

The Metaphysical Problem for Theistic Evolution

Accidental Change Does Not Generate Substantial Change

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Abstract This paper focuses on one of the metaphysical problems facing theistic conceptions of evolution: namely, that of evolutionary transition from one specified substantial form to another. According to the evolutionary account, new substantial forms appear due to accidental changes in previously existing substances. However, accidental change may only lead to the production of new accidents, not entirely new and distinct substantial forms. The solutions proposed by modern Thomists go in two directions: reducing the number of substantial forms (species), and rejecting substantial form altogether. Both proposals deviate from classical metaphysics. The evolutionary account of the origin of species is ultimately obliged to challenge the real existence of species, and so leads to nominalism. As such it cannot be reconciled with classical metaphysics.

Keywords classical metaphysics, creation, evolution, form, substance, Thomism

In my previous articles and books (Chaberek 2019b, 2019a), I have pointed to five principal problems facing theistic evolution when viewed from the standpoint of classical metaphysics:¹ (1) the problem of sufficient causation in evolution; (2) the problem of generation of new substantial forms through accidental change; (3) the problem of one nature being a cause of another; (4) the problem of the reduction of the four Aristotelian causes to just two; and (5) the problem of the destruction of the gradations of goodness and perfection found in Creation. Here, I would like to focus on just the second one of these. My goal will be to enrich this argument with further details and respond to some counterarguments.

First, I wish to remind readers that by “evolution” I mean biological macroevolution: that is, a process of change in nature that does not stop at the generation of new races, variants or biological species, but runs to the higher taxonomic levels—specifically, new families and higher. Thus, the relevant question is whether classical metaphysics is compatible with the idea that a natural evolutionary process can bring about completely new forms of life.

In order to see the metaphysical obstacle to such a scenario, we first need to recall the essential elements of the evolutionary process that is under scrutiny in this paper. There are, of course, many variants of evolution, but in the present philosophical context all of them can be reduced to a couple of common assumptions. First, the process must be natural, which means that the supposed generation of new forms happens thanks to the powers embedded in nature by the Creator, but without any additional or special activity on His part.² Second, all of these changes are accidental in the metaphysical sense. This second principle requires a few words of explanation.

Typically, evolution is explained by several factors, such as random genetic mutations that are favored or eliminated by natural selection. Additionally, biologists speak about genetic drift, environmental pressures and adaptations (phenotypic plasticity), monstrosities (e.g., the hypothesis of the “hopeful monster”), and several other factors that are supposed to drive

1. The expression “theistic evolution” will be used here to refer to the idea that God employed a natural (evolutionary) process of change as a secondary cause in order to bring about the diversity of life on Earth.

2. To be precise, according to Thomas Aquinas, all effects in nature are caused directly by the first cause (God), though some involve secondary causes while others do not involve any intermediaries. Thus, we should properly say that a thing either happens thanks to both direct and indirect Divine causation, or solely due to direct Divine causation. By “natural process” we mean here the former type of causality.

evolutionary change. All of these biological factors impact individuals or groups of individuals (populations), and within individuals they influence different parts of an organism (or, putting it differently, these factors impact the entire organism, but only in some aspects). For example, slightly weakening the function of the ALX1 gene in finches was found to stop them from producing sharp beaks, resulting in blunt beaks (Behe 2019, 151).³ The mutation that weakened the gene resulted in a different expression thereof, and thus altered the shape of one of the external organs. (In reality the process is not that simple, but additional details are of little relevance to our argument here.)

Today, we know of many instances where, by altering genes, scientists modify organisms. We also know of such processes happening in nature.⁴ However, none of these changes impacts being as being, or the substance of a given organism. They affect their parts, shapes, looks, particular functions, but never what they are. Both a finch with a sharp beak, and a finch with a blunt beak, remain finches. Thus, these changes never produce an entirely new form of life, such as one of the amphibian or mammalian species. The question, then, is why does such a thing never happen?

Scientists have pointed to many biological reasons for why, according to the Darwinian mechanism of evolution, such transitions are impossible.⁵ But here we are dealing with the same problem at the level of philosophy. Not surprisingly, classical metaphysics comports with biology and provides its own explanation as to why evolution can produce changes within the so-called “natural species,” but cannot create anything substantially new.⁶ This convergence of evidence from different levels of knowledge is, by itself, a strong argument for the truth of the conclusion. After all, the basic principle of the Christian approach to reality is that “truth cannot contradict

3. For other examples, see Murray (2020).

4. Behe furnishes multiple examples in his *The Edge of Evolution* (2008) and *Darwin Devolves* (2019). J. Wells describes how the fruit fly (*drosophila melanogaster*) can be mutated in the laboratory to produce four wings (Wells 2000, 178–85).

5. Amongst the many arguments against the Darwinian scenario of biological macroevolution, scientists point to the following: the inability of the natural process of variation and selection to produce new useful information; the inability of the Darwinian mechanism to account for epigenetic information that proves to be equally important to the functioning of living beings; the discrepancy between the fossil record and the Darwinian “tree of life;” the inability of evolution to make the kind of large steps that would be required for selection to see the “beneficial changes” (e.g., the problem of irreducible complexity) (see Denton 2016; Behe 2006, 2008, 2019; Meyer 2010).

6. For an exact definition of species relevant to the debate on evolution, see, for example, my book, *Aquinas and Evolution* (2019a, 22).

truth.”⁷ Theology cannot contradict healthy philosophy (*sana philosophia*), and philosophy cannot contradict the evidence of natural science.

The Argument

At the level of philosophy, the explanation of why, for instance, finches cannot turn into something else (by means of natural evolution) comes from classical metaphysics.⁸ This “science of being” teaches that every material being is a composite of a substance (what it is) and accidents (what it has, its features). All changes proposed in evolution are accidental, which means that they can affect only the accidents of things (Aristotelian categories), such as their colors, shapes, proportions, but not their substance—i.e., what they are. According to biological macroevolution, the accumulation of so many accidental changes over a vast time, over subsequent generations, will ultimately produce a substantially new form of life, meaning a new species (in a philosophical sense). But this is impossible, because accidental change will always produce only accidental differences, never bringing about a new substance or a new nature of a thing. The creation of a new substance would require substantial change: that is, the production of a new substantial form. This is why the originating of species by natural evolution is metaphysically impossible. According to Thomas Aquinas, such new forms (new species) can be produced only by means of creation, not by means of any change.⁹

Two Charges Levelled Against the Argument

Our argument is prone to two major objections that we shall anticipate here.¹⁰ According to the first of them, it is easy to find examples of substantial changes that happen thanks to accidental changes alone. For example, if we take two substances, such as water and salt, and dissolve the salt in

7. See the Fifth Lateran Council, Session 8, 19th December, 1513; Leo XIII, *Providentissimus Deus* (1893, 23); John Paul II (1996, 2); Francis, *Evangelium Gaudii* (Francis 2013, 243).

8. By “classical metaphysics” we understand here primarily Aristotelian-Thomistic metaphysics.

9. “According to faith one cannot say that something is a cause of something else after God, except by way of movement or generation. Hence all things that do not begin by generation must have God as their immediate (direct) cause. And these are the Angels, the souls, the heavenly substances, the matter of elements and the first hypostases in every species.” Thomas Aquinas, *Super Sententiis Petri Lombardii* (hereinafter abbreviated as *Super Sent.*) Lib.2, d.18, q.2, a.2, co. My own translation based on the Latin text available at Corpus Thomisticum website.

10. Anticipating possible charges is not equivalent to attacking a straw man. These are actual charges that have been levelled, both in writing and in private conversations. However, we cannot quote the sources because they have not been published so far.

the water (accidental change), we obtain brine, which is a new substance. Similarly, if we freeze water, we receive ice, and if we heat it up, water will turn into steam. Each of these is a different substance. Clearly, we can obtain new substances thanks to accidental changes. The instances of this constantly happening in nature are ubiquitous.

To clarify why such cases do not really invalidate our argument, we need to explain one crucial thing. In these and similar examples, we are not dealing with “true” or “perfect” substances.¹¹ Aquinas, along with classical metaphysics, accepts the existence of a hierarchy of substances. Some of these are substances in a very weak sense of the word, such as elements and compounds. Even though elements constitute the basic building blocks of all material beings, they themselves can hardly be called substances. Substance, in the metaphysical sense, is that which is most distinguished and specified, indivisible, and self-contained.¹² This is why the only substance in the truest sense of the word is the Supreme Being, God. He is the most separate and independent, and has being to the greatest extent so that being and essence are one in Him. All other substances are only substances by participation in the substantiality of the highest Being. Elements and compounds lie at the very bottom of the hierarchy of substances. And this is why we sometimes juxtapose substance and elements: elements are those that are-not-substances—they are “just” elements, are divisible, barely distinguishable, and do not exist for themselves, but rather only for the sake of other beings, for whom they are the building blocks.¹³ This is why mixing elements and compounds into different elements and compounds does not create any new substances, but only new elements and compounds.

Now, all of the examples of “new substances” arising from accidental changes refer to just elements and compounds, so there is no emergence of any new substance (substantial form) in the true sense of the word “substance.” Living beings, such as plants and animals, indeed constitute true substances. Accidental changes produce some things that are very loosely referred to as new substances, but not new species of living beings. This counter-argument is therefore based on a conflation of two different construals of the word substance: a physical one, which is how it is employed

11. This problem can be explained by referring to the analogical character of the term “substance.” Here, however, I prefer not to enter into a discussion of analogy (as this would open up too many side-issues). Instead, I offer an account of varying degrees of “substantiality” that is meant as a direct answer to the argument proposed by my opponents.

12. See Aquinas, *Sententia Metaphysicae*, lib. 7. Idem: “Substance is that what is not in a subject but is a being per se” (*Super Sent.*, Lib.1, d.8, q.4, a.2 arg.2). (See Reale 1975, 429).

13. See Aristotle, *Metaphysics*, Book VII, 1041b.

in natural science (and, typically, in daily language), and a metaphysical one (i.e., how it is used in classical metaphysics).¹⁴

The second charge against our argument can be phrased like this: if we take a living substance, such as a chicken, and we apply an accidental change, such as cutting off its head, we receive chicken meat, which is a different substance from a chicken. Indeed, there are many other examples where applying one or a series of accidental changes would deprive a living being of its substantial form. In biology, for example, an accumulation of genetic mutations in a population may lead to the extinction of the entire population. Genetic mutations would slowly weaken the functions of the organisms and reduce the genetic diversity needed to counteract different accidental factors (diseases, environmental change, etc.). Therefore, we see again that an accidental change can actually destroy the substantial form of a living being, thus resulting in substantial change.

An answer to this counterargument comes again from the proper understanding of the word “substance.” We can speak of the individual form of a given being (constituting individual substance), or of the special substantial form that constitutes the species of a thing. Classical (Aristotelian-Thomistic) metaphysics recognizes the real existence of the substantial form (the one constituting the species or the nature of a thing) in each individual belonging to the same species. This form makes the species what it is: i.e., is the cause of its being what it is.¹⁵ But in any given individual we have

14. One way to test whether a given thing is a substance in the “true” sense comes from checking its divisibility. Substance is something indivisible, something that constitutes a unity in the highest degree. God is one and indivisible; this is why He is a true substance. But water or air can be divided almost infinitely. When we reach one molecule of water we encounter a problem: is one water molecule water, or is it just one molecule of water? If one molecule is not water, then during the process of division we have lost the substance of water without even knowing when this occurred. We cannot even say at what point the substance of water ends or begins. This shows us how weak the substantiality of water, as manifested in its indivisibility, is. Animals, however, are substances in the “true” sense, because in the process of division of an animal we can clearly say when its substance has been lost and replaced with that of meat. The divisibility of plants is greater than that of animals, because they are substances in a weaker sense.

15. Aquinas thoroughly summarizes this metaphysical principle in *De Substantiis separatis* (10,58): “When a horse is generated, the generating horse is indeed the reason why the nature of horse begins to exist in this being, but it is not the essential cause of equinity. For that which is essentially the cause of a certain specific nature, must be the cause of that nature of all the beings that have that species. Since, then, the generating horse has the same nature, it would have to be its own cause, which is impossible. It remains, therefore, that above all those participating in equinity, there must be some universal cause of the whole species ... it must be reduced to that which is essentially the cause of that nature, but not to something which participates in that nature in a particular way.”

just one substantial form, and many accidental forms. Therefore, destroying an individual (such as killing a chicken) destroys the substantial form that exists only in this particular individual—that is, the individual form—but not the substantial form that creates the species. Along with the destruction of the individual form, all accidental forms are gone, but the species remains unaltered. This is why killing one chicken does not affect other chickens in any way (in terms of their “chickeness”). The individual form of the killed chicken is gone, but the substantial form of a chicken remains realized in so many other individuals. We can see, therefore, that this counterargument stems from a confusion made between individual and substantial form.

Moreover, this kind of change does not create any new substance, as would be the case in biological macroevolution. The substance (species) of animal meat, or human flesh after death, had existed even before the change took place. The bodies simply change their forms due to accidental changes, but they do not create anything entirely new—such as, say, a reptile evolving into a bird. Chicken meat is nothing like a flying eagle or any other new species. Thus, the loss of an individual substance for the sake of another is quite different from gaining an entirely new special substantial form, or creating a new kind of a living being.

Thomistic Attempts to Resolve the Problem

So far, I have presented a metaphysical argument against biological macroevolution and, in order to clarify it, have sought to answer two possible ways of explaining away that argument. I have demonstrated why the two counterarguments miss my point. Now I will move on to showing how some Thomists of the past tried to resolve the problem indicated in my argument.

Attempt 1: Reduction of the Number of Species

One way to resolve the problem of accidental change creating new substances is to say that there are only a few substances in nature. Accidental change can create everything within one substance, because individuals sharing one substance differ only in respect of accidents. Thus, Charles de Koninck postulates that there are only four substances in nature: men, animals, plants, and the inorganic (De Koninck 2008, 256–321, 258). Norbert Luyten suggests that the only distinct and definable essence among living beings is the human one. In his view, there are only three essences: inanimate, animate, and human (Luyten 1951, 303–4). Meanwhile, Jacques Maritain goes as far as to say that “There is only one ontological species which we are sure of knowing and encompassing, and that is the human species” (Maritain 1977, 112). Mortimer Adler, even though skeptical of

macroevolution, supports the idea that there are only five irreducible species: man, animal, plant, mixture, and element (Adler 1940). Edward Feser considers the view that “every species is essentially just a variation on the same basic genetic material.” By this, he is implying that all living beings constitute one species (Feser 2014, 158).

What is striking about these proposals is that the authors attempt to grasp a clearer notion of substance, but nevertheless cannot agree on their number. In fact, the proposed reduction of the number of substances proposed is somewhat arbitrary, and this is why it generates such a variety of outcomes.

It is true that owing to the analogical character of metaphysical notions, we can set the limits of species at different levels of abstraction. In the most abstract sense, all living beings can be considered one species (one substance). In a more specific sense, all plants are one substance (vegetative life), and similarly with animals. But these high levels of abstraction are not useful in a discussion about the origin of species, precisely because we ask about the origin of species, and not the origin of different domains or kingdoms. (The discussion about the origin of different species is not possible if all species are considered one.)

Therefore, we need to employ a more specific understanding of species. The accurate notion that we need is that of so-called “natural species” corresponding to the level of genus or family in biological taxonomy. We can say that each natural species is a separate substance or a different nature. By this definition, a feline nature is shared by all cats, such as the domestic cat, bob cat, puma, tiger, lion, and some others. This nature is different from the canine nature shared by the domestic dog, wolf, jackal, and some others. The number of natural species corresponds to about twenty thousand currently extant.¹⁶ Therefore, in classical metaphysics, an accidental change could generate differences extending as far as to different species of cat, or perhaps even different genera, but the dog and cat natures could never evolve from one antecedent nature (or from one into another) by means of natural generation.

The authors mentioned above do not agree about the number of “true substances,” but all of them propose a significant reduction from thousands to just a few. This reductionist approach leads to two quite odd conclusions. One is that the difference between, say, a spider and an elephant, is only of

16. The number of genera in biology is estimated at over 70,000, whereas the number of families is thought to be over 20,000. Somewhere between these lies the number of natural species. Note that these numbers keep on increasing, because we keep discovering new organisms (ITIS, 2020).

an accidental character—i.e., they just differ accidentally. Common experience and our natural perception of the external world (which form the basis for metaphysics) tell us that this cannot be the case. On the contrary, we know that spider and elephant, like cat and dog, constitute completely different natures.¹⁷

The other problem with this solution is that it is neither compatible with classical metaphysics (because it rejects the concept of natural species and sets the notion of species at an artificially high level of abstraction) nor conforms with the evolutionary principles proposed in biology. The reason for the latter is that according to evolutionary biology, the biodiversity of the natural world is supposed to have developed in its entirety through accidental changes alone. But if there are three or four species, then at least the transitions between these three or four would have had to occur outside of the natural operations of nature. Thus, the first plant, the first animal or the first man would need to have somehow been created (by means of either special transformism or special creation), and this is already unacceptable for biological macroevolution, whether in its theistic or atheistic form.

Attempt 2: Rejection of Substantial Form

Another way to resolve the problem of accidental change creating new substances is to challenge the very division into accidental and substantial change. This has been done by several Thomists, albeit not explicitly. Charles de Koninck, among others, has developed the concept of “disposition of matter” (De Koninck 2008, 278–83). According to these authors, in the matter-form compound, evolution, acting upon matter, disposes it to the reception of ever new forms. Once matter is properly disposed the form somehow comes into place (de Koninck does not explain where the new forms come from), and so we have a new type of being. In evolution, new forms simply pop up thanks to the dispositions impressed on matter by evolutionary factors.

Yet this solution distorts Aristotelian-Thomistic hylomorphism. According to the classical approach, the disposition of matter to accept a particular form and the form itself do not exist separately. The distinction between the disposition and the form is only in the intellect, not

17. Thomas himself encountered philosophers who proposed a reduction with regard to substances. For example, Avicenna postulated that all material beings constitute one substance. Thomas, however, disagreed, saying that this idea “would make an end of generation and corruption, and many other absurdities would follow.” He also characterizes the idea as “frivolous” and “manifestly fallacious” (*De pot.* q.3, a.7, co).

in reality (*in intellectu, non in re*). The form exists along with the disposition in matter, and the disposition is entirely dependent on the form.¹⁸ Hence, it is impossible for matter to acquire some other dispositions while being informed by the form that requires this particular disposition. Aquinas explains this in *Summa contra Gentiles* (hereinafter abbreviated as *Sc. G.*) in the following terms:

Forms are not consequent upon the disposition of matter as their first cause; on the contrary, the reason why matters are disposed in such and such ways is that there might be forms of such and such kinds. Now, it is by their forms that things are distinguished into species. Therefore, it is not in the diversity of matter that the first cause of the distinction of things is to be found. (*Sc. G. II, 40, 3*)

In fact, in the evolutionists' proposal the disposition of matter replaces the form, because if new dispositions could be acquired without new forms then the form would not be needed to dispose matter. Consequently, form would cease to be the act of matter. It would no longer be that which makes the material thing what it is—rather, it would be an effect of some properly disposed matter. This would make matter the active principle of the being and form the passive principle, inverting the classical conception of a composite upside down. The form would not be a real entity existing in matter, but rather just an illusion created by matter endowed with the appropriate dispositions. Therefore, this proposal fails for one or other of two reasons: it either dismisses the notion of substantial form altogether (by rendering it a mere illusion), or, at the very least, turns the substantial form into some kind of accident that is added to properly disposed matter. Either way, the solution deviates from classical metaphysics.

Moderate Realism vs. Nominalism

By now, I hope to have shown that the Thomistic proponents of biological macroevolution have not proposed a convincing answer to the problem of how evolutionary change could bring about living beings of new substantial forms. My own view is that if we consistently adhere to the principles of classical metaphysics, the solution to this problem can never be found. The reason for this is furnished by the very nature of material reality itself, in which some things change and others remain unchanged.

18. Aquinas explains it thus: "So long as the matter's disposition to the form remains, the form itself remains, and when the disposition goes, the form also goes" (*Sententia De anima*, lib. 1, l.9, n.13).

When Aristotle began his journey into metaphysics, one of his main goals was to reconcile Parmenides and Heraclitus. The former believed that nothing in nature changes, because everything is being and being remains what it is forever. The latter said that everything changes, because nothing is the same from one moment to the next. Both philosophers seemed to be right, but both could not be right. Moreover, both seemed to dismiss some part of our experience. Thus, Aristotle asked, how was it possible that things do change and at the same time remain unchanged? The chicken he observed was different every day he saw it. One day it hatched, then it grew up, grew old and finally died. But he knew that it was the same chicken every day. In order to reconcile these two apparently contradictory observations he came up with the idea of the essence (or substance) of the thing, and of its accidents. The essence is what remains, while the accidents are what is in a constant flux. The belief that the essence of a thing exists in every individual of a given species is now called “moderate realism.”¹⁹ This metaphysical and epistemological position explains why species do not change while individuals are never the same.

It seems that Darwin pushed our understanding of nature back to Heraclitus. But if Darwin’s view of nature were right, there would be no room for substantial forms and we would end up with nominalism. It is not a coincidence that the notion of species (especially in philosophy) has been challenged during the heyday of Darwinian theory. On the Darwinian view, new substances are supposed to emerge through changes to features of individuals. This boils down to saying that an organism is nothing more than the sum of its parts: that once we have new features, a new substance is created.

This kind of reductionism is strongly contested by many contemporary philosophers of nature sympathetic to the Thomistic tradition. However, the same philosophers accept the basic Darwinian postulate that a new substantial form would emerge if just accidental changes were to accumulate over a long enough time in individuals. Their position is clearly inconsistent, because accepting an evolutionary origin for species (i.e., a universal common ancestry) by means of natural generation is tantamount to reducing living beings to the set of their parts, and consequently accepting nominalism.

19. Sometimes the Aristotelian position is called simply “realism.” We qualify this as “moderate” in order to avoid confusion with the Platonist notion of extreme realism, according to which ideas become the only “real” things.

The Origin of Species According to Thomistic Metaphysics

Aristotle did not have available the idea of creation out of nothing, but he knew that the changes we see in nature could not produce species of living beings. This is why he believed in the eternal universe and assumed that species exist eternally along with the universe. We see, therefore, that for a non-Christian philosopher, the origin of species was something inexplicable. This supports our conviction that the origin of species cannot be explained by natural reason, either via biological or via philosophical investigations. To know how new substantial forms of living beings emerged in matter we need theology: i.e., supernatural knowledge revealed by God. The place where Christians look for “new knowledge”—knowledge unattainable naturally—is the Bible. But even before we look into Genesis we should see how neatly Thomas Aquinas transitions from the lack of a natural explanation (of the origin of species) to the idea of Creation.

Aquinas says that there are two ways for things to start to exist: one is through change (this includes generation), the other creation. Creation is not any kind of change. It is a simple emanation of being out of nothing (*creatio non est mutation sed simplex emanation entis ex nihilo*). He then goes on to explain that there are four types of thing that cannot commence existing by means of change: angels and souls, the matter of the elements, the celestial bodies, and “those things that require a generator (a parent) similar in the species to the thing generated, such as the first man, first lion etc.” (*Super Sent.* lib. 2, d.18, q.2, a.2, co). These things cannot start to exist via change, whether generation or any type of natural alteration of something else—they need to be created. This is why, for Thomas, the first parents in each species had to be created. To be created means to be produced directly by God, without any secondary causes.

What is interesting about Aquinas’ doctrine is the fact that he speaks of the necessity of the creation of the first couples in each species not just “because Genesis says so.” For him, this is a metaphysical requirement for the origin of new substantial forms. Thus, in Aquinas’s view, natural reason tells us that there is no natural way of producing new substantial forms in matter, and revelation then explains that the way for them to emerge is via Creation.²⁰

20. “In the first production of corporeal creatures no transmutation from potentiality to act can have taken place, and accordingly, the corporeal forms that bodies had when first produced came *immediately from God*, whose bidding alone matter obeys, as its own proper cause. To signify this, Moses prefaces each work with the words, ‘God said, Let this thing be,’ or ‘that,’ to denote the formation of all things by the Word of God, from Whom, according to

Recently, some Thomistic supporters of macroevolution have developed an argument based on Aquinas's statement from the *Summa* (*ST I*, 73, 1, ad. 3; Ryan 2009, 55–6; Austriaco 2018). Thomas himself says that some new species may have come about through the operations of nature after Creation was completed. I have answered this argument in greater detail elsewhere (Chaberek 2019a, 89–92). Here it is enough to indicate that if Aquinas truly supports the emergence of new species (in this one fragment), *contra* his clearly expressed teachings (to the effect that creation was completed with Man, and nothing entirely new can emerge afterwards) in several other places,²¹ then the strongest argument that the proponents of evolution can make is that Aquinas is inconsistent. Yet this is not the case, because in this one place Aquinas speaks about the generation of a mule, which is not an example of a new, distinct nature. The mule is just an infertile combination of an ass and a mare which remains within the Equidae family. This kind of “novelty” does not go beyond the level of natural species and therefore does not meet the requirements of biological macroevolution. The only reason why Aquinas allows for the emergence of this kind of “new species” after Creation was completed is that he believed in spontaneous generation. But the emergence of new species after Creation was completed is not the principle, but rather an exception to the rule—an exception that he entertained only because of the incorrect theory of nature he had adopted along with his contemporaries. In other places, we see how this faulty theory creates metaphysical difficulties for him.²² Had he known that spontaneous generation does not exist in nature, he most probably would not have even considered the idea of new species emerging after Creation was completed.

Today, a common argument among Thomistic evolutionists is that if ancient and medieval theologians had been acquainted with contemporary science and modern biblical exegesis, they would not have had a problem accepting the evolutionary origin of species. Aristotle's belief in eternity of species, and Aquinas's teaching regarding their creation, proves this argument wrong. Surely, Aquinas was inspired by Genesis in providing his explanation as regards the question of origins. His teaching concerning the formation of the universe during the “six days” is entirely

Augustine, is ‘all form and fitness and concord of parts.’” (Thomas Aquinas, *Summa Theologiae*, I, 65, 4, co; hereinafter abbreviated as *ST*).

21. *ST I*, 73, 1, co and ad. 3; *ST III*, 40, 4, ad.1; *Super Sent.* lib.2, d.15, q.3, a.1, co.

22. For example, Aquinas struggles to explain how there could be a sufficient cause in spontaneous generation (*ST I*, 71, 1, ad.1; see also *Sc. G.* III, 69, 4; *Super Sent.* lib. 2, d.18, q.2, a.3, ad. 5).

based on the Bible (see *ST I*, 65–74). But this is not because he was unaware of modern exegesis or modern scientific discoveries. The reason he derived his positive doctrine from a revealed source is that this is the only possible way to really know the answer to the question of origins.

Science can modify some details of this answer, but it cannot overturn its essential elements, which are independently confirmed by metaphysics. For example, new scientific discoveries have revealed that the time-frame of Creation could not have been equivalent to six natural days, but rather billions of years. But whether the time axis is scaled at thousands, millions or billions of years has no bearing on our understanding of the very manner of how entirely new forms were brought about in the universe. This is why as much as scientific discoveries shed some light on the origins, the fact that some elements of the universe must have been produced directly by God has not been dismissed by those discoveries.

Conclusion

From what we have considered, one can see that biological macro-evolution (construed as a natural process of producing entirely new forms of life) is impossible for metaphysical reasons. One particular argument developed here states that in evolution we only see accidental changes that cannot create the substantial change necessary for the emergence of a new type of life. This argument makes it impossible to reconcile classical (Aristotelian-Thomistic) metaphysics with the idea of the evolutionary origin of species as presented by Darwin and by contemporary theistic evolutionists. In fact, classical metaphysics strongly supports the traditional Christian conception of Creation, which entails Divine supernatural activity in the material universe not just in the context of the history of salvation but also throughout the history of creation—extending from the first beginnings of the universe (*creatio ex nihilo*) to the creation of Man. Still, neither metaphysics (philosophy) nor natural science can deliver a full explanation to the question of origins. This type of questions, by their very nature, are only explicable in the light of Divine revelation.

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