no no way apparent how such an opinion [sc. polygenism] can be reconciled with that which the sources of revealed truth and the documents of the Teaching Authority of the Church propose with regard to original sin, which proceeds from a sin actually committed by an individual Adam and which, through generation, is passed on to all and is in everyone as his own.

In reading this passage, one must keep in mind two things. First, Pope Pius' defense of monogenism is based on his concern that "it is no no way apparent how such an opinion can be reconciled with" other Church doctrines. To say that is to say less than that polygenism is simply incompatible with the doctrine of original sin. If the Pope had wanted to make a stronger claim, he certainly could have done so. Second, in an address of 1996 in which Pope John Paul II repeated many of the points of *Humani Generis*, he did not repeat this one.

It is also important to note that Pope Pius bases his support for monogenism not on the reading of Genesis, but rather on the implications of the doctrine of original sin. The Scriptural foundations of this doctrine are found in St. Paul, pre-eminently in Romans 5:12-21, where the primary theme is the contrast of Adam, source of sin in the world, and Christ, in whom sin is conquered. This and other passages form the basis for a doctrine of original sin which includes three points:

(1) God intended that man should live in a state of original justice.

---

19 *Ibid.*

(2) The first man frustrated God's intention by his freely chosen actions, i.e., he committed the original sin.
(3) All men now live in a state of original sin.

The context of the passage favors inherited guilt, rather than mere example as the essential nature of original sin.

This interpretation was authoritatively endorsed by the Council of Trent which referred to the sin of Adam as "one by origin, and communicated to all men by propagation, not by imitation, and in all men and proper to each."[20] If

(1) "One by origin" means "committed as one act;" and
(2) "By propagation" means "through biological descent;" and
(3) Man's origins were polygenetic (or polyphyletic);

then

(4) Adam's contemporaries (and perhaps some of their descendants) would have been men free from original sin.

Since the denial of (4) is clearly intended by the Council of Trent, and (1) and (2) always seemed to be reasonable interpretations of what the Tridentine Fathers intended, Catholic theologians generally reject (3) as a mere scientific conjecture which was incompatible with the doctrine of original sin.

Pope Pius VI endorsed this connection when he said:[21]

> Starting out from the undemonstrated hypothesis of polygenism, [some modern authors] deny, more or less clearly, that the sin from which this great trash heap of ills in mankind is derived was first of all the disobedience of Adam, "the first man," a figure of the man to come—a sin that was committed at the beginning of history. As a consequence, such explanations do not agree with the teaching of Sacred Scripture, Sacred Tradition, and the Church's magisterium, according to which the sin of the first man is transmitted to all his descendants not through imitation, but through propagation, "is to be found in each one as his own" and is "the death of the soul."

5. Creation & Causality

A set of three related distinctions may help us draw together some of the points made above, and to avoid certain confusions. In particular, they lay the foundations for a theology of nature that avoids two extremes. One extreme

---

[20] *Dectretum super peccato originale*, 3.
[21] "Original Sin & Modern Science," *The Pope Speaks* 11 (1966), 229-35. Here, p. 234.

is the deism of a clockmaker God. Such a deism acknowledges that God created the world, but maintains that the world now (having been created) is capable of existing and operating fully on its own. If the deist extreme gives the world too much independence, the other extreme gives the world too little, fearing perhaps that anything attributed to natural causes is by that attribution not properly attributable to God.

The first of the three distinctions useful in avoiding these extremes is a distinction among three kinds of divine action—creation, conservation, and concurrence. Each of these three show, in a different way, the dependence of the natural world on God. They can be defined as follows:

Creation	dependence in being *made*	primordial production
Conservation	dependence in being maintained in existence	continuous & perpetual dependence
Concurrence	dependence in operating	

"Dependence in being made" seems to correspond to the first of the semantic components of the phrase *ex nihilo* distinguished by St. Thomas; "dependence in being maintained in existence" seems to correspond to the second. Divine conservation is no less a feature of a Catholic theology of nature than is divine creation. Recognizing the doctrine of the divine conservation of things helps make clear that the Catholic doctrine is distinct from Deism.

The second distinction elaborates on the conception of concurrence. To assert that things depend for their operation on God is to assert that things do have operations, they are not merely passive. We can clarify this distinction by speaking of primary and secondary causality. St. Thomas does this in his *Commentary on the Sentences*.[22] In that text, having argued that nothing other than God can create anything, he goes on to discuss whether anything other than God can even cause anything. He argues that they can. He immediately rejects the idea that everything is done directly by God on the grounds that it "does away with the order of the universe and the proper operation of things, and it defies the judgment of our senses." He presents his own view as follows:

> God immediately causes all things and that individual things have their own operations, through which they are the proximate causes of things, not of all things, but only of some.

[22] Bk. 2, Dist. 1, a. 4.

God is the primary cause of things insofar as He is responsible for their very being and He makes it possible for the power of creatures to achieve their effects. Created things are the secondary causes of things insofar as they can, with the concurrence of God, produce things by motion and generation.

The final distinction is a distinction between absolute and derivative creation. This distinction is grounded in the account of creation offered by St. Thomas Aquinas, but it was made in just these terms only in the nineteenth century, as Catholics and other Christians began to think about the implications of evolutionary biology. If a particular kind of organism emerged on the earth as a result of descent with modification from some previously existing kind of organism, birds from reptiles, say, in what sense could the new species be said to be created by God? St. George Jackson Mivart, a Catholic biologist, answered the question by making a distinction between two senses of creation:[23]

> Absolute Creation: "the absolute origin of anything by God without preëxisting means or material"
>
> Derivative Creation: "formation of any thing by God [in this way:] that the preceding matter has been created with the potentiality to evolve from it, under suitable conditions, all the various forms it subsequently assumes"

God created everything, but he did not create everything absolutely. Some things (the universe and each individual human soul) he created absolutely; other things (birds, for example) he created derivatively.

With those distinctions in mind, we can turn to the scientific study of the natural world, asking what exactly science is able to tell us about the origins of things and how their judgments about these matters square with the content of revelation.

---

[23] St. George Jackson Mivart, *On the Genesis of Species* (1871), p. 269.