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James R. Hofmann

ABSTRACT

Theological synthesis of religious doctrine with evolutionary science is commonly referred to as theistic evolution. The influential Thomistic school of theology has played a complex role in Catholic contributions to this subject. In the present essay I explore this historical legacy and take stock of recent Thomistic contributions to theistic evolution. I also highlight some unresolved issues, particularly those associated with the concept of substantial form. I conclude that theistic evolution within a Thomistic framework is a potentially more promising agenda for Catholic theology than an incorporation of intelligent design and progressive creation.

KEYWORDS

Evolution; Thomism; theistic evolution; Thomistic evolution; intelligent design; progressive creation; Catholicism and science

It is now commonplace for Catholic theologians to recognize compatibility between Catholic religious doctrines and well-established scientific conclusions of modern evolutionary biology. Looking beyond compatibility, many have also sought a synthesis, commonly referred to as theistic evolution. While this label has broad scope and includes the work of many prominent Protestant and Evangelical Christians, the present essay focusses on the Thomistic approach to Catholic theistic evolution rooted in the writings of the Dominican theologian Thomas Aquinas (1225–1274).

Several recent publications indicate that now is an appropriate time to take stock of Thomistic evolution. They include diverging assessments of whether a compelling version of Catholic theistic evolution can or should be developed from a Thomistic starting point. As might be expected, Dominican theologians have been active participants in this conversation. To cite two important examples, Michael Dodds is a representative voice in favor of the Thomistic approach,¹ and the Dominican anthology, *Thomistic Evolution: A Catholic Approach to Understanding Evolution in the Light of Faith*, is designed to introduce Thomistic evolution to a broad popular audience.² Objections have been raised by intelligent design proponents such as Logan Paul Gage³ and another Dominican, Michael Chaberek,⁴ who both argue that Aquinas' teachings preclude theistic evolution. They also recommend an integration of Thomistic theology with intelligent design theory and a rejection of universal common descent in favor of progressive creation.

My own appraisal is that theistic evolution within an appropriately revised Thomistic framework is a more promising agenda for Catholic theology than an incorporation of intelligent design and progressive creation. Opposition to theistic evolution from critics aligned with intelligent design is reminiscent of objections raised during the anti-modernist movement of the late nineteenth and early twentieth centuries. Consequently, it suffers from some of the same flaws that characterized those earlier polemics. It incorrectly

attributes materialistic ideology to those who advance theistic evolution, it invokes questionable scientific interpretations and expectations, and it relies excessively upon Aquinas' original metaphysics and biblical interpretations. I investigate this node of disagreement while acknowledging problematic issues arising from Thomistic reliance upon substantial forms, issues that give Catholic process theologians plausible cause to consider other frameworks.

Aquinas on Substantial Forms and the Origin of Species

Inspired by his study of Genesis and Aristotelian philosophy, Aquinas gave theological and philosophical structure to the commonsense medieval conviction that the kinds of plants and animals are fixed in number and essence. His most relevant discussions are included in his treatments of creation and substantial form and his commentary on the initial chapters of Genesis.⁵ Central to Aquinas' conception of substance is Aristotelian hylomorphism, the idea that substances, including living organisms, are composites of two principles: matter and form. Substantial forms determine the essences of living organisms and can be thought of as states of organization, *psyches*, that allow living beings to carry out their vital functions, including reproduction. For Aquinas, the kinds of plants and animals were established during God's work of "adornment" as related in days four, five, and six of the first chapter of Genesis. This work follows upon the prior creation of the universe *ex nihilo* and its ordering through a process of "distinction." Scripture does not reveal God's manner of producing each kind of living thing with its own substantial form. To speak of the "origin" or "creation" of species from Aquinas' perspective thus is to think of the first members of each kind being produced by God in an unknown manner with no antecedent lineage.

Although Aquinas often refers to biblical kinds as "species," he and his medieval contemporaries did not apply terms such as genus or species with any precision in a biological context.⁶ In his commentary on the sixth day of creation, although he makes no effort to enumerate kinds or species, his representative examples include bears, lions, serpents, lizards, tortoises, deer, and goats, as well as "imperfect" animals such as bees and ants.⁷ Reproduction always perpetuates a species' form and never results in significant novelty. "Further, 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."⁸ God of course is the primary cause for species' continued existence, but natural causation can execute reproduction, including the relevant substantial form. Only in human reproduction does God introduce a rational soul as the substantial form for each new individual. Aquinas also considered the question of whether a substantial form can exist partially, and he concluded that "no substantial form is participated more or less."⁹ Substantial forms for each species are permanently fixed at the time of their initial production and they do not undergo any subsequent variation.

For Aquinas, in contrast to creatures, God's essence is existence. Only God can give material substance its being, and God does so as a transcendent primary cause rather than as a material or efficient cause that would interact with other secondary causes. Creation thus is an enduring relationship between God and creatures that initiates and maintains their existence. Aquinas rejects occasionalism by allowing creatures to freely exercise true causality in concurrence with divine causality. The created world includes

potentialities or capacities for change, and interactions among secondary causes provide the proper domain for the natural sciences.

In some of his early thinking about these issues, Aquinas reflected on the possibility that in some cases God might use creatures as instrumental causes in the creation of other creatures.¹⁰ Although he initially rejected this idea based upon his reading of Genesis, in later writings he also found it philosophically unacceptable. In his mature work, the *Summa Theologiae*, Aquinas unequivocally rejected the possibility of creatures acting as instrumental causes for creation. “This, however, cannot be, because the secondary instrumental cause participates in the action of the higher cause, only by virtue of that which really belongs to the secondary cause, and can be used by the principle cause for its effect.”¹¹ Because being or existence “really belongs” only to God, secondary causes cannot extend being to new species. By way of contrast, Aquinas takes a carpenter’s saw as an example of legitimate instrumental causality when the saw is used to cut wood. The saw can serve in this way under the carpenter’s direction because it has the requisite material properties. But no creature has the essential being required to produce new being. Creatures can instrumentally cause change, including reproduction within their species, but they cannot bring new species into existence.

Aquinas did write some suggestive passages in connection with his belief that species of “imperfect” animals can be spontaneously generated via putrefaction. In these cases the normal procedures for animal reproduction do not take place and new life is generated through the secondary causality of celestial bodies such as the sun acting on putrefying matter. In one passage Aquinas also entertained the possibility that new species might be brought about in this way. “Species, also, that are new, if any such appear (*si quae apparent*), existed beforehand in various active powers; so that animals, and perhaps even new species of animals, are produced by putrefaction by the power which the stars and elements received at the beginning.”¹² Aquinas’ hesitant reference to new species, “if any such appear,” certainly is not a premonition of evolutionary descent with modification. Even if some new species might have their origins as Aquinas speculates, they would not be descended from earlier species. Nor would their origin contradict his belief that the first members of all the “perfect” animals were produced by God without ancestry.

With these concepts of creation, causality, and substantial form in place, as well as Aquinas’ interpretation of the Genesis account for the origin of biblical kinds, universal common descent is ruled out. Investigation of evolutionary topics within a Thomistic framework thus requires Thomism to be practiced as an exploratory application of scholastic method rather than as a rigid preservation of all Aquinas’ doctrines. Historically, this procedure has fostered a dialectic between Thomists and scientists, an extension of Aquinas’ interaction with the science of his own time. Some of this historical legacy should be reviewed before turning to recent Thomistic encounters with evolution. The modernist crisis at the end of the nineteenth century was an especially significant period when Thomism became associated with conservative reservations about theistic evolution.

The Modernist Crisis and its Aftermath

Catholics such as St George Mivart in England, John Zahm in the United States, and Dalmace Leroy in France, all developed versions of theistic evolution during the second

half of the nineteenth century. These efforts were not well-received by the Vatican and at the turn of the twentieth century theistic evolution was considered controversial for Catholics, particularly when it included human evolution. Although the Catholic Church did not promulgate an official position on the topic, actual or threatened denunciations to ecclesiastical superiors or the Congregation of the Index of Prohibited Books frequently resulted either in retractions of theological views receptive to evolution or a reticence to express them.¹³ Theological reservations were especially strong on the topic of human evolution and the cultural association of evolutionary science with philosophical materialism. Scientific evidence for common descent was commonly judged to be inconclusive at best.¹⁴

Although during this period subtle details of Aquinas' theology did not play a primary role in critiques of theistic evolution, Thomism became associated with the preservation of orthodox truth in the face of innovations that Pius X castigated as "modernism." Most historians have concluded that no coherent school of thought can be linked to this term. The label was used rhetorically and represented, in Pius X's famous phrase, the "synthesis of all heresies." His disparagement of theological innovation was symptomatic of a growing malaise over a perceived clash between timeless doctrinal truths and the corrosive effect of empirically based scientific investigation, including both scriptural analysis and biological evolution.¹⁵

As early as 1864 Pius IX's encyclical *Quanta Cura* included as an associated document, the Syllabus of Errors, a list of eighty condemned propositions, several of which embodied the threat of philosophical and scientific reasoning untethered to scholasticism. In his 1879 *Aeterni Patris*, Leo XIII singled out Thomism as the mandated foundation for Catholic theology, especially for teaching in schools and seminaries. The rich diversity of scholastic thought thus was reduced to a codified version of Thomism for pedagogical and apologetic purposes. Pius X's 1907 decree *Lamentabili sane* further proscribed sixty-five propositions as forbidden and began with an introduction in which he chastised those who "are looking for that progress of dogmas which is, in reality, nothing but the corruption of dogmas."¹⁶ The sixty-fourth of the prohibited propositions asserted that "Scientific progress demands that concepts of Christian doctrine concerning God, creation, revelation, the Person of the Incarnate Word, and Redemption be re-adjusted." A few months later Pius X's 1907 encyclical *Pascendi dominici gregis* was a more explicit attack on modernism, and his 1910 *Oath Against Modernism* required Catholic instructors to affirm, among other propositions, that they "... entirely reject the heretical misrepresentation that dogmas evolve and change from one meaning to another different from the one which the Church held previously."¹⁷ In short, a fear of the destabilizing effects of historical analysis, whether scriptural or biological, established a climate hostile to productive engagement with evolutionary thinking.

One last example of the anti-modernist emphasis upon doctrinal uniformity is the 1914 proclamation of twenty-four Thomistic theses to be taught in Catholic schools and seminaries. In his 1914 *Doctoris Angelici*, Pius X recommended that such a collection be compiled, and he did so in a spirit that was not open to compromise.

... the capital theses in the philosophy of St. Thomas are not to be placed in the category of opinions capable of being debated one way or another, but are to be considered as the foundations upon which the whole science of natural and divine things is based; if such principles

are once removed or in any way impaired, it must necessarily follow that students of the sacred sciences will ultimately fail to perceive so much as the meaning of the words in which the dogmas of divine revelation are proposed by the magistracy of the Church.¹⁸

Although the requested list of Thomistic doctrines soon emerged from the Sacred Congregation of Studies, little consensus was ever reached on whether they all were faithful to the ideas of Aquinas or if they needed to be taught as true or simply were to be discussed dialectically together with contrary doctrines.¹⁹ As had been the case since the time of Aquinas himself, proponents of his ideas continued to disagree on how best to understand and teach them, even in the face of the pope's effort to dictate agreement. Thesis 24 is particularly relevant to discussions of creation and evolution.

By reason of the very purity of His being, God is distinguished from all finite beings. Hence it follows, in the first place, that the world could only have come from God by creation; secondly, that not even by way of a miracle can any finite nature be given creative power, which of itself directly attains the very being of any being; and finally, that no created agent can in any way influence the being of any effect unless it has itself been moved by the first Cause.²⁰

Subject to interpretation, the thesis illustrates the theological terrain that would have to be navigated to propose that creatures can act as instrumental causes of evolutionary change. The anti-modernist strategy of codified Thomism was successful only in the short term and was tempered during the pontificate of Pius XII. In his 1950 encyclical, *Humani generis*, after warning against an extrapolation of evolutionary thinking into an explanation for “the origin of all things,” and a reminder of the importance of Aquinas as a mentor, he continued:

For these reasons the Teaching Authority of the Church does not forbid that, in conformity with the present state of human sciences and sacred theology, research and discussions, on the part of men experienced in both fields, take place with regard to the doctrine of evolution, in as far as it inquires into the origin of the human body as coming from pre-existent and living matter - for the Catholic faith obliges us to hold that souls are immediately created by God.²¹

While Pius agreed that the evolution of the human body was open to investigation, the supernatural introduction of human souls was declared undeniable. Secondly, the doctrine of original sin was tied to the origin of humanity through a single pair of individuals.

When, however, there is question of another conjectural opinion, namely polygenism, the children of the Church by no means enjoy such liberty. For the faithful cannot embrace that opinion which maintains that either after Adam there existed on this earth true men who did not take their origin through natural generation from him as from the first parent of all, or that Adam represents a certain number of first parents. Now it is in no way apparent how such an opinion can be reconciled with that which the sources of revealed truth and the documents of the Teaching Authority of the Church propose with regard to original sin, which proceeds from a sin actually committed by an individual Adam and which, through generation, is passed on to all and is in everyone as his own.²²

The idea that “Adam represents a certain number of first parents,” rather than a single individual, is often referred to as polygenism. By writing that “it is in no way apparent” how polygenism could be reconciled with the traditional doctrine of original sin, Pius XII in effect left the issue open to further investigation. Fifteen years later, although

Vatican II did not result in any documents that directly addressed either evolution or polygenism, the theological climate had become more tolerant. In 1967 the prominent Catholic geneticist Francisco Ayala argued that scientific evidence rules out monogenism²³ while, from a theological perspective, Karl Rahner added that “it cannot be proved that polygenism conflicts with orthodox teaching on original sin.”²⁴ After Vatican II, the infrequent official Church pronouncements that addressed evolution were carefully noncommittal but generally amenable to theistic evolution as long as the Catholic doctrine of the human soul was acknowledged and materialism was rejected. This more hospitable theological environment would allow Thomistic encounters with evolution to become increasingly positive.

Thomism as Doctrine and as Scholastic Method

Regardless of Leo XIII’s intentions in his initial efforts to focus Catholic theology on “the wisdom of Thomas,” what was lost sight of during the subsequent modernist crisis under Pius X was that scholasticism is a method of inquiry rather than a set of fixed doctrines. James Weisheipl, the insightful theologian, medieval historian, and Aquinas biographer, has provided a useful synopsis. “The scholastic method was essentially a rational investigation of every relevant problem in liberal arts, philosophy, theology, medicine, and law, examined from opposing points of view, in order to reach an intelligent, scientific solution that would be consistent with accepted authorities, known facts, human reason, and Christian faith.”²⁵

At its best, the scholastic method generated productive tensions between accepted authorities and new empirical discoveries as well as between faith and reason. Aquinas became its most skillful practitioner through his engagement with Aristotelian philosophy and science. Once he became an accepted authority in his own right, the point of tension often shifted to the ideas of Aquinas himself. Historical works on subsequent Thomistic theology frequently include efforts to label theologians within a set of historically linked Thomistic schools.²⁶ Using this approach, the many species of Thomism include the Leonine Thomism of Joseph Leutgen, the Strict Observance Thomism associated with Reginald Marie Garrigou-Lagrange, the transcendental Thomism of Joseph Maréchal, Karl Rahner and Bernard Lonergan, the analytic Thomism of John Haldane and Norman Kretzmann, and the existential Thomism of Étienne Gilson and Jacques Maritain. Other branches of the family tree can be filled in with Ressourcement Thomism, the Aristotelian Thomism of Marie George, the River Forest School of William Kane, Benedict Ashley, and William Wallace, Laval Thomism, Cracow Circle Thomism, Lublin Thomism, and many others.

Unqualified references to “Thomists” and “Thomism” thus can be misleading if the terms are too readily taken to represent a unanimous theological voice. Additional complexity stems from the multiple roles Aquinas played as theologian, philosopher, and biblical commentator. He also had opinions about scientific issues such as Aristotelian physics, spontaneous generation of life, and Ptolemaic astronomy. References to “Thomas’s ideas” thus can fall within at least four different disciplinary contexts. Gerald McCool concluded his 1994 study of the Neo-Thomistic tradition with a two-fold summary statement. “The Second Vatican Council, and the intellectual ferment which followed it, brought an end to anything like an organized neo-Thomistic movement.

Nevertheless, philosophy and theology in the tradition of St. Thomas remain alive both in Europe and America.²⁷ Certainly Aquinas incorporated hylomorphism and other Aristotelian concepts into his metaphysics and theology in a manner that set him apart from his scholastic contemporaries. Nevertheless, when Thomism is correctly applied as a method of inquiry, doing philosophy and theology “in the tradition of St. Thomas” allows scholastic debate over controversial issues such as evolution without giving undue attention to the exact juncture where doctrines would cease to be legitimately Thomistic.

Thomistic Evolution

While the focus of the present essay is theistic evolution within a Thomistic framework, other Catholic approaches should be acknowledged. Often inspired by Teilhard de Chardin, process theologians such as John Haught engage evolutionary science by placing transition and emergence in the foreground. As Haught explains, “Although I cut my undergraduate philosophical teeth on Thomistic metaphysics, I came to the conclusion early on that in spite of its brilliance, Thomism cannot adequately contextualize the discoveries of evolutionary biology, cosmology, and astrophysics.”²⁸ Taking as his starting point the scientific evidence for an “unfinished universe,” Haught has become one of the most widely read Catholic theologians.

A different point of emphasis developed through a series of international and interdenominational conferences during the 1990s. Co-sponsored by the Vatican Observatory and the Center for Theology and the Natural Sciences, the Divine Action Project explored the idea that God’s action does not “interfere” with the normal course of nature. Some participants argued that God could direct natural processes, including evolution, under the veil of quantum indeterminacy.²⁹ Michael Dodds has pointed out some disadvantages for this approach.³⁰ Not only does it still have God intervening as an efficient cause, albeit in a hidden fashion, but it also is embedded in a specific theory of quantum mechanics that could be supplanted in the future. Theologians in the Thomistic tradition prefer to adhere more closely to Aquinas’s original characterization of divine causality.

In addition to Dodds, Catholic theologians who have contributed to theistic evolution within a Thomistic framework include the authors of the 2016 volume *Thomistic Evolution*: Nicanor Austriaco, James Brent, Thomas Davenport and John Baptist Ku. Others are Matthew Ashley, Francis Beckwith, William Carroll, Edward Feser, Marie George, Antonio Moreno, John O’Callaghan, Fáinche Ryan, Mariusz Tabaczek, Michael Tkacz, and Józef Życiński.³¹ They work with an understanding that Thomism is a living tradition, not a frozen set of doctrines. For example, Austriaco, Brent, Davenport, and Ku write that “As a team of Dominican friars and scholars committed to the preaching of the Gospel, we are convinced that the Thomistic intellectual tradition grounded in the philosophical and theological synthesis of St. Thomas can still provide insightful and compelling responses to the disputed questions raised by evolutionary theory.”³² Norbert Luyten used similar language in a much earlier 1951 essay. “The philosophical outlook in this article is Thomistic, not in the sense of a mere repetition of what St. Thomas taught: in this case the only thing to do would be just to ignore evolutionism, because St. Thomas ignored it. But it is a philosophic outlook inspired by the main principles developed by St. Thomas in his philosophy and applied according to the general inspiration of his system.”³³

As was the case for the Divine Action Project, Thomists generally avoid the idea of direct divine intervention if that would mean placing God's action on a par with secondary causes. Throughout the history of scientific progress, delegating an alleged role for God as an efficient cause has repeatedly been shown to be unnecessary. The resulting loss of confidence in anything resembling a "God of the gaps" theology is not an attempt to put a limitation on God's action, as if to say that God *cannot* intervene. Rather, it involves an emphasis on God as the first transcendent cause and a reliance upon Aquinas's original doctrine of a concurrence of divine and natural causality. From this perspective, there is no occasion for conflict between divine causation and the secondary causes studied by scientists. As John O'Callaghan puts this point, "God's causality in creation is not a causality that competes with natural causes, or even cooperates with them. It is best thought of as enabling natural causes to be what they are."³⁴

From this abstract vantage point, it would seem that there could be no conflict between divine causality and the scientific exploration of the evolutionary process. God's intentions are understood to be realized by allowing creation to exercise its capacities for evolutionary change. But for Thomists this compatibility is not so easily achieved in light of Aquinas' conviction that the first members of each Genesis kind are supernaturally produced without ancestors. This doctrine would need to be set aside if all species are related through common descent. Furthermore, Aquinas was committed to hylomorphism and the existence of distinct substantial forms shared by members of each species. Since substantial form is not a concept recognized by modern science, Thomists who accept common descent must finesse a connection between the process of speciation and the introduction of new substantial forms.

At the turn of the twentieth century, John Zahm took considerable liberties with the emergence of novel substantial forms in his 1896 *Evolution and Dogma*. "In the development of man, as in that of the lower animals, there is an ascending succession of substantial forms, by means of which that which is destined to become a human body, acquires a proper structure and receives the necessary disposition for becoming the receptacle of a rational soul."³⁵ Zahm's attempt to find justification for his evolutionary thinking in the writings of Augustine and Aquinas was sharply criticized in Rome. Similarly, in his 1932 *Evolution and Theology*, Ernest Messenger quoted liberally from Aquinas' comments in the *Summa contra Gentiles* on the gradations of potencies impressed upon matter and then proposed that this represented a "tendency on the part of matter to evolve."³⁶

Writing after the discovery of DNA and mutation as the basis of genetic variation, Antonio Moreno was more explicit about how a genetic mechanism might generate the replacement of one substantial form by another.

The disposition of matter changes gradually, without the loss of the first form, F1, until the precise instant when this form is corrupted and the new form, F2, is generated. Though we may be ignorant of the precise instant that it takes place, this could be a valid description of the transformation of species. Through mutation and natural selection, the disposition and the structure of the DNA gradually changes, until the instant when the new disposition and new structure corresponds to a new substantial form and, consequently, to a new species.³⁷

On this account, each substantial form is a distinct state of organization that persists unchanged while the species it informs undergoes the genetic mutation requisite for education of a new form. Robert Sokolowski and John Goyette both have entertained the

possibility that the information encoded in the genome of an organism is an expression of its form, that is, “that the form is what the DNA serves to communicate.”³⁸ Neither Sokolowski nor Goyette discusses how an ancestral substantial form either persists or changes during mutation; nor does Steven Baldner do so in his defense of substantial form.³⁹ Similarly, Michael Dodds proposes only that “As parents are instrumental causes of the being and substantial form of their offspring, so previous generations may be seen as instrumental causes, gradually disposing primary matter for the eduction of a new form in a given generation that might also constitute a new species.”⁴⁰ Mariusz Tabaczek expands upon this process to some extent. “It is accidental traits and properties of concrete organisms that actually change, which, in turn, brings an alteration of the disposition of primary matter, preparing it to receive the form of a new species.”⁴¹ Tabaczek gives this gloss in a midst of a discussion of Aristotelian hylomorphism with the optimistic expectation that the transition from Aristotle to Aquinas will be straightforward.

Additional discussions of Thomistic evolution in essays by John O’Callaghan and William Carroll are restricted to Aquinas’ distinction between creation as a transcendent cause of being and the changes wrought in the created world by secondary causes.⁴² Evolutionary change is simply characterized as one example of the many physical processes made possible by God’s transcendent causality. This generalization unfortunately does not explore the distinction between creation as the sustaining relationship between creator and creature, on the one hand, and the bringing into being of new species on the other. Aquinas was convinced that the first members of the kinds referred to in Genesis were produced by God with no prior lineage. This conviction stands in the way of universal common descent even if in some cases species were to act as instrumental causes for other species.

Advocates of Thomistic evolution readily acknowledge the central role played by contingency during the evolutionary process. Capacities for change are expressed in a world that includes random processes such as radioactive decay and genetic mutations. In the Thomistic tradition, contingency does not preclude divine causality. A role for contingency can be found in Aquinas’s own suggestive comment: “... whatsoever divine providence ordains to happen infallibly and of necessity happens infallibly and of necessity; and that happens from contingency, which the plan of divine providence conceives to happen from contingency.”⁴³

Some implications of contingency within divine providence were developed in a monograph written during the papacy of John Paul II and published with the approval of Cardinal Joseph Ratzinger who would later become Pope Benedict XVI. The Theological Commission incorporated contingency into a discussion of divine causality.

69. ... But it is important to note that, according to the Catholic understanding of divine causality, true contingency in the created order is not incompatible with a purposeful divine providence. Divine causality and created causality radically differ in kind and not only in degree. Thus, even the outcome of a truly contingent natural process can nonetheless fall within God’s providential plan for creation.⁴⁴

If one of God’s goals is the emergence of rational life capable of some form of appreciative response to its creator, then that goal could be achieved through any number of contingent pathways, only one of which is in process. Critics have noted that Aquinas’ discussions of contingency fall within the domain of providence or governance pertaining to creatures’

experience but not to their initial creation. Once again, some clarification is required to distinguish the Commission's understanding from that of Aquinas himself. One possible approach would be to emphasize that the temporal order in which creation and providence unfold from a human point of view does not apply to a divine perspective.

One of the most recent contributions to Thomistic evolution is the 2016 collective effort of four Dominican scholars: Nicanor Austriaco, James Brent, Thomas Davenport, and John Baptist Ku. Their book summarizes some principles of a Thomistic approach to divine causality for a general audience and is not intended to be a detailed presentation of Thomistic metaphysics and theology. A first point of emphasis is the familiar Thomistic idea of creation as a permanent relationship of sustenance rather than a set of distinct actions in the distant past. God sustains creation and its entire spatio-temporal development, and this sustaining creation is the ground for change within the created order. Several suggestive passages from Aquinas are cited without commentary except to conclude that, "Ultimately then, Thomas cautions against over committing ourselves to non-necessary and potentially vulnerable theological positions concerning the interpretation of Genesis 1."⁴⁵ In his chapter on evolutionary creation, Nicanor Austriaco quotes from the *Summa Theologiae*.

But since things which are governed should be brought to perfection by government, this government will be so much the better to the degree that the things governed are brought to perfection. Now, it is a greater perfection for a thing to be good in itself and also the cause of goodness in others, than only to be good in itself. Therefore God so governs things, that He makes some of them to be causes of others in government, like a master, who not only imparts knowledge to his pupils, but gives also the faculty of teaching others.⁴⁶

Austriaco then uses this passage about divine governance as a springboard to the concept of new species originating through secondary causes. "Building upon this Thomistic theological account, I propose that it was fitting for God to have created via evolution rather than via special creation because in doing so, he was able to give his creation—the material universe and the individual creatures within it—a share in his causality to create. In this way, he more fully communicates his perfection to his creation, thus, more clearly manifesting his glory."⁴⁷ Austriaco simply states his acceptance of secondary causes capable of contributing to evolutionary change, and he does not address the problem of Aquinas' prohibition of novel substantial forms. In a text intended to be accessible to a popular audience, it is not surprising that Thomistic distinctions among creation, distinction, adornment, providence, and governance are not explored in detail. However, this does result in a somewhat misleading transition to theistic evolution and could give the impression that the author is claiming that Aquinas himself might straightforwardly approve. It would be more accurate to acknowledge that, in keeping with the scholastic tradition, Thomistic evolution requires an extension of Aquinas' ideas to productively engage with modern science.

With these representative examples of Thomistic evolution in mind, we can highlight several potential points of departure from the doctrines of Aquinas that would benefit from further discussion. First, within the philosophical context, clarification is needed to understand how new substantial forms arise in concert with material processes. This would at least involve a significant revision from a static to a dynamic conception of form and perhaps a denial of essences corresponding to specific types of life. Modern

biology recognizes relatively distinct species only at a given point in time. Since they are always undergoing genetic and phenotypic change, it is difficult to assign them an essence associated with substantial form. Admittedly, among some philosophers of biology, this consensus has been questioned through a rejuvenated version of Aristotelian essentialism.⁴⁸ Here the emphasis shifts to systems biology and evolutionary-developmental biology as possible sources for species differentiations. Protein interactomes or embryological modularity might be construed as examples of goal-oriented sets of dispositions that bear some resemblance to an Aristotelian form. These new versions of essentialism are not dependent upon static essences. As Michael Dewitt writes, “Essentialism can accept the gradual change of one species into another.”⁴⁹ This might be one direction that Thomistic evolution takes in the future to transcend Aquinas’s belief in fixed kinds.

Second, if Aquinas’ notion of degrees of “perfection” is to be retained, then it must be allowed that higher degrees can emerge from lower ones. It might be preferable to abandon this concept altogether as outmoded in the context of modern biology. Third, the distinction between creation and providence must be clarified. The origins of all species would need to be reconceptualized as providential change rather than acts of divine production. Aquinas’s comments about providential contingency then might be more directly applicable to the emergence of new species.

Finally, other issues arise for human evolution. Here the norm is to make a distinction between the scientific species *Homo sapiens* and the theological category of humanity. Scientific evidence overwhelmingly indicates that *Homo sapiens* arose from earlier species through natural processes. On the other hand, the creation of humans “in the image and likeness” of God through the introduction of a human substantial form or soul is a traditional Catholic religious doctrine that sets humanity apart from other life. It remains an open question whether humanity defined by means of its substantial form once included biological species other than *Homo sapiens* that now are extinct. Evidence of some interbreeding among *Homo sapiens*, *Homo neanderthalensis*, and Denisovans opens the possibility that humanity formerly did include multiple biological species, only one of which is extant. The initial introduction of a human soul, whenever it took place, would have to be understood as a significantly different type of event or process than the natural eduction of a new substantial form for any other species.

Turning to other Biblical issues, proponents of theistic evolution are willing to diverge from Aquinas’ conservative exegesis. The highly anthropomorphic account in Genesis 2 is valued for its spiritual insight rather than its scientific content. Nevertheless, the issue of polygenism is still difficult to resolve in light of Pius XII’s challenge that “it is in no way apparent” how it can be reconciled with doctrines of original sin. Although modern population genetics probably rules out the descent of the diverse *Homo sapiens* population from a single couple, original sin is traditionally attributed to two human perpetrators from whom all subsequent humans descend. Although many theologians have tried to navigate this difficult terrain, no consensus has emerged.⁵⁰

One option is to develop the distinction already mentioned between *Homo sapiens* and humanity. For example, Kenneth Kemp uses the three concepts of biological species, philosophical species, and theological species. Members of the philosophical species make up a subset of the interbreeding biological species; it “is the rational animal, i.e. a natural kind characterized by the capacity for conceptual thought, judgment, reasoning, and free choice.” The theological species then is “extensionally, the collection of individuals that

have an eternal destiny.”⁵¹ Kemp proposes that God’s introduction of philosophical and theological souls into some members of the biological species *Homo sapiens* took place without any prerequisite physical alteration such as genetic mutations. Humanity would begin with two individuals constituting the initial members of a theological species; their interbreeding within the biological species would eventually result in all humans having descent from at least one of the two original theologically privileged ancestors. Similarly, Austriaco uses the acquisition of language to mark the transition to a natural kind he labels *Sapiens* to single out those members of *Homo sapiens* that are descended from the first individual with a capacity for language use.⁵² These accounts of human evolution require clarification of the extent to which the introduction of a new substantial form might take place with or without any immediately prior material change.

One additional characteristic of these examples of Thomistic evolution is worth noting. The primary scientific emphasis is on the idea of universal common descent rather than specific mechanisms of change such as natural selection. Proponents of Thomistic evolution do not feel called upon to defend Neo-Darwinism or any other theory of evolutionary change, and they generally do not do so. The distinction between the scientific fact of common descent and explanatory theories such as Neo-Darwinism is a familiar one to scholars although it is not always clearly understood by the general public.⁵³ Common descent is simply the hypothesis that all life constitutes a single web of species relationships. Although lateral gene transfer complicates the structure of this web, primarily in its early stages of relatively simple life forms, the overall picture is roughly analogous to a family tree. The phylogenies proposed by paleontologists and systematic biologists are efforts to approximate portions of this tree. On the other hand, theories of evolution, Darwinian or otherwise, are attempts to explain the driving forces or causes of evolutionary change. Rhetoric directed at Neo-Darwinian evolutionary theory is often driven by religious reservations about its central concepts of mutation and natural selection. The randomness of mutation and the suffering associated with natural selection certainly do raise theological issues for consideration, and Thomistic evolutionists acknowledge that these factors can be expected to play a role in any viable evolutionary theory in the near future. As has been mentioned, Thomistic discussion of contingency is motivated by the central role of that concept in Darwinian theory. Nevertheless, common descent has been the scientific focal point of Thomistic evolution, and criticisms directed at philosophical extrapolations of Neo-Darwinism are not particularly relevant. I turn now to some of the critiques of Thomistic evolution that have been advanced in conjunction with preferences for progressive creation and intelligent design.

Objections and Rejoinders

As has been noted, some Catholic theologians are dubious about the Thomistic approach to theistic evolution and prefer a more developmental process theology. Criticism from a different direction comes from those who advise a tight retention of Aquinas’ ideas in conjunction with intelligent design theory. Most publications espousing this view are endorsed by the Discovery Institute, the primary source for intelligent design theorizing and promotion. The Institute’s 2010 anthology, *God and Evolution*, has several chapters devoted to Catholic theistic evolution, including one in which Logan Paul Gage critiques Thomistic evolution.⁵⁴ Gage finds it impossible to reconcile distinct substantial forms with

the continuity of evolutionary change. He uses squirrels as an example of how humans supposedly respond to a shared substantial form. “We recognize the squirrel’s form, which it shares with other members of its species, even though the particular matter of each squirrel differs. So each organism, each unified whole, consists of a material and immaterial part (form). (‘Species’ here is a more encompassing concept than in modern biological definitions. For example, wolves and domesticated dogs might share a common essence).”⁵⁵

Gage’s parenthetical remark exemplifies the ambiguity that results when Thomists try to associate substantial forms with modern taxonomic categories. Scientists often employ the so-called biological species concept in which sexually reproducing species are defined as interbreeding populations. Species boundaries are not expected to be sharp; they exist only while temporary environmental conditions and genomes support them. New species develop as these conditions and genomes change. Fossils provide the historical data for tentative morphological distinctions among extinct species, the smallest units in hypothetical phylogenies. The emphasis throughout is on “population thinking” and transition rather than the essences to be expected of Aquinas’ kinds.

Instead of accepting the fluidity of evolutionary species, Gage recommends that Thomists retain allegiance to fixed substantial forms, reject common descent, and adopt intelligent design. The advantages of this agenda are not immediately clear since some proponents of intelligent design also accept common descent. In its usual minimalist formulation, intelligent design only asserts that some of life’s complexity is due to a designing intelligence. If this belief is to stand in contrast to the idea of common descent, then it needs to be appropriately supplemented. The Dominican Friar Michael Chaberek has done so by combining intelligent design with a version of progressive creation.

During a 2012–2013 internship with the Discovery Institute, Chaberek thoroughly revised his 2012 Polish publication, *Kościół a ewolucja*, for a 2015 English edition, *Catholicism and Evolution: A History from Darwin to Pope Francis*. His *Aquinas and Evolution* followed in 2017. Chaberek argues that advocates of Thomistic evolution err in relying upon Aquinas since he would have rejected theistic evolution. Chaberek is also convinced that intelligent design is a better scientific theory than Neo-Darwinism and should be adopted along with progressive creation, the idea that God episodically produces the species Aquinas acknowledged as having no ancestral lineage. It should be noted that Chaberek accepts modern scientific determinations of the age of geological strata. He believes that, because scripture does not explicitly state when species were created, Aquinas would consider this timing to be incidental to faith and amenable to scientific investigation.⁵⁶

Chaberek’s historical thesis concerning Aquinas himself is not surprising. Few scholars familiar with Aquinas’ original theology would conclude that it is directly compatible with evolution. To further exclude common descent “in principle,” Chaberek follows Aquinas and ascribes the origin of each kind to an episode of supernatural intervention. His allegiance to Aquinas thus prompts him to assert that “Explaining the origin of species belongs to theology, not to science.”⁵⁷ To allow some communication between theology and science, Chaberek introduces a concept of “natural species.”

Natural species – natural kinds of living organisms, such as dogs, cats, cows, and horses. From a theological perspective, natural species could be identified with “kinds” mentioned in Genesis 1. From a metaphysical perspective, a natural species includes organisms that

share the same nature. In this context “nature” is defined by Aquinas as ‘the essence of a thing as it is ordered to the proper operation.’ From the same, metaphysical perspective, natural species can be seen as living beings (composites of form and matter) that share the same substantial form. From the biological perspective these are organisms that belong to one taxonomic group of family or genus.⁵⁸

In this idiosyncratic definition, Chaberek’s reference to “family or genus” is too vague to be very useful in a modern scientific context. Early in the twentieth century, Catholics such as the Jesuit Erich Wasmann also introduced a natural species concept to refer to separately created kinds of life. However, Wasmann forcefully acknowledged that the identification of natural species was an empirical matter to be decided scientifically.⁵⁹ On the other hand, Chaberek combines his ambiguous reference to “family or genus” with alleged examples of natural species such as “man, lion, dog, cat, elephant, lizard, snake, and so on.”⁶⁰ Chaberek’s lack of engagement with more precise scientific terminology or research is not a productive way to put theology in dialogue with modern science, especially when combined with an unwarranted generalization that species do not change “over the millions of years of their existence.”⁶¹

It may have been a somewhat arbitrary choice on Aquinas’ part to use the lion as one of his own examples of a species without ancestry. But since Chaberek proposes lions and cats as examples of natural species, some scientific commentary on their common ancestry will highlight the phylogenetic context for Chaberek’s progressive creation. An analogous discussion could be carried out for any other pair of Chaberek’s choices.

Both lions and domestic cats are in the Carnivora order of the Mammalia class. This order contains two large sub-orders or super-families: the Caniformia and the Feliformia. One of the six families within Feliformia is the Felidae family that includes lions and cats in two separate genera, *Panthera* and *Felis*. There is ample fossil and genetic evidence that a common ancestor for *Panthera* and *Felis* existed approximately 12 million years ago.⁶² Among the extant families of Feliformia, the date of divergence between Felidae and Prio-dontidae is presently estimated to be approximately 33.3 million years ago.⁶³ Further fossil evidence for the history of Feliformia includes *Proailurus lemanensis* and multiple species within the genera *Styriofelis* and *Pseudaelurus*. Cladistic analyses have placed these and other extinct taxa within a tentative phylogeny for the entire Feliformia super-family.⁶⁴

Although phylogenetic trees represent hypotheses about degrees of similarity among species, they are not speculations about direct lineages of descent. Instead, they graphically depict how the assemblages of traits that define clades have accumulated over time. This is a point of frequent misunderstanding and misleading rhetoric among critics of the idea of universal common descent. There certainly are sections of the fossil record that are very complete and provide ample evidence of a continuum of gradual morphological change. Foraminifera, for example, often are exquisitely preserved and allow for confident assertion of speciation and direct ancestry. The fossil record for most domains is not this complete. Although at any given point in the past many closely related species may have existed as contemporaries, the known fossil record often includes evidence of only one of them. It would be rash to infer that the one species that was preserved is the direct ancestor of a subsequent species, no matter how morphologically similar the two may be. Instead, systematists arrange those species known from the fossil record into a phylogenetic tree based upon shared derived traits, synapomorphies. The unlabeled nodes in

these trees do represent common ancestors for clades that share derived traits, but the tree itself does not convey any speculation about the exact identity of these ancestors. The emphasis is on how the collection of traits that characterize relatively recent species have accumulated through a series of earlier transitional stages.⁶⁵

In this respect, taxa such as *Styriofelis* and a recently reclassified species, *Leptofelis vallesiensis* are interesting examples. The fossil record indicates that they existed just prior to the genetically estimated date of the last common ancestor for Felidae. As paleontologist Manuel Salesa and his colleagues note, *Leptofelis vallesiensis* has “a combination of derived and primitive characters, a good example of the mosaicism typically exhibited by the intermediate forms of several groups of Carnivora.”⁶⁶ In other words, *Leptofelis vallesiensis* is an interesting transitional form in the early history of Felidae, a conclusion that avoids speculation about common ancestry.

It is at this point that advocates of progressive creation typically object. Because the ancestral species of a clade such as the Felidae family cannot be identified with absolute certainty, phylogenies, no matter how detailed, are dismissed as inconclusive and supernatural intervention is invoked. Progressive creationists need not be so extreme as to require God’s direct action for the common ancestor of lions and cats; even most young-earth creationists only consider a much broader “cat kind” to be specially created. Nevertheless, wherever the point of supernatural causality is invoked, the general procedure is the same. On the other hand, Thomistic evolutionists accept the compendium of evidence for common descent and find progressive creation to be an unnecessary reliance upon supernatural intervention.

In addition to his insistence upon episodic supernatural origins for natural species, Chaberek also objects when advocates of Thomistic evolution invoke instrumental secondary causes in the process of common descent. Chaberek reads Aquinas as only allowing the use of secondary causes and contingency in the realm of providence, but not in the production of new species or even in the introduction of any “biological novelty.”⁶⁷ Although Michael Dodds and Antonio Moreno have proposed that new substantial forms might arise when matter has evolved into an appropriate condition through natural processes, Chaberek insists that the appropriate disposition of matter could only come about through God’s simultaneous imposition of form. “When God creates a new living nature (species) he not only creates a new form in matter, but He also disposes matter to accept the form. Such disposition cannot be achieved by matter itself.”⁶⁸ Chaberek thus retains Aquinas’ conviction that substantial forms are always introduced by God in the production of the first members of each biblical kind or natural species.

The only example Chaberek discusses in any detail is the origin of humanity. He obviously agrees with the Catholic doctrine that, even if the human body has evolved, each individual human soul is introduced by God. But he also holds that “if the substantial form of a living being is replaced with another form it is clear that this is a substantial change that affects not just the form but also matter.”⁶⁹ For Chaberek this innovation in the physical makeup of the first humans rules out continuous evolutionary development. He considers the least objectionable (but still objectionable) mode of theistic evolution to involve “special transformism” which “is like a total transformation of a hominid into a human.”⁷⁰ Even in this scenario the linkage between humans and non-human ancestors is too strong for Chaberek’s progressive creationism. He also rejects concessions on this point by Pius XII and John Paul II and adheres to what he considers to be more

authoritative statements from the fourteenth century Council of Vienne, the 1860 Cologne synod, and the 1909 Pontifical Biblical Commission. For Chaberek, any acceptance of human evolution would mean that “there is no justification for the dignity of the human body”⁷¹, an inference with which many theologians would disagree.

Having proposed progressive creation as an alternative to common descent, Chaberek also argues that Aquinas’s theology should be synthesized with intelligent design theory (ID) using the following concise definition. “The theory of intelligent design holds that certain features of the universe and of living things are best explained by an intelligent cause, not undirected processes (such as natural selection) or the laws of nature alone.”⁷² Unfortunately, the phrase “explained by an intelligent cause” is so vague as to be of negligible scientific content. This is not an impediment for Chaberek since he holds that scientific theories cannot legitimately address the origin of species. From his point of view, “intelligent design may be seen as the *preamble to the preambles* of faith.”⁷³ Using some of Aquinas’ own terminology, this is a clever way to refer to disciplinary transitions from science to philosophy and from philosophy to theology, the domain that includes creation. But even in the limited context of supposedly designed structures, what explanation does ID provide? What it purportedly adds to chance and necessity as scientific causes is “intelligence.” But this vague reference is not a scientific explanation sufficiently pointed to compete with evolutionary explanations, even if they are incomplete. Chaberek comments that “this theory says that intelligence must have caused the design of the organic structures, or maybe even whole species, but it does not say *how* it was done. The question of *how* exceeds the competence of ID as much as it exceeds the competence of science.”⁷⁴ For Chaberek science can address neither the origin of species nor the manner in which complex structures arise. Nevertheless, in contrast to ID, evolutionary science has been making progress on explanations of these phenomena since the mid-nineteenth century.

In his brief scientific discussion of ID, Chaberek uses the well-known example of irreducible complexity without mentioning explanations based upon exaptation of subsystems developed through natural selection for other functions.⁷⁵ Chaberek’s argument in response to the God of the gaps charge against ID also is surprisingly weak. He claims that for Christians reliance upon supernatural explanations is warranted when scripture reveals that some events require miraculous intervention, the origin of species being an alleged case in point. But even if Chaberek is granted his reading of Genesis, there is no scriptural warrant for supernatural explanations of irreducibly complex structures, especially as natural explanations become increasingly detailed. What Chaberek could have argued is that appeal to “intelligence” is not necessarily an appeal to the supernatural, and he does briefly make that point in other contexts.⁷⁶

Chaberek also believes that he can explain why many modern Thomists have espoused theistic evolution. He considers the acceptance of bodily evolution for humans to inevitably lead to an additional allegiance to what he calls “the principles of naturalism,” principles that include “the gratuitous acceptance of scientific theories as criteria by which we must judge theological doctrines.”⁷⁷ Scientifically well-informed theistic evolutionists would hardly consider their acceptance of common descent “gratuitous,” and they certainly would not accept “naturalism” as an accurate label for their philosophy. Nor would they appreciate Chaberek’s unfounded allegations about their motivations. “Once they gave into (*sic*) the naturalistic paradigm, their goal changed: from defending

Christianity they moved to tinkering with Christian doctrine in order to make it ‘compatible’ with naturalism. This is how theistic evolution came about.”⁷⁸ Chaberek also alleges that adherence to naturalism and ignorance of biology blinds theistic evolutionists to unexplained problems and drives them to censor objectors. These claims are highly objectionable to theologians who are well-informed biologically, do not espouse naturalism, and readily engage in dialogue. Chaberek further asserts that to adopt a new synthesis of intelligent design and progressive creation requires “courage to challenge the neo-pagan worldview.”⁷⁹ It would be rather astounding to imagine that proponents of theistic evolution do not presently “challenge the neo-pagan worldview.” The false dichotomy Chaberek offers is reminiscent of rhetoric often used by young earth creationists.

Aquinas believed literally in Genesis, in the separate creation of species, and the formation of the first human body directly by God. ... This cannot be changed by tinkering with some of his secondary doctrines. The incompatibility enters the very foundations of his philosophy and theology, because these two worldviews are built upon two different paradigms – the Christian paradigm based on the Bible and faith, and the evolutionary paradigm based on naturalism and materialism.⁸⁰

Although Chaberek has called attention to some points where Thomistic evolution needs clarification, he also gives the impression that he wants to revive the spirit of nineteenth century anti-modernism. His accusations of materialism and undue subservience to science echo those lodged against theistic evolutionists at the end of the nineteenth century. Here Chaberek does not consistently acknowledge the difference between naturalism and methodological naturalism, a distinction that has contributed to dialogue between science and religion for decades.⁸¹ He also allows little room for development of a doctrine if this would conflict with Aquinas’ own position. Of course, a major point of difference is that the nineteenth century attack on modernism was carried out from the highest levels of Catholic hierarchy, including the papacy. The modern Church allows theologians ample latitude to investigate how Catholic doctrine can best be understood in concert with the developing science of evolution. There are no signs of a forthcoming reinstatement of the twenty-four Thomistic theses of 1914. Consequently, modern theologians are also free to ask whether Thomism provides the best metaphysics for future encounters with evolution.

Conclusion

If Aquinas’s ideas are rigorously invoked without revision, they do not allow for universal common descent as a natural process, and theistic evolution is not acceptable. But Aquinas was a scholastic thinker receptive to good empirical arguments, and this facet of scholasticism figures prominently in the development of Thomistic evolution. Its advocates are sensitive to the tension between the accepted authority of Aquinas and well-established scientific conclusions. Misplaced attributions of materialism and allegations of indifference to authoritative Catholic doctrine are unfortunately reminiscent of recriminatory episodes during the modernist crisis. As might be expected from a long dialectical relationship, the history of Thomistic interaction with scientific progress has not always been edifying. William Wallace, the renowned Dominican historian and philosopher of science, has called attention to the woefully retrograde Thomist reaction to Newtonian physics that continued even through much of the nineteenth century. Wallace cites

numerous examples from texts in the “manual tradition” used by Thomist educators in which Newton’s laws were still misunderstood and rejected almost two hundred years after the publication of his *Principia*. Reflecting on this stultifying legacy, Wallace warned that “Thomists, in principle, state that one should not rest on authority in matters philosophical, and yet *de facto* they have been doing precisely this.”⁸² Written just after Vatican II, Wallace’s warning was in keeping with efforts to avoid a repetition of past stagnation in the case of evolution.

The criticisms raised by Gage and Chaberek do usefully call attention to topics in need of clarification. Most centrally, the incorporation of substantial forms into the evolutionary process is problematic. A set of discrete forms is not easily embedded within the continuum of genetic mutation and phenotypic change. Resolution of this problem is particularly important in the case of human evolution, but it arises throughout evolutionary history. Perhaps the recent philosophical revival of Aristotelian essentialism may be useful if it can be satisfactorily rendered Thomistic. There is no reason to expect that Thomistic encounters with Darwin should be any easier to resolve than earlier ones with Aristotle, Galileo, and Newton.

Another concern is whether theistic evolution or intelligent design is a better platform for a productive Thomistic encounter with evolutionary science. Critics in the intelligent design camp often frame this conversation as a choice between a materialistic version of Neo-Darwinism and a conjunction of intelligent design and progressive creation. Advocates of Thomistic evolution have refused to accept this false dichotomy. Their recognition of the evidence in support of common descent, including the evolution of *Homo sapiens*, does not even commit them to the strictly scientific mode of Neo-Darwinism, much less the materialistic extrapolations that worry their critics. A more demanding choice for Catholic theologians is between Thomistic evolution and process theology. Both approaches acknowledge the import of modern evolutionary science, but they diverge in their expectations for the future of Thomism. Perhaps John Haught is correct in his negative assessment of the Thomistic option. Hopefully the issues I have raised will contribute to this conversation.

Notes

1. Michael Dodds, *Unlocking Divine Action: Contemporary Science and Thomas Aquinas* (Washington D.C.: Catholic University of America Press, 2012).
2. Nicanor Austriaco et al., *Thomistic Evolution: A Catholic Approach to Understanding Evolution in the Light of Faith* (Tacoma: Cluny Media, 2016).
3. Logan Paul Gage, “Can a Thomist be a Darwinist?” in *God and Evolution*, ed. Jay Richards (Seattle: Discovery Institute, 2010), 87–202.
4. Michael Chaberek, *Aquinas and Evolution* (The Chartwell Press, 2017).
5. The most relevant texts are *Summa Theologiae*, 1a, q44–46 and q65–74; *Summa contra Gentiles*, Book 2; *Questiones Disputatae de Potentia Dei*, q3. A translation and commentary on an earlier discussion in Aquinas’ *Writings on the Sentences of Peter Lombard*, Book 2, d1, q1 is provided in Steven Baldner and William Carroll, *Aquinas on Creation: Writings on the “Sentences” of Peter Lombard 2.1.1* (Toronto: Pontifical Institute of Mediaeval Studies, 1997).
6. Jerry Stannard, “Albertus Magnus and medieval herbalism” in *Albertus Magnus and the sciences: Commemorative essays*, ed. James Weisheipl (Toronto: Pontifical Institute of Mediaeval Studies, 1980), 355–77.
7. Aquinas, *Summa Theologiae*, 1a, q72.

8. Aquinas, *Quaestiones Disputatae De Potentia Dei*, q3, art8.
9. Aquinas, *Summa Theologiae*, 2a, q52.
10. See Baldner and Carroll, 46–7.
11. Aquinas, *Summa Theologiae*, 1a, q45, art5, translation by Baldner and Carroll, 111.
12. Aquinas, *Summa Theologiae*, 1a, q.73, art.1, ad. 3.
13. Mariano Artigas, Thomas Glick, and Rafael Martinez, *Negotiating Darwin: The Vatican Confronts Evolution 1877–1902* (Baltimore: Johns Hopkins University Press, 2006). Don O’Leary, *Roman Catholicism and Modern Science: A History* (New York: Continuum, 2006). On the threat of denunciation, see Gary Lease, “Denunciation as a Tool of Ecclesiastical Control: The Case of Roman Catholic Modernism,” *The Journal of Modern History* 68 (1996): 819–30.
14. See Oliver Rafferty, “The Thomistic Revival and the Relationship between the Jesuits and the Papacy, 1878–1914,” *Theological Studies* 75 (2014): 746–73. In an article critical of John Zahm, the Jesuit journalist Salvatore Brandi described evolution as “a fantastic edifice and there is no better way to describe it than as a tissue of vulgar analogies and arbitrary suppositions which are not supported by the facts” (Artigas, Glick and Martinez, 228).
15. See Joseph Kelly, *History and Heresy: How Historical Forces Can Create Doctrinal Conflicts* (Collegeville MN: Liturgical Press, 2012), 110–50; O’Leary, *Roman Catholicism and Modern Science*, 113–26; Gabriel Daly, *Transcendence and Immanence: A Study in Catholic Modernism and Integralism* (Oxford: Clarendon Press, 1980).
16. Pius X, 1907. *Lamentabili sane*. <http://www.papalencyclicals.net/pius10/p10lamen.htm>
17. Pius X, 1910. *Sacrorum antistitum, The Oath against Modernism*. <http://www.papalencyclicals.net/pius10/p10moath.htm>
18. Pius X, 1914. *Doctoris Angelici*. <https://maritain.nd.edu/jmc/etext/doctoris.htm>
19. See Leonard Callahan, “Twenty-Four Theses of St. Thomas Aquinas,” *Dominicana*, 9 (1925): 5–13, and Rafferty, “The Thomistic Revival,” 771–73.
20. Sacred Congregation of Studies, 1914. “The 24 Thomistic Theses”. <http://www.catholicapologetics.info/catholicteaching/philosophy/thomast.htm>
21. Pius XII, 1950. *Humani Generis*, paragraph 36. http://w2.vatican.va/content/pius-xii/en/encyclicals/documents/hf_p-xii_enc_12081950_humani-generis.html
22. Pius XII, *Humani Generis*, paragraph 37.
23. Francisco Ayala, “Man in Evolution: A Scientific Statement and Some Theological and Ethical Implications,” *The Thomist* 31 (1967): 15.
24. Karl Rahner, “Evolution and Original Sin,” *Concilium* 26 (1967): 64.
25. James Weisheipl, “Scholastic Method,” *The New Catholic Encyclopedia*, 1st ed., 12 (1967): 1145.
26. Marcia Colish, “St. Thomas Aquinas in Historical Perspective: The Modern Period,” *Church History* 44 (1975): 433–49.
27. Gerald McCool, *The Neo-Thomists* (Milwaukee: Marquette University Press, 1994), 155.
28. John Haught, *Resting on the Future: Catholic Theology for an Unfinished Universe* (New York: Bloomsbury, 2015), 5.
29. During the Divine Action Project Robert John Russell was the most committed advocate of reliance upon quantum mechanics; see, for example, Robert John Russell, “Special Providence and Genetic Mutation: A New Defense of Theistic Evolution,” in *Evolutionary and Molecular Biology: Scientific Perspectives on Divine Action*, ed. Robert John Russell, William R. Stoeger, and Francisco Ayala (Berkeley: Center for Theology and the Natural Sciences, 1998), 191–224. Thomas Tracy was another participant who considered quantum indeterminacy to have theological potential; see Thomas Tracy, “Special Divine Action and the Laws of Nature,” in *Scientific Perspectives on Divine Action: Twenty Years of Challenge and Progress*, ed. Robert John Russell, Nancey Murphy, and William Stoeger (Berkeley: Center for Theology and the Natural Sciences, 2008), 249–83. Wesley Wildman included extensive commentary on the quantum approach in his comprehensive appraisal of the Divine Action Project; see Wesley Wildman, “The Divine Action Project, 1988–2003,” in *Scientific Perspectives on Divine Action: Twenty Years of Challenge and Progress*,

- ed. Robert John Russell, Nancey Murphy, and William Stoeger (Berkeley: Center for Theology and the Natural Sciences, 2008), 133–76.
30. Dodds, *Unlocking Divine Action*, 126–59.
 31. These authors all emphasize the Aristotelian and Thomistic distinction between primary and secondary causation, including cases involving contingency. For examples and further references, see J. Matthew Ashley, “Is it Providential, by Chance? Christian Objections to the Role of Chance in Darwinian Evolution,” in *Chance in Evolution*, ed. Grant Ramsey and Charles Pence (Chicago: University of Chicago Press, 2016), 103–21; William Carroll, “After Darwin, Aquinas: A Universe Created and Evolving,” in *Darwin in the Twenty-First Century: Nature, Humanity, and God*, ed. Phillip Sloan, Gerald McKenny, and Kathleen Eggleson (Notre Dame: University of Notre Dame Press, 2015), 299–337; Antonio Moreno, “Some Philosophical Considerations on Biological Evolution,” *The Thomist* 37 (1973): 417–54; John O’Callaghan, “Evolution and Catholic Faith,” in *Darwin in the Twenty-First Century: Nature, Humanity, and God*, ed. Phillip Sloan, Gerald McKenny, and Kathleen Eggleson (Notre Dame: University of Notre Dame Press, 2015), 269–98; Fáinche Ryan, “Aquinas and Darwin,” in *Darwin and Catholicism: The Past and Present Dynamics of a Cultural Encounter*, ed. Louis Caruana (New York: T&T Clark, 2009), 43–59; Mariusz Tabaczek, “Thomistic Response to the Theory of Evolution: Aquinas on Natural Selection and the Perfection of the Universe,” *Theology and Science* 13 (2015): 325–44; Józef Życiński, *God and Evolution: Fundamental Questions of Christian Evolutionism* (Washington D.C.: Catholic University of America Press, 2006). Thomist authors also frequently present a contrast to the intelligent design movement. For examples, see Francis Beckwith, “Intelligent design, Thomas Aquinas, and the ubiquity of final causes,” (BioLogos Foundation, 22 May 2010). http://biologos.org/uploads/projects/beckwith_scholarly_essay.pdf (Accessed 12 January 2019). Marie George, “What Would Thomas Aquinas Say about Intelligent Design?” *New Blackfriars*, 94 (2013): 676–700; Michael Tkacz, “Aquinas vs. Intelligent Design,” *Catholic Answers Magazine* November 1, 2008 <https://www.catholic.com/magazine/print-edition/aquinas-vs-intelligent-design> (Accessed 12 January 2019).
 32. Austriaco et al., *Thomistic Evolution*, ii.
 33. Norbert Luyten, “Philosophical Implications of Evolution,” *New Scholasticism* 25 (1951): 292.
 34. John O’Callaghan, “Evolution and Catholic Faith,” in *Darwin in the Twenty-First Century: Nature, Humanity, and God*, ed. Phillip Sloan, Gerald McKenny, and Kathleen Eggleson (Notre Dame: University of Notre Dame Press, 2015), 272.
 35. John Zahm, *Evolution and Dogma* (Chicago: D. H. McBride, 1896), 357. Zahm is discussing embryological development and sees this as providing insight into evolutionary development.
 36. Messenger was careful to qualify his argument by commenting that “It is to be noted that the actualization of this potency ... depends upon some external stimulus, and that when the form called forth is a higher one, the actuating cause must be sufficiently perfect. That is precisely why we think that evolution can only be explained by regarding created causes as instruments of the Creator.” Ernest Messenger, *Evolution and Theology* (New York: MacMillan, 1932), 94.
 37. Antonio Moreno, “Some Philosophical Considerations on Biological Evolution,” *The Thomist* 37 (1973): 431.
 38. Robert Sokolowski, “Formal and Material Causality in Science,” *American Catholic Philosophical Quarterly* 69 (1995): 64. See also John Goyette, “Substantial Form and the Recovery of an Aristotelian Natural Science,” *The Thomist* 66 (2002): 519–33.
 39. Steven Baldner, “An Argument for Substantial Form,” *The Saint Anselm Journal* 5 (2007): 1–12.
 40. Dodds, *Unlocking Divine Action*, 204.
 41. Mariusz Tabaczek, “Thomistic Response to the Theory of Evolution: Aquinas on Natural Selection and the Perfection of the Universe,” *Theology and Science* 13 (2015): 328.
 42. O’Callaghan, “Evolution and Catholic Faith”; William Carroll, “After Darwin, Aquinas: A Universe Created and Evolving,” in *Darwin in the Twenty-First Century: Nature, Humanity,*

- and God*, ed. Phillip Sloan, Gerald McKenny, and Kathleen Eggleston (Notre Dame: University of Notre Dame Press, 2015), 299–337.
43. Aquinas, *Summa Theologiae*, 1a, q22, art4, ad1.
 44. International Theological Commission, 2004, “Communion and Stewardship: Human Persons Created in the Image of God.” http://www.vatican.va/roman_curia/congregations/cfaith/cti_documents/rc_con_cfaith_doc_20040723_communion-stewardship_en.html
 45. Austriaco et al., *Thomistic Evolution*, 154–5.
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