Afterword to the Polish Edition of *Thomistic Evolution: A Catholic Approach to Understanding Evolution in the Light of Faith*

*by Nicanor Pier Giorgio Austriaco, O.P., James Brent, O.P., Thomas Davenport, O.P., and John Baptist Ku, O.P.**

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* Along with this translation of my Afterword to the Polish Edition of *Thomistic Evolution: A Catholic Approach to Understanding Evolution in the Light of Faith* (1st ed. 2016) by Nicanor Pier Giorgio Austriaco, O.P., James Brent, O.P., Thomas Davenport, O.P., and John Baptist Ku, O.P., this present issue of the English edition of *Nova et Vetera* also contains Michael Chaberek's critique of it in translation, "Where do Substantial Forms Come From?—A Critique of the Theistic Evolution of Mariusz Tabaczek," on 239–54. This journal issue also includes a translation of my response to Chaberek, which was originally published in Polish as Mariusz Tabaczek, "Ewolucja a dzieło stworzenia—odpowiedź na polemikę Michała Chaberka z teistycznym ewolucjonizmem," *Roczniki Filozoficzne* [*Annals of Philosophy*] 68, no. 4 (2020): 217–49, while his critique was published as Michał Chaberek, "Skąd pochodzą nowe formy substancjalne?—Polemika z teistycznym ewolucjonizmem w ujęciu Mariusza Tabaczka," *Roczniki Filozoficzne* [*Annals of Philosophy*] 68, no. 4 (2020): 199–215. The English translations were sponsored by the Templeton Foundation (Grant ID 61360 *Thomistic Evolution and the Defense of Faith and Reason: Engaging Catholic Families, Philosophers, and Theologians*). Some of the original Polish bibliography references were changed and updated to make the text more relevant for an English-speaking audience. All three pieces have undergone minor editing to conform to the journal's style. Citations of all three use the page numbers of the publications in the present journal issue, and abbreviations for the references to the works of Aristotle, Augustine, and St. Thomas, including published critical editions and English-translation editions used in citations, can be found in the bibliography section of the introduction to the interchange in the present journal issue.

Thomistic Evolution: A Catholic Approach to Understanding Evolution in the Light of Faith, by Nicanor Pier Giorgio Austriaco, O.P., James Brent, O.P., Thomas Davenport, O.P., and John Baptist Ku, O.P., is an intriguing attempt at a comprehensive approach to the question of theistic evolutionism from the perspective of Thomistic tradition. The breadth of the approach offered by the authors, starting with the problem of the relationship between reason and faith and subsequently reaching to the foundations of the philosophy of nature, natural theology, and theology of creation, as well as biblical exegesis, provides an appropriate introduction and background for the analysis of a thesis suggesting that it is possible for God to create new species of living organisms (including the *Homo sapiens sapiens* species) through the processes of evolution. The comprehensible manner in which the discussed questions are presented renders the book accessible to a wide audience.

Although one should agree with the main thesis formulated by the authors of *Thomistic Evolution* regarding the possibility of God expressing his creative power through the emergence of new species of living beings by way of evolution, it also has to be noticed that the arguments they present do not always take fully into consideration certain significant difficulties that arise along the way and the resulting necessity to broaden and adjust the ideas of the Aristotelian-Thomistic tradition to present-day standards in order for it to engage in a dialogue with contemporary science. In the absence of such broadening and adjusting, one might arrive at an overly simplified view of things in which St. Thomas himself would easily come to agree with the main assumptions of theistic evolutionism. Our aim, thus, is to reveal a more profound level of the complexity of the debate regarding the Thomistic view of creation and evolution.

St. Thomas and Evolutionism

On the one hand, Brent's intuition seems justified that the Thomistic definition of creation as being dependent on God in existence (depicted in chapter 7) is compatible with both the image of the world in which various kinds of species are immutable and the image of the world in which they are subject to change. On the other hand, we cannot forget that St. Thomas himself perceived forms of species as permanently fixed in the moment of the first member of a given species coming into existence and—consequently—not being subject to any future alterations. Hence, reproduction, according to Aquinas, serves as a continuation of species without the introduction of any significant variations: "Nature produces like from like. Now the thing generated is like its generator in

species and form. Therefore the form is produced by the action of the generator and not by creation" (*De pot*., q. 3, a. 8, sc 4).

This quotation from *Questiones disputatae de potentia* points us towards the theological question of creation. Here, we must emphasize that, according to St. Thomas, at its origin, the world was perfect as to the number of created species. Hence, "something can be added every day to the perfection of the universe, as to the number of individuals, but not as to the number of species" (*ST* I, q. 118, a. 3, ad 2).[1] It is true that Aquinas allowed for the arising of new animal species through putrefaction caused by the power of the sun, as well as through the crossbreeding of already existing species (see *ST* I, q. 73, a. 1, ad 3, a portion of which is quoted by Austriaco in chapter 24). However, the emergence of new forms of animal organisms in this way by no means implies or anticipates the theory of their descent from a common ancestor by way of evolutionary transformation. Nor is it a manifestation or expression of the most basic rules governing nature, but rather an exception and a departure from their regularity.

Indeed, regarding the question of creation, St. Thomas says that "it is impossible for any creature to create, either by its own power or instrumentally—that is, ministerially" (*ST* I, q. 45, a. 5, corp.).[2] Elsewhere, Aquinas adds that "the corporeal forms that bodies had when first produced came immediately from God, whose bidding alone matter obeys, as its own proper cause" (*ST* I, q. 65, a. 4, corp.). It seems that there is no easy transition from these statements to the thesis formulated by Austriaco, in which he speaks of God who "had chosen to create through his creatures" (see chapter 22). Delegating the power of creation to contingent beings is clearly inconsistent with St. Thomas's theology. In other words, attempting to define the evolutionary process as one of the many physical processes within which God, as the first cause, acts via secondary causes, may lead to an overly cursory treatment of the fundamental difference between creation understood as sustaining beings in existence and as continuing the existence of various forms of species by way of begetting new descendants within the same species, and creation understood as deriving an entirely new form of being (a living organism) out of nothing (*ex nihilo*).

Is it therefore true—as some believe—that the dialogue between Thomism and evolutionary thought can be held only at the expense of a compromise with regard to the most important questions concerning the

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1 See also *De pot*., q. 5, a. 5.

2 See chapter 17, where Ku mentions this principle, providing additional reference points to the works of St. Thomas.

Thomistic understanding of the nature of living organisms, as well as the essence of the dogma of *creatio ex nihilo*? Not necessarily. One of the most significant points, in this context, is the proper understanding of the metaphysical foundations underlying St. Thomas's thought, which allows for a creative application of the Scholastic method, free from following Aquinas's original thought in an inflexible manner. Even though certain important aspects of Thomistic metaphysics and ontology are discussed or evoked in the particular chapters of *Thomistic Evolution*, they call for further development and elaboration.

Understanding Material and Formal Causes

An absolutely fundamental question is that of the proper understanding of the idea of the four causes which Aquinas derives from Aristotle.[3] We will focus here predominantly on the material and formal causes, which are crucial for determining the essence (including the species-defining essence) of each contingent being—both inanimate and animate. Davenport's presentation of the above-mentioned causes (chapter 5) appears to be constrained to the most basic and introductory approach which defines matter and form as, respectively, physical structural units (molecules, atoms, electrons, protons, neutrons, quarks, gluons) and their shape or organization (structure). The above definition is, however, insufficient, even if *Thomistic Evolution* is a popular science publication. While searching for categories appropriate for describing and classifying each contingent being in his commentary to Aristotle's *Metaphysics* (see *In* V *metaphys*., lec. 3, no. 779), St. Thomas himself distinguishes at least four levels of understanding material and formal causes: (1) In the most intuitive view of reality, form appears as a geometrical shape assumed by physical matter (at this point, Aristotle gives the example of a silver goblet or a bronze statue). (2) The situation is somewhat different when many entities unite to co-form one thing. This process can take place in three different ways, linked to the three levels of defining formal and material causation: (2a) entities which make up a whole can be united merely by their placement (arrangement) in time and space (unity *secundum ordinem*), such as men in the army or houses in a city; (2b) entities making up a whole can be united by contact, a particular form of binding (bond) (unity *secundum contactum et colligationem*), such as parts

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[3] See Aristotle, *Phys*. 2.3.194b24–195a2, *Metaphys*. 5.21013a24–1013b2, and Thomas Aquinas, *In* I *phys*., lec. 15, no. 132; *In* II *phys*., lec. 5, no. 183; *In* V *metaphys*., lec. 2, nos. 763–64, 774.

of a house; (2c) in some instances, unity as described in point (b) is accompanied by an essential change of a component (*alteratio componentium*), that is, a substantial change resulting in the occurrence of a new substance (exemplified by living beings).

From our perspective, the most interesting level of material and formal causation is presented in the last point—(2c)—which implies a substantial change in the process leading to the emergence of a complex entity. This kind of change takes place when substances existing thus far lose their original identity and simultaneously become a being with an entirely new identity. What we touch on here is the most profound level of transformation possible, moving deeper than the accidental, geometrical, or dynamic restructuring of components which maintain their own identity and a relative autonomy within a given (inorganic or organic) whole. What is more, the same kind of transformation occurs at the lowest level of material complexity where elementary particles transform into one another (*vel* emerge from the quantum vacuum or vanish in it). Also, here we are dealing with loss of identity and entities of an entirely new essence coming into existence.

What is required for the aforementioned substantial change not to become the annihilation of one entity and the creation of a new entity *ex nihilo* is the principle of continuity (i.e., something that is able to endure substantial change without being a substance), as well as the principle of novelty. In Aristotelian-Thomistic metaphysics, these functions are assumed by, respectively, primary matter (PM)—understood as a metaphysical (hence empirically unverifiable) principle of potentiality—and by substantial form (SF)—understood as a metaphysical (hence also unverifiable from an empirical perspective) principle serving as the actualization of primary matter. In other words, the reality of the universe is founded on two complementary metaphysical principles: the principle of potentiality—the idea that something can exist in the first place and be subject to change—and the principle of actuality, which makes a given entity what it is and endows it with its proper identity.[4]

A significant consequence of viewing the essence of things, as well as their

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[4] See *Phys*. 1.9.192a25–33; 2.3.194b24–28; *Metaphys*. 7.31029a20–21; 9.71049a24. Regarding PM, in reference to the example of the bronze statue used by Aristotle, St. Thomas states: "We should notice, too, that some matter has a composition of form, for example bronze. For, although it is the matter with respect to the statue, the bronze itself is composed of matter and form. Therefore bronze is not called prime matter, even though it has matter. However, that matter which is understood without any form and privation, but rather is subject to form and privation, is called prime matter by reason of the fact that there is no other matter before it. This is also called *hyle*, [which means chaos or confusion in Greek]" (*De princ*., no. 14).

permanence and changeability, from the perspective of hylomorphism (from the Greek words ὕλη [*hylē*], meaning matter, and μορφὴ [*morphē*], meaning form) is the concept of PM's disposition. As a principle of potentiality—as pure potentiality—PM can theoretically "become" anything (become formed or actualized by any given SF). In practice, the actualization of PM by a particular SF in a given being disposes it to be formed by another SF—specified to a lesser or greater degree—in the process of subsequent substantial change.[5] Thus, for instance, the actualization of PM by the SF of the chemical element sulfur ($_{16}S$) disposes it to be formed—in subsequent substantial change—by the SF of sulfur dioxide (SO_2) or hydrogen sulfide (H_2S) rather than, for example, of orthophosphoric acid (H_3PO_4). In other words, the disposition of PM ensures the hierarchy and the order of beings in nature and in the changes they are subject to.[6]

The Work of Creation[7]

In what way does the complex and highly speculative metaphysical reflection presented here contribute to comprehending Thomistic approach to evolutionary theory? In order to understand its significance, it is worth referring to the distinction—mentioned by Ku (in chapter 17), but not elaborated on in his analysis—between the three stages of the work of six days depicted in the first chapter of the Book of Genesis. St. Thomas, in keeping with the literal meaning of the Bible, describes creation (*opus creationis*) as the work which took place only on the first of the six days. He names the work of the

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5 See *Q.D. de an*., a. 9, corp.: "From the fact that matter is known to have a certain substantial mode of existing, matter can be understood to receive accidents by which it is disposed to a higher perfection' so far as it is fittingly disposed to receive that higher perfection." See also *SCG* III, ch. 22, no. 7; *In* II *de an*., lec. 7, no. 315; *De pot.*, q. 5, a. 1, corp. and ad 5.

6 Analogically, in the case of the accidental form (which changes not the identity of a substance, but its accidental features), actualization of PM formed by the SF of water (H_2O) by the accidental form (AF) of ice disposes it to be formed anew—in the process of accidental change—by the AF of liquid water or the AF of water vapor (sublimation). Neither of the above changes simultaneously affects the substantial identity of water (i.e., the actualization of a given "portion" of PM by the SF of water).

7 Ideas presented in this and remaining sections were further developed in Mariusz Tabaczek, "What Do God and Creatures Really Do in an Evolutionary Change? Divine Concurrence and Transformism from the Thomistic Perspective," *American Catholic Philosophical Quarterly* 93, no. 3 (2019): 445–82, and Tabaczek, "The Metaphysics of Evolution: From Aquinas's Interpretation of Augustine's Concept of *Rationes Seminales* to the Contemporary Thomistic Account of Species Transformism," *Nova et Vetera* (English) 18, no. 3 (2020): 945–72.

following two days as the work of distinction (*opus distinctionis*), and of the last three days as the work of adornment (*opus ornatus*).[8] Focusing on the work of creation, Aquinas states that it resulted in the origination (*ex nihilo*) of the primitive matter of entities, which already at the starting point of the history of the universe was the PM formed by the SFs of elements (in line with the views still valid in his times, St. Thomas here distinguishes between earth, water, air, and fire).[9] Accordingly, as Aquinas points out, the subsequent stages of origination of more complex beings, which he refers to as production (*productio*), are, in a sense, mediated by more basic forms of contingent beings. This is so not in the sense, however, that they might have a creative potency consisting in the derivation of beings from nothingness (*ex nihilo*)—only God possesses such power—but in the sense that they might derive a new kind of beings from the potentiality of PM. It is earth—St. Thomas reads in the Book of Genesis—that brought forth plants: the green grass and fruit-bearing trees. It is water that produced the abundance of swimming beings, as well as birds (although there is no straightforward information in the Bible that birds emerged from the water, this is what St. Thomas thinks). It is earth that brought forth all kinds of living beings: cattle, amphibians, and various types of wild animals (see Figure 1).

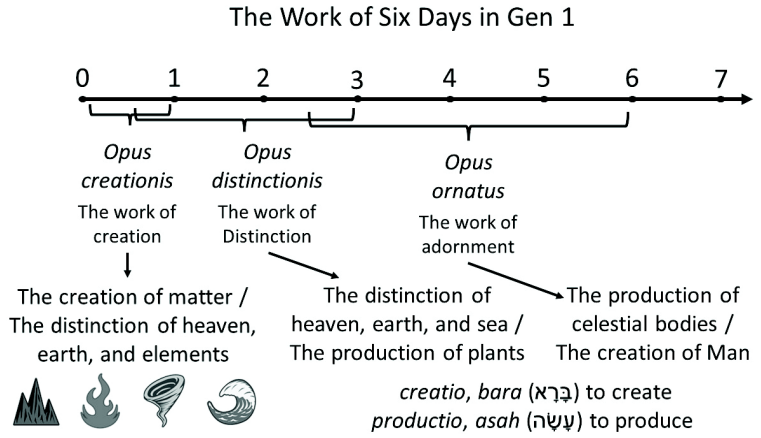

Figure 1. The distinction between the three stages of the work of six days as depicted in Gen 1.

In this context, it becomes clear that, rather than the traditional, more literal interpretation of the account of creation as formulated by St. Basil

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8 See *ST* I, q. 65, introduction; 66, aa. 1–2. St. Thomas uses the term "creation" again in his description of the origin of man.

9 See *ST* I, q. 66, a. 1, ad 2.

the Great, St. Ambrose, or St. John of Damascus, the theory that is closer to St. Thomas's view is the concept of *rationes seminales* (i.e., seminal reasons) put forward by St. Augustine (see Ku's discussion in chapter 16). Following Augustine's train of thought, Aquinas argues that plants and trees might have been produced (*productio*) in their causes:

> Therefore, the production of plants in their causes, within the earth, took place before they sprang up from the earth's surface. . . . In these first days God created all things in their origin or causes, and from this work He subsequently rested. Yet afterwards, by governing His creatures, in the work of propagation, "He worketh until now." Now the production of plants from out the earth is a work of propagation, and therefore they were not produced in act on the third day, but in their causes only. (*ST* I, q. 69, a. 2, corp.)

The situation is similar in the case of fish and birds, speaking of which Augustine says that on the fifth day "the nature of the waters produced them . . . potentially [*potentialiter*]" (*ST* I, q. 71, a. 1, corp.), as well as in the case of land animals whose "production was potential" as well (*ST* I, q. 72, a. 1, corp.).[10]

The Metaphysics of Evolutionary Changes

Needless to say, the stand taken by Augustine is not identical to Darwin's theory of evolution. The concept of *rationes seminales* implies that everything has been, in a sense, included in primordial matter which was the result of the original act of creation. Thus, new species of inanimate and animate beings are merely revealed in the course of the history of the universe (it remains debatable whether the theory of *rationes seminales* signifies a metaphysically understood potentiality or can be defined in terms of a physical presence of the "seeds" of future beings). From Darwin's perspective, this theory is insufficient, since, in his opinion, evolution entails absolute novelty and not the mere revealing of entities which had already somehow been in existence.

However, when *rationes seminales* are interpreted in the context of the key principles underlying Aristotelian-Thomistic metaphysics and ontology, as an expression of the potentiality of PM, then the thesis of the absolute novelty of the species newly emerging in the history of the universe can be

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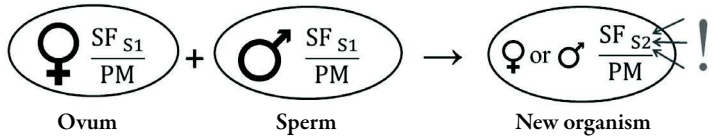
10 St. Thomas refers to the concept of *rationes seminales* also on other occasions; see quotes from *In sent*. and *ST* mentioned by Ku in chapter 17; see also *de pot*., q. 4, a. 2, ad 28, and *ST* I, q. 69, a. 2, corp.

defended. In accordance with the same principles, we can perceive evolutionary change as a series—consolidated by natural selection—of contingent (accidental) changes in the structure of genetic material (DNA). These changes are reflected in the morphology and physiology of a given organism, or a line of organisms of a given species. They result in a gradual alteration of PM's disposition, leading to a specific moment in which the PM formed by the $_{ovum}$SF and $_{sperm}$SF—during the course of a substantial change arising from their joining together—is not disposed to being formed by the SF typical of parents belonging to species S_1, but to being formed by the SF of a new/other kind, belonging to species S_2. Such a form is educed (*educatur*, from Latin *educere*) from the PM's potentiality (see Figure 2).[11]



SF = substantial form PM = primary matter $S_1 S_2$ = species 1 and 2

Figure 2. Model representation of the final stage of an evolutionary change

The above-discussed process is of a polygenic character, a result of many mutations (the effects of which are regulated by natural selection). Consequently, capturing the moment in which a species actually changes is extremely difficult, probably even impossible, which, however, does not rule out the possibility of it occurring.

In sum, for Aristotle and St. Thomas, species exist in reality and are immutable, as well as eternal, in the sense that each is defined in reference

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[11] See Aristotle, *Metaphys*. 7.8.1034a1–9); Aquinas, *De pot*., q. 5, a. 1, ad 5. It is worth noting that both the question of the definition of species, as well as the problem of specifying the unit being subject to evolutionary changes, are lively debated in biology and philosophy of biology. See, e.g., Marc Ereshefsky, "Species," in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, summer 2022 ed., plato.stanford.edu/archives/sum2022/entries/species/; Richard A. Richards, "Species and Taxonomy," in *The Oxford Handbook of Philosophy of Biology*, ed. Michael Ruse (Oxford: Oxford University Press, 2008), 161–88; David N. Stamos, *The Species Problem, Biological Species, Ontology, and the Metaphysics of Biology* (Lanham, MD: Lexington, 2003); Robert A. Wilson, ed., *Species: New Interdisciplinary Essays* (Cambridge, MA: Bradford, 1999); M. F. Claridge, A. H. Dawah, and M. R. Wilson, eds., *Species: The Units of Biodiversity* (London: Springer, 1997); Marc Ereshefsky, ed., *The Units of Evolution: Essays on the Nature of Species* (Cambridge, MA: Bradford, 1992).

to SF, which determines the fact that a given species is what it is and displays certain permanent features, the permanent principles of motion and rest (mutability and permanence), action and reaction.[12] These forms are a realization of exemplary ideas in God's mind which actualize corresponding and properly disposed PM.[13] At the same time, each species exists only as realized (instantiated) in specific, individual, and changeable organisms immersed in time. Hence, the essential intrinsic properties of species are immutable, whereas their realization in nature is changeable and diversified (it is manifested on the level of accidental properties of organisms belonging to the same species). This fact enables intraspecies variability, as well as the occurrence of evolutionary processes and the emergence of new species, that is, deriving new SFs from PM, which is pure potentiality.

The Causality of God and of the Creatures in Evolution

With regard to *concursus divinus naturalis*—the "cooperation" between the causality of God and that of his creatures in the process of the emergence of new species by way of evolution—the model I have proposed above does not negate the principle that only God can be the Creator. Inanimate and animate beings involved in the causally polygenic evolutionary change become not so much the secondary causes of deriving the first representative of a newly formed species out of nothing (*ex nihilo*) or the causes of its existence and essence as such (*in se*), but rather the secondary/instrumental causes of its SF being educed from the potentiality of PM and of the fact of its coming into existence in space and time.[14]

Such interpretation calls for elaboration and/or further specification of the stance taken by St. Thomas, at least as far as four of its essential aspects are concerned: (1) recognizing the possibility of the emergence of

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12 These principles apply to numerous features of organisms, their morphology and physiology, in a way that gives space for dynamism and change (we observe a fair amount of permanently defined changes in a living being in all major biochemical pathways). I offer a fuller definition of species in my *Theistic Evolution: A Contemporary Aristotelian-Thomistic Perspective* (Cambridge: Cambridge University Press, 2023), 81.

13 See *ST* I, q. 15, aa. 1–3. It needs to be underscored that, according to St. Thomas, PM is also created (see *ST* I, q. 44, a. 2, corp.).

14 At this point, it is worth adding that the term "cooperation" does not fully convey the analogical character of the causality of the creatures in relation to the causality of God. It suggests, in fact, that both of them act in the same ontological order. Meanwhile, God's causality should be referred to as action which originates in the transcendent order of causation—in which the primary cause (the principal one) acts through the secondary and instrumental created causes manifesting their action in an immanent order of causation.

new species, that is, acknowledging that the perfection of the universe can increase every day not only in terms of the number of individual beings, but also as regards the number of species; (2) emphasizing the fact that God's initial act of creation is limited to the derivation of matter of the lowest degree of complexity out of nothing (*ex nihilo*); (3) recognizing the fact that the processes of chemical, biochemical, and biological evolution belong to the work of adornment (*opus ornatus*), whose subsequent stages spread out across the entire history of the universe and, therefore, are not limited to a finished and past time period; and finally (4) acknowledging that God's direct intervention in the creation of the first representatives of plant and animal species (with the exception of man) is not necessary. The above changes seem to be justified within the Aristotelian-Thomistic philosophical and theological system, which proves its flexibility and applicability within the context of contemporary scientific knowledge (in this case, particularly in the field of biology).

Thomism and the Evolution of the Human Species

Applying the aforementioned model of the theory of evolution from Thomistic perspective to the problem of the origins of the human species allows one to avoid certain difficulties which emerge in the otherwise accurate and intriguing analysis presented by Austriaco (see chapters 19–28). Strictly speaking, humans, rather than being "spirit–matter composites" (see chapter 24) are material beings whose actualizing principle is their immortal soul (the category of "spirit" in St. Paul's anthropology stands for spiritual, and hence supernatural, life and differs from the soul—see, e.g., 1 Thess 5:23).[15] In other words, as viewed within the Aristotelian-Thomistic school, man is not a mereological composition of two separate substances, body and soul, but a homogeneous corporeal substance whose SF is the immortal soul. What is more, it needs to be underlined that the appropriate correlate of the human soul as SF (on the most profound level of the analysis of being) is PM; hence, man can be defined as an immortal soul actualizing PM in the organic human body (see *Q.D. an*., a. 9, corp.). The above definition highlights the unity of the human being, as a consequence of which the human body cannot exist without the human soul. Thus, even if colloquially death is referred to as the separation of the soul from the body, *sensu stricto*—from a metaphysical point of view—death is a substantial change as a result of which a subsistent (that is, existing autonomously—as an exception among the SFs of all the other contingent beings) human soul comes into existence,

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15 See the corrected version of this view in Tabaczek, *Theistic Evolution*, 224-25.

as well as a corpse, which is no longer a human body (despite its striking resemblance to one).[16] It becomes evident, in this context, that the analogy suggested by Austriaco (see chapter 24) of the soul and the body "fitting" together like a lock and key, illustrates the relation of the soul as SF to PM only to a somewhat limited extent.[17]

The problem discussed here is crucial for the appropriate understanding of the question of the origin of the human species via evolution (assuming that it is indeed how man came into existence). Austriaco (chapter 24) states correctly that, in the course of evolutionary processes, matter was prepared for being formed by the human soul. Nevertheless, he does not mention in this context that, in a strict sense, this preparation of matter refers to a philosophically defined PM: namely, PM that, by way of polygenic evolutionary changes, became properly disposed to being formed by the soul of the first man, which was created directly by God *ex nihilo* (and such was also the origin of the souls of all descendants of the first parents).

Here, a lack of precision in metaphysical analysis might result in a dualistic view according to which the human body originates through evolutionary changes, whereas the human soul, that enters it, originates from God. Unfortunately, such remarks appear, among other places, in several official statements delivered by the Church with regard to evolution (see Pius XII, *Humani Generis*, §36, and John Paul II's 1996 *Message to the Members of the Pontifical Academy of Sciences*). From the perspective of divine omnipotence, it is not impossible for the Creator to have caused a substantial change as a result of which the first immortal human soul actualized PM that was, prior to this—immediately before the above-mentioned change—formed by the SF of a fully grown hominid (*Homo sapiens*), thereby giving rise to a new species of *Homo sapiens sapiens*. Such a change, however, should not be interpreted in terms of the soul entering or joining the body of the hominid that, after all, must have had its own SF. On the contrary, it would have to be interpreted as a radical substantial change as a result of which the PM formed by the SF of an adult *Homo sapiens* would be formed anew by the SF of an adult *Homo sapiens sapiens*. We must admit that a transformation of this kind appears to be inconsistent with the fundamental intuition of Aristotelian-Thomistic metaphysics, according to which the substantial change that accompanies the emergence of a new descendant of the same

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16 See *In* II *de an*., lec. 1, nos. 225–26.

17 Moreover, what needs to be pointed out is the rather imprecise, if not erroneous, character of the thesis formulated by Austriaco, who also in chapter 24 states that "our soul, unlike the rose soul or the kangaroo soul, is immaterial." In line with the principles of classical metaphysics, every soul—be it plant, animal, or human—as SF, is immaterial.

species, or the first representative of a new species, occurs in the moment of their conception. Nevertheless, it seems that it would be appropriate (to employ an argument *ex convenientia*, often used by St. Thomas) for the origin of the human species to have occurred exactly in this manner, through the actualization of properly disposed PM by the first immortal human soul (SF of the *Homo sapiens sapiens* species) at the time of the conception of the descendant of parents belonging to the *Homo sapiens* species.

The first scholar to have pointed this out, simultaneously providing a correct, in our opinion, interpretation of evolutionary changes as viewed within the Aristotelian-Thomistic tradition (in the context of the evolution of humankind), was the French Dominican Marie-Dalmace Leroy (1828–1905).[18] His position, formulated in a period of far-reaching caution and skepticism towards the theory of the evolution of the human species on the part of the Church, did not receive a suitable reaction from philosophers and theologians active at the turn of the twentieth century. Even at present Marie-Dalmace Leroy is not given the attention he deserves.

Conclusion

Summing up our discussion, it should be emphasized that the views expressed above are fundamentally compatible with the key theses presented by the authors of *Thomistic Evolution: A Catholic Approach to Understanding Evolution in the Light of Faith*. At the same time, we sincerely hope that we have managed to provide a broader picture of the complex challenges that the Aristotelian-Thomistic tradition must face on encountering the theory of biological evolution. As already mentioned, the challenges and difficulties in question do not disqualify classical thought. On the contrary, they serve as a most emphatic demonstration of its flexibility and relevance in the context of contemporary natural sciences. N:V

[18] See M.-D. Leroy, *L'évolution restreinte aux espèces organiques* (Paris: Delhomme & Brigue, 1891).