

Thomistic Hylomorphism and Theistic Evolution

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Abstract. Working within the framework of Thomistic metaphysics, Mariusz Tabaczek O. P. has developed a version of Catholic theistic evolution that includes speciation, human origins, and the origin of life. He assigns biological evolution to the domain of divine governance rather than that of *creatio ex nihilo* which only applies to primitive matter and human souls. This article reviews Tabaczek's work with an emphasis on his argument for the compatibility of hylomorphism and evolutionary change through the eduction of novel substantial forms.

Keywords: Mariusz Tabaczek, Catholicism and science, eduction, anthropogenesis, substantial form.

Introduction

Theistic evolution has an interesting history among Catholic theologians. It represents an important application of a longstanding Catholic receptivity to the idea that, in addition to direct supernatural action, God also acts through secondary causes. The Jesuit Eric Wasmann, a renowned etymologist, adopted this perspective in his volume on evolution, originally published in 1904.

God does not interfere directly with the natural order when He can work by natural causes: this is a fundamental principle in the Christian account of nature, and was enunciated by the great theologian Suarez, whilst St. Thomas Aquinas plainly suggested it long before, when he regarded it as testimony to the greatness of God's power, that His providence accomplishes its aims in nature not directly, but by means of created causes (Wasmann 1910, 274).

Canon Henry de Dorlodot, a Belgian priest and professor of geology, took a similar position in his 1922 book.

By Christian naturalism I mean the tendency to attribute to the natural action of secondary causes all that is not excluded therefrom either by reason or the positive data of the natural sciences, and to have recourse to a special Divine intervention distinct from God's general governing activity only if it is absolutely necessary to do so (Dorlodot 1922, 94).

Historian Kenneth Kemp has extensively documented Catholic application of this principle to evolutionary topics during the 19th and early 20th centuries.¹ These efforts received ambivalent case-by-case responses from supervisory authorities within the Catholic Church. In addition to Wasmann and Dorlodot, theologians and scientists such as St. George Jackson Mivart, Dalmace Leroy, John Zahm, Pierre Teilhard de Chardin, and Camille Muller were among those who experienced various degrees of censure from religious superiors due to their arguments that the conclusions of evolutionary science do not conflict with properly understood Catholic doctrine.² Human descent from non-human ancestors was of course a major point of contention. Catholic doctrine does not allow the human soul to be the result of a purely material evolutionary process, and the traditional understanding of original sin has been that it is transmitted through descent from two initial human beings, Adam and Eve. The latter doctrine has been interpreted to rule out polygenism, the hypothesis that *Homo sapiens* originated through a transitional population rather than a single couple.

¹ See Kemp 2021 for a short synopsis of his forthcoming book.

² For examples, see Artigas et al 2006.

Pius XII's 1950 encyclical *Humani generis* was a turning point; although the Pope expressed strong reservations about polygenism, he encouraged constructive discussion of scientific research into human origins as long as the human soul remained off limits. Following Vatican II even polygenism is tolerated although no binding proclamation or definition on the topic has been issued (Hofmann 2021). In recent decades it has become increasingly common for Catholic theologians such as John Haught and Józef Życiński to follow Teilhard de Chardin's lead in contemplating evolution as God's way of bringing about biological development. This perspective meets diverse receptions depending upon broader theological and scriptural commitments. While biblically based reservations about evolutionary science are well-known, Thomistic metaphysics has also been a longstanding impediment. Pope Benedict XVI, when he was still Father Joseph Ratzinger, commented in a 1964 Münster lecture that "much of the resistance to the question of evolution does not actually stem from Christian motives, but from attachment to the material-form-schema and its essentialism."³

Numerous Thomists have made efforts to break from this pattern. In 1951 Norbert Luyten concentrated on the concurrence of primary and secondary causality in human descent from non-human ancestors.

What St. Thomas maintains and what has to be held firmly is that no creature can create, not even instrumentally. But this is not what we are saying. The animal does not create man instrumentally; the creative action as such is proper to God. But this creative action of God can join with the disposing action of a creature" (Luyten 1951, 308).

Luyten did not extend his analysis to address the apparent incompatibility between immutable substantial forms and the continuity of evolutionary change. In 1973 Antonio Moreno made a more specific effort to fuse Thomistic metaphysics with evolutionary biology by proposing that "Through mutation and natural selection, the disposition and the structure of the DNA gradually changes, until the instant when the new dis-

³ Translation by Matthew Ramage in Ramage 2022, 50.

position and new structure corresponds to a new substantial form and, consequently, to a new species” (Moreno 1973, 431). Moreno’s schematic remarks were ratified by Michael Dodds in his 2012 *Unlocking Divine Action* (Dodds 2012, 204). Dodds was a central participant in the Divine Action Project, a collaborative effort that resulted in a series of conferences and publications with an emphasis on how God’s primary causality transcends but does not interfere with the functioning of secondary and instrumental causes.⁴

Mariusz Tabaczek became thoroughly familiar with these efforts during his years at the Graduate Theological Union in Berkeley. By expanding upon the prolegomena to a Thomistic approach to theistic evolution provided by Luyten, Moreno and Dodds, Tabaczek’s position stands in sharp contrast to the progressive creation adopted, for example, by his fellow Dominican, Michael Chaberek, O. P.⁵ Tabaczek’s recent publications merit a review, especially in light of his forthcoming volume on Thomism and evolution.

1. Mariusz Tabaczek and Thomistic Evolution

Among Catholic theologians who engage evolution from a Thomistic perspective, Mariusz Tabaczek has developed the most detailed theological models for evolutionary change (Tabaczek 2019, 2022, 2023a, and 2023b). Central to his perspective is of course a commitment to hylomorphism, the metaphysical tenet that living organisms owe their essential identity and capacities to the substantial forms that enliven them. Tabaczek’s

⁴ See, for example, Russell, Murphy, and Stoeger 2008. More recently, the Thomistic Evolution project has been promoted by Nicanor Austriaco and his colleagues, but they have not added significantly to Moreno’s discussion of substantial forms. See Hofmann 2020, 331–336, Austriaco et al 2016, and *Thomistic Evolution: A Catholic Approach to Understanding Evolution in the Light of Faith*: <https://www.thomisticerevolution.org>. Austriaco’s locution “God creates through evolution” obviously does not address this issue (Austriaco 2016, 206).

⁵ See Hofmann 2023. Tabaczek and Michael Chaberek recently published an exchange in *Roczniki Filozoficzne* based upon Tabaczek’s afterward for the Polish edition of Austriaco et al 2016. English translations will soon be available in *Nova et Vetera*, and Tabaczek’s *Theistic Evolution: A Contemporary Aristotelian-Thomistic Perspective* has just been published by Cambridge University Press.

goal is certainly not to rigidly adhere to all aspects of Aquinas's thirteenth century hermeneutics and biology.

Hence, what we aim to offer hereafter is a new interpretation of the classical Thomistic notion of creation ... in reference to some most fundamental principles of his own metaphysics (remembering its roots in the thought of Aristotle). We believe that such interpretation – including some necessary adjustments of his original thought – will enable us to argue in favor of the plausibility of the theory of evolution, understood in terms of the universal common descent, within the Thomistic system of thought. We think it is possible despite the common and, in a way, simplistic opinion that Aquinas himself considered creatures to be capable only of acting as instrumental causes of new members of their own species or kind and held that the first members of each kind were produced directly by God without ancestors (Tabaczek 2019, 463).

Rejecting the conclusion that because Aquinas thought that biblical kinds did not have ancestry, the topic of evolution is not accessible from a Thomistic framework, Tabaczek argues that a metaphysics that includes a hylomorphic conception of life is compatible with the science of evolutionary development.

Crucial to this project is a clarification of the complex causality of divine action. Here Tabaczek relies upon a distinction between *creatio* on the one hand and the providential domain of *productio* and *formatio* on the other. While granting that Aquinas is not always consistent in his usage of these terms, Tabaczek holds that the distinction is clear enough when read in context and can be usefully applied to evolutionary development. He contends that “creation” should be reserved to refer to God's *creatio ex nihilo* of fundamental matter, the subsequent preservation of contingent material being, and the origin of human souls. On the other hand, evolutionary development pertains to divine providential governance of the created material universe, a governance that includes the production of biological novelty from pre-existing life. Consequently, the emergence of new biological taxa does not involve creation in the strict sense of the concept. By invoking this distinction between two transcendental domains, Tabaczek avoids the concept of continuous creation (*cre-*

atio continua) as developed by Fabien Revol, for example, and he also rejects hybrid terminology such as “evolutionary creation” or “creative evolution.”⁶ These popular labels have connotations that lend themselves to two theological tendencies that Tabaczek wishes to avoid. They might misleadingly imply either that creatures are capable of the creative action reserved for God alone, or that creation in its strict sense applies to biological origins (Tabaczek 2022, 46).

From Tabaczek’s perspective, novel forms are produced throughout the history of life, but they are not created in the sense of *creatio ex nihilo* that applies to the most basic physical matter. Instead, God gives creatures the causal capacity to initiate and participate in both accidental and substantial change. Following the Aristotelian and Thomistic traditions, substantial forms pertain to individuals and do not exist as Platonic universals. However, they can be classified in categories, as when “form” (the Greek *eidos*) is translated as “species” in a logical rather than a biological context. God is the ultimate cause of novel substantial forms, but rather than being directly educed by God, these forms are indirectly educed from the potentiality of matter through secondary causes.⁷ Because the substantial form of an individual organism is never replaced by a different form, the education of a novel substantial form necessarily takes place at the moment of conception.

We may describe each evolutionary change as a series of accidental changes in the structure of genetic material (DNA), affecting the disposition of primary matter in-formed (actualized) by substantial forms of organisms in a given lineage of a species S_i , and leading to a precise instant at which the primary

⁶ Fabien Revol locates the first usage of *creatio continua* “in the neo-scholastic thought of Francisco Suarez, as a reinterpretation of the Thomistic concept of conservation” (Revol 2020a, 232), and he points out that the concept is not found explicitly in Aquinas. Revol expands upon it by relying primarily upon Whitehead, although in one instance he inconsistently refers to “Thomas’s concept of continuous creation” (Revol 2020b, 254).

⁷ The concept of “education” presents a challenge for readers who are not steeped in Thomistic terminology. It is an English rendition of Aquinas’s *educere*, a Latin word he introduces with no correlate in Aristotle’s Greek. Tabaczek explains that it is intended to convey the sense in which there is a “bringing forth” or “drawing out” of a form from the potentiality of matter (Tabaczek 2022, 57).

matter underlying the egg and the sperm coming from parental organisms of S_1 , when joined, is not disposed to the “old” substantial form of the species S_1 , but to a “new” substantial form of a new species S_2 , educed from its potentiality (Tabaczek 2019, 456).

This account is designed to address an orthogenetic transition from one species to another in a single lineage; it would have to be modified for cladogenesis, the more complex splitting of a species into two independent lineages.

Setting that complication aside, according to Tabaczek’s understanding of speciation, the origin of new taxa within the network of universal common descent falls squarely under the domain of divine governance rather than creation. The biological continuity of evolutionary change is intermittently punctuated by the eduction of novel substantial forms associated with new species. Michael Chaberek has complained that a series of accidental changes cannot result in a change in substance; “it is impossible for matter to acquire some other dispositions while being informed by the form that requires this particular disposition” (Chaberek 2021a, 44). From his perspective, the scenario proposed by both Moreno and Tabaczek “turns the substantial form into some kind of accident that is added to appropriately disposed matter” (Chaberek 2021a, 44). Chaberek and Tabaczek clearly disagree on the significance of eduction, the important final stage in Tabaczek’s model for speciation. For Tabaczek, the eduction itself is distinct from the preceding accidental changes that give a representative of an ancestral species the proper potentiality for speciation through eduction of a novel form. Consequently, sympathy for Tabaczek’s model will depend in part upon how much latitude is granted for the process of eduction. Chaberek minimizes it and holds that “a possibility of transformation of species by accidental changes would be a necessary but not a satisfactory condition for any macroevolutionary scenario. Since this necessary condition is metaphysically impossible, biological macroevolution can’t happen” (Chaberek 2021b, 122). Nevertheless, eduction is a traditional component of Thomistic metaphysics and Tabaczek assigns it a crucial function over and beyond the antecedent accidental changes

emphasized by Chaberek.⁸ Of course, from a purely empirical perspective, these references to eduction simply introduce empty verbiage that obscures rather than clarifies. But from that point of view substantial forms themselves are equally gratuitous.

Whatever misgivings might arise over eduction itself, the role Tabaczek assigns to pre-existing life in the speciation process clearly relies heavily upon the notion of instrumental causes. Instrumental causes are of course secondary causes, but they have an additional characteristic that sets them apart. As in the paradigmatic case of a tool in the hands of a craftsman, instrumental causes contribute to an effect that they could not cause independently, that is, a final cause that exceeds their natural capacities. In this fashion, while parents are always dependent upon God's primary causality, they act as secondary causes for the eduction of the proper substantial form for their offspring and are also instrumental causes for that offspring's essence. Similarly, during the origin of a new species, organisms can act as secondary and instrumental causes for the eduction of a novel substantial form and its essential instantiation respectively. Once again, God is necessarily the primary cause making the speciation process possible.

Human beings pose the only exception to these general models for reproduction and speciation. Although human progenitors do act as secondary causes to predispose a material body for ensoulment, each individual human soul is necessarily created by God and is not educed from pre-existing matter.

In the case of the origin of a human being we are dealing with a situation or a phenomenon which qualifies as both creation and change. God creates, *ex nihilo*, an immortal human soul which, in the substantial change of fertilization, actualizes a given "portion" of designated primary matter (*materia sig-*

⁸ While Tabaczek does not explicitly follow Aquinas in assigning the sun a causal role in the eduction process, he does propose that "It is not entirely implausible to see the energy emitted by the sun, forces of gravitation, and other universal cosmological causal principles as contributing to the educing particular forms from primary matter in processes of substantial changes occurring in nature" (Tabaczek 2023a, 21). For further discussion, see Carl 2020.

nata), which underlies ovum and sperm coming from parental organisms. As such, both gametes cease to exist giving rise to a new organism. This refers both to the origin of the first human beings and to the origin of each of their descendants. Hence, if the idea of God creating through evolution is meaningful at all, its unique application might be the case of speciation that effects the origin of the human species (Tabaczek 2022, 61).

For both the initial human beings and their offspring, it is the introduction of a human soul that in fact brings about the existence of a truly human body. As is the case for other speciation events, the novel human substantial form is present from the moment of conception. Tabaczek offers no hypothesis for what the requisite final adjustment to the pre-human body might have been for the first humans, and he does not expect that the exact moment of any speciation event could ever be empirically detected.

Aristotelian and Thomistic metaphysics and ontology provide a theory of discrete species. We have already said [...] that the continuity of evolutionary changes does not necessarily disprove this theory. It merely helps us understand how difficult, if not impossible, might be an observation of the exact moment of an evolutionary transition from S_1 to S_2 (Tabaczek 2019, 470).

In the initial presentations of his model, Tabaczek does not explicitly state whether the eduction of a novel form is thought to take place during the conception of a single individual or simultaneously in many instances within a larger population. In the case of human evolution, resolving this issue requires engagement with the longstanding debate over monogenism and polygenism.⁹ Here Tabaczek to some extent follows a line of reasoning developed by Kenneth Kemp in which a distinction is made between biological and spiritual monogenism (Kemp 2011). Kemp proposes that although a large transitional population may have reached a condition biologically indistinguishable from *Homo sapiens*, only two of

⁹ See Hofmann 2021 for a historical survey of this controversy following the publication of Pius XII's *Humani Generis* in 1950. For a good scientific and theological analysis, see Lombardo 2018.

these individuals were ensouled and thereby became fully human spiritually. Through subsequent interbreeding with their biologically compatible contemporaries, these two became the forebears of all subsequent humans. Tabaczek finds the ensoulment of adult hominids excessively voluntaristic and “dualistic” and prefers to think of the creation of the first two human souls as taking place during the conception of the first two humans, individuals with very slight genetic differences from a larger hominid population (Tabaczek 2023b).

The presentation of these models for reproduction, speciation and hominization does suffer from some lack of clarity in the delineation of important concepts. The exact domains and relationships among the categories of substantial forms, biological species, natural kinds, metaphysical species, and biblical created kinds are not always sufficiently clear. Tabaczek’s wording sometimes vacillates from natural kinds to species to substantial forms without adequate justification or discrimination.¹⁰ For example, on the vexing issue of species definition, Tabaczek adopts a traditional and essentialist Thomistic position that a substantial form of a particular type is constitutive of each species. But since substantial forms are not directly amenable to empirical confirmation, it is not clear how these metaphysical designations correlate with the biological species that scientists acknowledge. Perhaps substantial forms correspond to species only in a metaphysical or logical sense, or, as Tabaczek expresses the point, as “species taken as universal category.”

Analogically, in the case of speciation, parental organisms of a given generation within the lineage L_1 of species S_1 , while efficiently causing their offspring, bring to the final completion a complex nexus of accidental and substantial changes extended over time and space, which effects actualization of a given “portion” of *materia signata* by a substantial form that turns out to be the substantial form of a new species S_2 , originating a new lineage L_2 . At the same time, we must not consider them as causes of this new species as such

¹⁰ A more careful delineation of these terms would facilitate a direct comparison to Michael Chaberek’s unproductive conflation of all the above-mentioned concepts into a single notion of “natural species.” See Chaberek 2021b, Hofmann 2020, and Hofmann 2023.

(i.e. species taken as universal category). Its first and ultimate cause with this regard is God (Tabaczek 2022, 58).

Here the origin of a new species is described as the culmination of a series of accidental and substantial changes. It is not clear how the intermediate creatures in this sequence differ from the initial and final creatures chosen as starting point and culmination of the series. Perhaps only the culminating species is empirically different from the initial species to such a degree that it would be scientifically acknowledged as a new biological species. Many metaphysical speciation events might be necessary before a scientific confirmation of species change is to be expected. If so, metaphysical species identified with determinant substantial forms would not be fully correlated with the biological species recognized by scientists.

Tabaczek also extends his approach to address the origin of life as a transition from inanimate matter. Rather than requiring direct divine intervention, “the origin of life would be an outcome of a concurrence of divine (transcendent) and created (immanent) action – in accordance to Aquinas’s further explication of how exactly God acts in the world through contingent causes” (Tabaczek 2023a, 13). The crucial transition in this origin of life scenario would be the eduction of forms governing the immanent causation exercised by living organisms when they effect self-perfecting changes such as metabolism or homeostasis. Tabaczek is careful to explain how the metaphysical axiom often referred to as the “principle of proportionate causality” should not be cited as a definitive objection to his argument that life can emerge from inanimate matter. This principle is variously glossed as the idea that effects must be proportionate to their cause or that the perfection of an effect cannot exceed the perfection of its cause. Tabaczek invokes the extreme complexity of the causal nexus operative at the beginning of life to argue that:

the numerous causes constituting such a causal matrix would be jointly capable of educating (over time) from the properly disposed primary matter a substantial form that grounds the power of immanent causation. The process of its eduction might be treated as the outcome of the primary and

principal causation of God, working through the secondary and instrumental causation of contingent causes (Tabaczek 2023a, 16).

Scientific understanding of the purely material aspects of the process through which life originated is obviously incomplete and can be expected to remain so in the immediate future. Regardless of how this research progresses, the substantial forms and eduction processes Tabaczek relies upon are not empirically detectable and are to be accepted or rejected on purely philosophical or theological grounds. Because *creatio ex nihilo* applies only to the most basic physical matter and human souls, and because Tabaczek does not postulate biblical kinds or other taxa without ancestry, his metaphysics can be adopted in concert with scientific progress.

Conclusion

Theologians who espouse some mode of either theistic evolution or progressive creation hold a wide range of positions with respect to the history of life. Mariusz Tabaczek is representative of those Thomists who are not committed to neo-Darwinism or any other scientific theory of evolutionary change. Common descent is the more immediately pertinent scientific issue, one that is no longer in any doubt among the vast majority of scientists, Neo-Darwinist or otherwise (Hofmann and Weber 2003). Tabaczek retains the hylomorphism of the Thomistic tradition and incorporates speciation through the eduction of novel substantial forms via ancestral species. In this respect he follows the example set by Antonio Moreno. However, Tabaczek is more careful than Moreno to insist that ancestral species do not *create* novel species; as instrumental causes, they contribute to God's formation of novel taxa within the network of common descent. In addition to his careful delineation of the province of *creatio ex nihilo*, what Tabaczek adds from a theological perspective is his expansion of the idea that speciation culminates in the eduction of novel substantial forms and his extension of Thomistic causal analysis to human origins and the origin of life.

Because substantial forms and eduction are not accessible to empirical inquiry, this theological understanding of evolutionary transitions does not generate scientific controversy. On the other hand, dialectic interaction with Tabaczek's ideas does require a willingness to enter the arena of Thomistic metaphysics where substantial forms provide a metaphysical "grounding" for the unification and teleology of vital functions (Tabaczek 2023a, 8). In this respect Michael Chaberek represents a sharp contrast; although he shares many of Tabaczek's metaphysical presuppositions, his scriptural hermeneutics contribute to his adoption of progressive creation rather than theistic evolution. Although for some theologians the preservation of the Thomistic framework may not be as desirable as it is for Tabaczek, he certainly offers a model that committed Thomists can welcome as a promising *rapprochement* with evolutionary science that avoids the direct divine intervention of progressive creation. They should look forward to reading Tabaczek's more detailed presentation in his recently published book.

References

- Artigas, Mariano, Thomas Glick, and Rafael Martínez. 2006. *Negotiating Darwin: The Vatican Confronts Evolution 1877–1902*. Baltimore: Johns Hopkins University Press.
- Austriaco, Nicanor. 2016. "How did God Create Homo Sapiens through Evolution?" In *Thomistic Evolution: A Catholic Approach to Understanding Evolution in the Light of Faith*, edited by Nicanor Austriaco, James Brent, Thomas Davenport, and John Baptist Ku, 201–206. Tacoma: Cluny Media.
- Austriaco, Nicanor, James Brent, Thomas Davenport, and John Baptist Ku, eds. 2016. *Thomistic Evolution: A Catholic Approach to Understanding Evolution in the Light of Faith*. Tacoma: Cluny Media.
- Carl, Brian T. 2020. "Thomas Aquinas on the Proportionate Causes of Living Species." *Scientia et Fides* 8 (2): 223–248. DOI: <https://doi.org/10.12775/SetF.2020.020>.
- Chaberek, Michael. 2021a. "The Metaphysical Problem for Theistic Evolution: Accidental Change Does Not Generate Substantial Change." *Forum Philosophicum* 26 (1): 35–49.

- Chaberek, Michael. 2021b. *Knowledge and Evolution How Theology, Philosophy, and Science Converge in the Question of Origins*. Eugene, Oregon: Resource Publications.
- Dodds, Michael. 2012. *Unlocking Divine Action: Contemporary Science and Thomas Aquinas*. Washington D.C.: Catholic University of America Press.
- Dorlodot, Henry de. 1922. *Darwinism and Catholic Thought*. Translated by Ernst Messenger. London: Burns, Oates, and Washbourne.
- Hofmann, James. 2020. "Some Thomistic Encounters with Evolution." *Theology and Science* 18 (2): 325–346.
- Hofmann, James. 2021. "Catholicism and Evolution: Polygenism and Original Sin (Part II)." *Scientia et Fides* 9 (1): 63–129. DOI: <https://doi.org/10.12775/SetF.2021.003>.
- Hofmann, James. 2023. "The Evolving Taxonomy of Progressive Creation." *Scientia et Fides* 11 (1): 199–214. DOI: <https://doi.org/10.12775/SetF.2023.002>.
- Hofmann, James and Bruce Weber. 2003. "The Fact of Evolution: Implications for Science Education." *Science & Education* 12: 729–760.
- Kemp, Kenneth. 2011. "Science, Theology, and Monogenesis." *American Catholic Philosophical Quarterly* 85 (2): 217–236.
- Kemp, Kenneth. 2021. "A Brief History of Catholic Evolutionism." <https://catholicscientists.org/articles/a-brief-history-of-catholic-evolutionism/>.
- Lombardo, Nicholas. 2018. "Evolutionary Genetics and Theological Narratives of Human Origins." *The Heythrop Journal* 59: 523–533.
- Luyten, Norbert. 1951. "Philosophical Implications of Evolution." *New Scholasticism* 25: 290–312.
- Moreno, Antonio. 1973. "Some Philosophical Considerations on Biological Evolution." *The Thomist* 37 (3): 417–454.
- Ramage, Matthew. 2022. *From the Dust of the Earth: Benedict XVI, the Bible, and the Theory of Evolution*. Washington, D. C.: Catholic University of America Press.
- Revol, Fabien. 2020a. "The Concept of Continuous Creation Part I: History and Contemporary Use." *Zygon* 55 (1): 229–250.
- Revol, Fabien. 2020b. "The Concept of Continuous Creation Part II: History and Contemporary Use." *Zygon* 55 (1): 251–274.
- Russell, Robert, Nancey Murphy, and William Stoeger, eds. 2008. *Scientific Perspectives on Divine Action: Twenty Years of Challenge and Progress*. Berkeley: Center for Theology and the Natural Sciences.
- Tabaczek, Mariusz. 2019. "What Do God and Creatures Really Do in an Evolutionary Change? Divine Concurrence and Transformism from the Thomistic Perspective." *American Catholic Philosophical Quarterly* 93 (3): 445–482.

- Tabaczek, Mariusz. 2022. "Does God Create Through Evolution? A Thomistic Perspective." *Theology and Science* 20 (1): 46–68.
- Tabaczek, Mariusz. 2023a. "Aristotelian-Thomistic Contribution to the Contemporary Studies on Biological Life and Its Origin." *Religions* 14 (2): 214. DOI: <https://doi.org/10.3390/rel14020214>.
- Tabaczek, Mariusz. 2023b. "Contemporary Version of the Monogenetic Model of Anthropogenesis – Some Critical Remarks from the Thomistic Perspective." *Religions* 14 (4): 528. DOI: <https://doi.org/10.3390/rel14040528>.
- Wasmann, Eric. 1910. *Modern Biology and the Theory of Evolution*. Translated by Alexander Buchanan. London: Kegan Paul, Trench, Trübner.