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Aquinas, Teleology, and the Modern Evolutionary Synthesis

I. Introduction

The teleology of Thomism maintains that a substance – that is, a living organism – must possess a palatable function in order to subsist. In fact, Aquinas writes, “It is impossible for a substance to exist that has no operation.”¹ In the modern synthetic theory of evolution, however, many overly naturalistic adherents posit that the concept of function is no longer apropos to speak of in science. Functions (read purposes), they contend, must be applied by an intentional agent, and the derivation of species by natural selection is not the result of an intentional agent. More strongly, evolution itself is not intentional. Furthermore, any discussion of agency or intention is inconsistent with the modern perspective of science.

The modern evolutionary synthesis (also known as the new synthesis, the modern synthesis, the evolutionary synthesis, or the neo-Darwinian synthesis) is a twentieth century integration of ideas in biology that offers an account of the evolution of species, the acceptance of which is still predominate. This synthesis, produced between 1936 and 1947, reflects the consensus garnered during that time frame about

¹ Thomas Aquinas, *Summa Contra Gentiles*, trans. by Anton C. Pegis, James F. Anderson, Vernon J. Bourke, and Charles J. O’Neil. (New York: Hanover House, 1955–57), II.80.1618.

how evolution occurs.² In the middle of the nineteenth century, evolutionary ideas by Charles Darwin were first generated (he published his work in 1859). Concurrently, though relatively unknown except in closely-related circles, the monk Gregor Mendel laid down the principles of discreet genetics. These developments of Mendel were rediscovered in the early twentieth century by a broad audience, and between 1918 and 1932, it was shown that Mendelian genetics were consistent with natural selection and gradualistic evolution.

The modern evolutionary synthesis is still, to a large extent, the paradigm in modern evolutionary biology.³ Is Thomistic teleology⁴ inconsistent with the modern synthetic theory of evolution? This is the large metaquestion that this essay will investigate. Aristotelian philosophy will be employed in this investigation, since Aristotle is the father of teleology⁵ and his philosophical system relies on the concept of function, yet he does not posit an intelligent agent explicitly.⁶ Instead, he maintains that “It is absurd to suppose that ends are not present [in nature] because we do not see an agent deliberating.”⁷ He furthermore maintains that species, or rather essences, are descriptive manifestations in nature. Aquinas is faithfully Aristotelian in his metaphysics; however, he is also a theist. Thus, one must discern if Aquinas’s teleology requires – or necessitates – his God. If this is the case, one has to further discern whether an intentional agent is compatible with the modern synthetic theory of evolution. If the two are incompatible, it may require a revision of

² Ernst Mayr, *The Evolutionary Synthesis: Perspectives on the Unification of Biology* (Cambridge, MA: Harvard University Press, 1998), 13.

³ Ernst Mayr, *What Evolution Is* (New York: Basic Books, 2002), 270.

⁴ Teleology, for Aristotle, can be summed up as “‘That for the sake of which’ is a thing’s purpose, its end, the goal at which it aims.” Owens, Joseph. “The Teleology of Nature in Aristotle.” *The Monist* 52, (1968): 159–173.

⁵ Aristotle conceived teleology: “nature is among the causes which act for the sake of something.” Aristotle, *Physics* 2.8, 198b10.

⁶ Aristotle does not see final causality, or teleology, as a kind of preexistent, quasi-efficient cause pulling things toward certain goals (Fran O’Rourke, Aristotle and the Metaphysics of Evolution. *Review of Metaphysics* 58 [2004], 35).

⁷ Aristotle, *Physics* 2.8 199b27-9.

Thomistic philosophy. I aver that Thomistic teleology is dependent on an intentional agent, but his division of the disciplines⁸ allows for the modern synthetic theory of evolution to be cogently adhered to.

II. Aquinas Employs Aristotle's *Physics*

Contrary to views that Thomistic commentaries on Aristotle's *Physics* are literal, and that Aquinas should be thought of as merely expounding Aristotelian views,⁹ I contend that his "philosophical commitments and interests – the very problems posed for him by philosophy – differ radically from those of Aristotle."¹⁰ Aquinas adapted Aristotelian teleology by applying his distinct theological and philosophical flavors. Indeed, it is the position of Lang that Aquinas inverts the teleological formula of Aristotle, in effect reversing its ends. In his *Physics*, Aristotle begins with a definition of nature; what follows therein is an argument for the "broadest subject of physics."¹¹ He ends with the unmoved mover in order to elucidate motion.¹² Arguments in regard to the unmoved mover are asserted so as to be an explanatory factor of nature. As such, nature is presented as the eventual subject of physics.¹³ Aquinas reads Aristotle's arguments in a reverse manner, insomuch as where Aristotle delineates the purpose of the argument – nature – first, Aquinas advocates that the *Physics* reaches its pinnacle in God.¹⁴ In

⁸ Thomas Aquinas. "On Natural Science, Mathematics, and Metaphysics." *Expositio super Librum Boethii de Trinitate*, 2. Questions 5–6. Timothy McDermott, trans. *Aquinas: Selected Philosophical Writings*. Oxford: Oxford University Press, 1993, 7.

⁹ Gilson, Etienne. *The Philosopher and Theology*. Cecile Gilson, trans. New York: Random House, 1962, 210–11.

¹⁰ Helen S. Lang, "Aristotelian Physics: Teleological Procedure in Aristotle, Thomas, and Buridan." *The Review of Metaphysics* 42, No. 3 (1989): 570.

¹¹ Helen S. Lang, *Aristotle's Physics and Its Medieval Varieties* (SUNY Series in Ancient Greek Philosophy) (New York: SUNY, 1992), 163.

¹² Lang 1989, 574.

¹³ *Ibid.*, 573.

¹⁴ *Ibid.*, 576.

doing this, Aquinas produces an inversion of the Aristotelian sequence, as Lang explains:

“For Aristotle, the books of the *Physics* do not progress toward an end; rather, the main thesis of each book is first; later books refer to what precedes because arguments become progressively narrower and more specialized. Physics is the science of things which are by nature; Aristotle intends within physics to establish his definition of nature, to develop the concepts required by it, and to solve objections which might be raised against it. But for Thomas, physics sets out from the most general effect in order to arrive at its most important cause. Thus, physics sets out from what Thomas calls mobile being... and culminates in the proof of an unmoved mover, called God.”¹⁵

Aquinas reverses the intent of Aristotle’s *Physics*, noting that it begins with the general and works toward the specific (as Lang says, “progressing toward an end”¹⁶) “in order to reach the first cause of motion in the universe, the unmoved mover of *Physics* 8, whom Thomas identifies as God.”¹⁷ Aquinas depicts motion, the subject of physics, as created. Creation should be studied in regard to its first cause principally, which is God.¹⁸ So then, the study of physics concludes in and with God; further, the center of physics is to “reach God within the bounds of natural philosophy.”¹⁹ As such, Aquinas’s physics – and his teleology – are inseparable from God.

Among Medieval philosophers, there is no unanimity on whether God created the universe in stages over a linear period of time – that is, in succession – or all at once (but with some things, organic life specifically, being created “in potency”).²⁰ Dun Scotus, for example, held to the view of “in potency”. Indeed, he writes,

¹⁵ *Ibid.*, 579.

¹⁶ Lang 1992, 165.

¹⁷ *Ibid.*, 164.

¹⁸ Lang 1989, 581.

¹⁹ *Ibid.*, 582.

²⁰ Richard Cross, “Dun Scotus and Divine Necessity.” In Robert Pasnau, (Ed.), *Oxford Studies in Medieval Philosophy*, Vol. 3 (Oxford: Oxford University Press, 2015), 130.

“Something is said to be in potency in two ways: in one way, because it is the end term of a power [*potentia*], or is that to which the power is directed, and this is said to be objectively in potency (as the Antichrist, or whiteness that is to be generated, is said in one way to be a being in potency). In the other way, something is said to be in potency as the subject of a potency, or as that in which the potency is. And in this way something is said to be in potency subjectively, because it is in potency to something but not yet perfected by it (as a surface that is to be made white).”²¹

Aquinas believed that these two views – succession or in potency – could be reconciled with each other, and even accepted them both. His intellectual perspective in this matter serves as a model to follow for contemporary scholars’ approach to the putative “war” between science and religion. We would do well to follow his lead.²²

III. Teleology: Existence and Operation

As mentioned earlier, Aquinas’s teleology is essential to understanding his science. He writes, “no substance is deprived of its proper operation”²³ because of the order in nature. He says further, “Noth-

²¹ Dun Scotus, *Lect.* II, d. 12, q. un., n. 30 (Vatican, XIX, 80); translation from Richard Cross, “Duns Scotus on Essence and Existence.” In Robert Pasnau, ed. *Oxford Studies in Medieval Philosophy*, Vol. 1 (Oxford: Oxford University Press, 2013), 191–192.

²² “A positive dialogue is necessary, not least because the way each subject answers its own questions must bear some fitting relationship to the answers offered by the other, if it is indeed the one world of reality that both are seeking to speak about. There will be no strict logical entailment between the two sets of answers, but there certainly needs to be a certain degree of consonance. How? and Why? are distinct questions, but the forms of their answering must fit compatibly together” (John C. Polkinghorne, *Theology in the Context of Science* [New Haven, Conn.: Yale University Press, 2009], 97–98).

²³ Thomas Aquinas (1983). *Quaestiones Quodlibetales*. Sandra Edwards, trans. Mediaeval Sources in Translation, 27. Toronto: Pontifical Institute of Mediaeval Studies, *QQ* 3.9.Ic.

ing is idle or pointless in nature”²⁴ because, as Pasnau notes, “nature wouldn’t consign a substance to idle existence.”²⁵ Nature, according to Aquinas’s teleology, has no “reason to allow idle substances, extant but incapable of actually functioning.”²⁶ Therefore, existing substances must have a function.²⁷

Aquinas here is directly applying Aristotle’s teleology. He states, “The Philosopher says in *De caelo* II (268a8) that every thing is for the sake of its operation; hence, if a thing remains, its operation remains. This is also what Damascene says, that no substance is idle.”²⁸ Aquinas stipulates that this means “the operation of any thing serves at its end, being what is best in it [and that] nature will bring about the best possible result.”²⁹ This seemingly means that if something cannot continue to operate, it cannot continue to exist – which appears contrary to the modern evolutionary synthesis, as things like organs and structures persist long after their function is exasperated, as long as they do not have an associated biological cost.

For Aquinas, extricating existence from life is absurd, because things do not simply exist – they exist as certain types of things, with particular types of operations. Indeed, “To live just is to exist in a certain way... to function in a certain way.”³⁰ Consequently, if an entity or thing’s operation cannot be implemented, it cannot exist, because existence is not a property entities and things have in addition to their other characteristics and capacities. He writes, “For a thing to exist

²⁴ Thomas Aquinas (1920). *Summa Theologiae of St. Thomas Aquinas*. Literally Translated by the Fathers of the English Dominican Province, Second and Revised Edition, *ST* 88.1 obj 4.

²⁵ Robert Pasnau, (2002). *Thomas Aquinas and Human Nature*. Cambridge: Cambridge University Press, 370.

²⁶ *Ibid.*, 371.

²⁷ Thomas Aquinas (1955–57). *Summa Contra Gentiles*. Anton C. Pegis, James F. Anderson, Vernon J. Bourke, and Charles J. O’Neil, trans. New York: Hanover House, *SCG* II.97.1823.

²⁸ *IV Sent* 50.1.1 sc I

²⁹ *QDV* 19.1c

³⁰ Pasnau 2002, 370.

just is for it to act in one way or another;³¹ accordingly, ceasing to function means ceasing to exist for substances. And note that an organism is a substance, when substance is understood as something that subsists, as an underlying subject of accidents.³² As the subject of accidents, substance is an indispensable notion to any theory of change, including that of the modern evolutionary synthesis.

Aquinas uses Aristotle's notion of hylomorphism, which means "matter" (*hylōs*), and "form" (*morphos*) – terms that Aristotle borrowed from Plato and his parable of the cave in *The Republic*. Aristotle contended that no matter exists without corresponding to a form, and no form can exist without having a presence in matter. Thus, Aristotle taught that the body cannot persist without the soul, and the soul cannot persist without the body, which in effect means there is no afterlife. Aquinas was not as emphatic regarding form and matter's inseparability. As a Dominican priest, Aquinas held high regard for Scripture, which seems to indicate that a separation of soul and body is possible.³³ Nevertheless, Aquinas uses the concept of hylomorphism to explain change in general, which entails a potentiality to become an actuality.

While Aquinas's understanding of hylomorphism accounts for accidental change, the biological concept of evolution necessitates substantial change. In the event of accidental change, there is a basic substance that remains the same, allowing for the accidents to vary. It seems to me as if this method could be cogently applied to substantial change. For substances, there is no underlying thing which remains while allowing for change. A substance, therefore, may come into existence or cease to exist, but it cannot change, as per se, since it has no subject of the change. Living bodies have substance because of their substantial form. Substantial forms change in accident, but they cannot change their very essence, according to Aquinas. Indeed, "In

³¹ *Ibid.*

³² *Ibid.*, 48.

³³ For example, Matthew 10:28 avers that the body and soul are not mutually dependent.

a substantial change, the substance itself simply comes to be, or ceases to be.”³⁴ Thus, there is no possibility for a form to change within Aquinas’s hylomorphic system.

However, with Pasnau, it is my contention that hylomorphism provides the avenue for a Thomistic explanation of biological evolution.³⁵ “[A] thing’s mode of operation follows its mode of existence,”³⁶ which indicates that a change in operation causes a change in mode, because “how a thing operates depends on how it exists.”³⁷ Therefore, to have a different mode of existence is to undergo an alteration of what a thing is. When a biological organism, for example, morphs so much that it no longer has any consistency with its ancestral line, and has a profoundly different function of life as well, then a different species emerges.³⁸

Aquinas’s theory of universals, and how it navigates the notion of vagueness, is instructive for biological evolution. He accepts the Aristotelian definition of a universal, which indicates that a universal (that is, an essence or substantial form³⁹) is something that is naturally appropriate to exist in many things and which is also predicated of many different things. Aquinas accepts that universals are dependent on mind, as they are made by intellect and therefore exist only in the

³⁴ Ralph McInerney and John O’Callaghan, “Saint Thomas Aquinas.” *The Stanford Encyclopedia of Philosophy* (Winter 2010 Edition), ed. by Edward N. Zalta. <http://plato.stanford.edu/archives/win2010/entries/aquinas>. Accessed 10/6/16.

³⁵ Pasnau 2002, 370.

³⁶ *Ibid.*, 373.

³⁷ *Ibid.*, 372.

³⁸ Note that I am here using the term “emerge” in a distinctly philosophical sense to refer to the biological concept of emergence theory, as delineated by Philip Clayton in *Mind and Emergence: From Quantum to Consciousness* (Oxford: Oxford University Press, 2006), and in Philip Clayton, *The Re-Emergence of Emergence: The Emergentist Hypothesis from Science to Religion* (Oxford: Oxford University Press, 2008). I have extended Clayton’s concept of emergence in several peer reviewed articles in 2007, note.

³⁹ S. Marc Cohen, “Aristotle’s Metaphysics.” *The Stanford Encyclopedia of Philosophy* (Summer 2012 Edition), ed. by Edward N. Zalta. <http://plato.stanford.edu/archives/sum2012/entries/aristotle-metaphysics>. Accessed 10/7/16.

intellect, but they also maintain a truth about the world by corresponding to what exists in the world.⁴⁰

IV. Teleology and Intention

Thomistic philosophy is fundamentally teleological, a view that some scholars of science and philosophy argue is incompatible with our understanding of the natural environ. Teleology, assumed to be intentional, is “purposive or goal-directed activity,” which when applied to nature means that “purposive activity is present and asks how the activity is to be identified and described.”⁴¹ Nature itself is – for the purposes of study – “mobile things.”⁴² Motion is a kind of change, and within the Aristotelian system of thought, explanation of change requires matter and form. These two components, matter and form, are “constituted by nature.”⁴³ Aristotle notes, “And since ‘nature’ means two things, the matter and the form, of which the latter is the end, and since all the rest is for the sake of the end, the form must be the cause in the sense of ‘that for the sake of which.’”⁴⁴

Within the hylomorphic system, form is the final cause, as it “in its structural role is the intelligible content of the thing, and in its primary or basic occurrence in the thing it serves as the focal point towards which all else is directed.”⁴⁵ Aristotle uses the example of mind when recounting nature, because mind coordinates activity by means of intention. “For nature, like mind, always does whatever it does for the sake

⁴⁰ Robert Pasnau and Christopher Shields (2004). *The Philosophy of Aquinas*. Boulder, CO: Westview Press, 73–74.

⁴¹ Joseph Owens, (1968). “The Teleology of Nature in Aristotle.” *The Monist* 52, No. 2, 159.

⁴² *Ibid.*

⁴³ *Ibid.*, 160.

⁴⁴ Aristotle, *Physics* 2.8; 199a30-34; Johnson, Monte Ransome (2005). *Aristotle on Teleology*. Oxford: Clarendon Press, 64.

⁴⁵ Owens 1968, 161.

of something, which something is its end.”⁴⁶ Nature acts hierarchically, leading, if you will, all individual organs within a body toward the whole of the body, and an individual human toward reproduction of another individual.⁴⁷ Aristotle stipulates that nature is akin to an intelligent entity, “Yet for him nature as such is not endowed with intelligence, nor is there any outside demiurge or world soul or creator to do the directing.”⁴⁸ Ayala states that “Final causes, for Aristotle, are principles of intelligibility.”⁴⁹ Aristotle does not think that final causation requires justification, since it is a fundamental feature of the natural world.

Aristotle states that final causes are inherent in the natural order, but these do not require explanation by reference to some divine designer, as they are immanent within nature.⁵⁰ Aquinas disagrees with Aristotle, as he contends that final causes⁵¹ do in fact require ultimate explanation, and he argues that the explanation for these final causes is a divine intellect. The evidence that Aquinas provides for this claim is cause-effect relationships. Thomistic teleology is straightforward, as “Every agent acts for an end: otherwise one thing would not follow more than another from the action of the agent, unless it were by chance.”⁵² By agent, Aquinas means anything that serves as an efficient cause, inasmuch as that within the agent there is some potentiality to cause a specific effect. Whenever cause-effect relationships are evident in nature, Aquinas posits a final cause as the producer of the effect. So then, Aquinas necessitates an explanation whereas Aristotle

⁴⁶ Aristotle, *De Anima* II, 4,415b16-20.

⁴⁷ Owens 1968, 162.

⁴⁸ *Ibid.*, 170.

⁴⁹ Francisco J. Ayala, “Teleological Explanations in Evolutionary Biology.” *Philosophy of Science* 37, No. 1 (1970): 14.

⁵⁰ Christopher Shields, *Aristotle* (New York: Routledge, 2007), 82.

⁵¹ The present day crisis in divine action results from a shift in the notion of causation. In premechanistic science, that which was dominated by Aristotle, a component of final causation was included in every event, in addition to that of efficient, formal, and material causes (Philip Clayton, *God and Contemporary Science* [Edinburgh: Edinburgh University Press, 1997], 189).

⁵² *ST I*, Q 44, Art. 4.

does not; indeed, Aquinas states that the effect produced by the cause needs to actually subsist in some way. This effect does not subsist in the natural world – it is simply pointed to by the cause – and it does not exist in the world of forms, so it must exist in an intellect, which could be seen to be as outside⁵³ of the natural world⁵⁴.

When Aquinas argues for the existence of God based on both the order of and purpose in nature, he points out that natural things have intrinsic intelligibility and directedness in behavior. We can understand nature because of its order. The reason that nature is cognizable, the reason we can trust our use of empirical evidence and the reason we can detect natural laws that explain the physical, is because of its internal purpose, which is present due to its source in God. God builds from within. Nature is cognizable by causes discoverable in it, and these causes necessitate divine agency. Indeed:

“The evidence for God’s Creation of the natural universe is the known fact – a fact that we know on the basis of our scientific research – that natural things are intelligible. If they are intelligible, they are so as the products of nature – that is, they are intelligible in terms of their natural causes. If this is true of the totality of natural things, then there must be some ultimate source of this intelligibility – there must be some ultimate cause for the being of any and all natural things. This ultimate source for the being and intelligibility of nature cannot be yet another natural thing. It must be something outside of nature that has the power to produce the totality of nature and does not itself require a cause. Both the existence and intelligible order of the natural universe, therefore, show that it exists because of an ultimate cause: God the Creator.”⁵⁵

⁵³ Edward Feser, *Aquinas* (Oxford: One World Publications, 2009), 112.

⁵⁴ I cannot agree with this point made by Feser, since I adhere to a panentheistic metaphysic which pictures God as inherently immanent within the world; in the words of Arthur Peacocke, as cited by Cooper, God is seen, in the pantheistic vision, as working “in, with, and under natural processes” (Arthur Peacocke, as cited in John W. Cooper, *Pantheism – The Other God of the Philosophers: From Plato to the Present* [Grand Rapids, MI: Baker Academic, 2006]), 310.

⁵⁵ Tkacz 2008. Section: “Out of Nothing at All.” Aquinas vs. Intelligent Design. *Catholic Answers Magazine* 19, No. 9. <http://www.catholic.com/magazine/articles/aquinas-vs-intelligent-design>. Accessed 10/9/16.

However, Aquinas also depicts that there are aspects of the world in general that are immaterial and necessitate non-physical explanations.

V. Atheistic Evolution and the Problem of Teleology

It is sometimes stated that all things natural will ultimately be explained by physics. Indeed, various philosophers of science maintain that scientific forms of explanation are the “whole story,” adequate to explain the entirety of human experience.⁵⁶ Thomas Nagel, akin to Aristotle, poses teleology without a divine agent. Instead, he avers there are things that cannot be explained physically. He does acknowledge that evolution occurs and that consciousness evolved from non-conscious life. Nagel contends that the area of the intentional cannot be accounted for by what he calls “scientific naturalism”⁵⁷ and Plantinga calls “Darwinist materialism.”⁵⁸

Nagel posits a natural teleology (one in which he explains is “a cosmic predisposition to the formation of life, consciousness, and the value that is inseparable from them”⁵⁹) that offers a non-reductionist account of non-physical things such as consciousness and reason. This account avers that “in addition to the laws governing the behavior of the elements in every circumstance, there are also principles of self-organization or of the development of the complexity over time that are not explained by those fundamental laws,” which is a form of a variety emergence.⁶⁰ This natural teleology contains laws that de-

⁵⁶ John O. Reiss, *Not By Design: Retiring Darwin's Watchmaker* (Berkeley: University of California Press, 2009), 147.

⁵⁷ Thomas Nagel, *Mind and Cosmos* (Oxford: Oxford UP, 2012), 68.

⁵⁸ Alvin Plantinga, “Why Darwinist Materialism is Wrong.” *The New Republic*. November 16, 2012. Plantinga maintains the thesis of Darwinist Materialism is “what there is in our world are the elementary particles described in physics, together with things composed of these particles” (3). Accessed 10/8/16.

⁵⁹ Nagel 2012, 123.

⁶⁰ *Ibid.*, 59.

scribe “the development of an organization over time.”⁶¹ Teleological explanation is applicable to this world, and supplies principles that constrain “temporally extended development,” and are “an irreducible part of the natural order.”⁶² In contrast, non-teleological accounts furnish explanations that are in terms “of how each state of the universe evolved from its immediate predecessor.”⁶³

Natural teleology explains the existence of life as not being a cosmic accident but rather “something to be expected, or at least not surprising... [something] made likely by physical law.”⁶⁴ It is a directed course toward an outcome. Nagel contends that this hypothesis is “congruent with atheism” but is also available for a theist. Nagel claims that “a theist who believes God is ultimately responsible for the appearance of conscious life could maintain that this happens as part of a natural order that is created by God, but that does not require further divine intervention.”⁶⁵ In my opinion, this is what Aquinas also held. Indeed, Thomistic philosophy also makes claims regarding the limits of causal explanations. Indeed, his teleological concept that “nature does nothing in vain” explains this conception, and according to him, there are certain things which must be explained teleologically. One example is human consciousness, which is a quandary to naturalism as it is intentional. Can evolutionary processes explain what consciousness is? In review of the current state of the philosophy of science, the answer is no.

For Aquinas, “the inviolable unity of mind, brain, and body” is a foundational conception of intention.⁶⁶ Freeman maintains that intention is necessary to “fill the explanatory gap between electrophys-

⁶¹ *Ibid.*, 66.

⁶² *Ibid.*, 93.

⁶³ *Ibid.*, 92.

⁶⁴ *Ibid.*, 89.

⁶⁵ *Ibid.*, 95.

⁶⁶ Walter J. Freeman, “Nonlinear Brain Dynamics and Intention according to Aquinas.” *Mind and Matter* 6, No. 2 (2008): 207.

iological data” and goal-directed behavior.⁶⁷ Thomas recognized this gap in his work on cognition, positing:

“the distinction between matter, which has unique and individual forms, here and now, that are not accessible to knowledge versus the intellect, which has classes of forms that are abstracted from matter, and that do not exist in matter. It is precisely the forms of material things that the intellect knows: it knows what each material being is, and each material thing is what it is because of its form.”⁶⁸

Although Aquinas recognized the necessity of accounting for the immaterial aspects of human life, he was able to reconcile the existence of randomness within the creation of his God.

A. Chance and Teleology

Physicalist philosophers of science argue that evolution cannot be described as teleological, contending this is true because of the random nature of evolution by natural selection. Moreover, some contend that the foundational concept of chance⁶⁹ within evolution is contrary to the notion of a divine plan. Random – read chance – events are responsible for genetic modification, which along with natural selection is the means by which evolution occurs, and it appears that randomness is incompatible with Thomistic philosophy. However, Aquinas accepts the presence of chance within his system, and considers it consistent with God’s design. Indeed, Aquinas maintains that God intends the existence of chance within the natural environ, and that it provides the opportunity for variation. As such, the source of genetic mutation, which is derived by chance, is consistent with the idea of divine intention. Aquinas sees chance as an accidental cause (*causa per accidens*), not

⁶⁷ *Ibid.*, 210.

⁶⁸ *Ibid.*, 213.

⁶⁹ William Wallace describes chance as “an interference between, or an intersection of, two lines of natural causality not determined, by the nature of either, to interfere with one another” (William A. Wallace, *Elements of Philosophy: A Compendium for Philosophers and Theologians* [New York: Alba House, 1977], 47).

a proper cause (*causa per se*).⁷⁰ Chance is a real feature of the world, according to Aquinas. Indeed, he thinks that that “it would be contrary to the character of divine providence if nothing were to be fortuitous and a matter of chance in things.”⁷¹ Aquinas contends that chance at a lower level creates intention at a higher level.⁷² Causation at one level “emerges” from chance at a lower one, as in the case of evolution, wherein chance at the molecular level of genetics causes variation in species.⁷³ This produces an ordered progression toward more complex organisms. The random element of chance mutation in this context is constrained by natural selection, which determines the derivation of those traits and drives evolutionary change. Natural selection can be said to “preserve what is useful and eliminate the harmful,” and this provides for the natural teleology Aquinas and Nagel need.⁷⁴

B. Division of the Disciplines

As discussed earlier, Aquinas recognizes that different disciplines are looking for different types of answers to questions about causes, and different disciplines have differing domains. Creation is within the domain of metaphysics and theology, whereas the natural world is within the domain of the natural sciences. Aquinas understands, for example, that theology, philosophy, and natural science will search for various causes and explanations.⁷⁵ Science and philosophy, as well as theology have different aims: The philosopher of nature considers creatures as natural beings, and aims to comprehend their causes and properties. The natural sciences, in contrast, seek to discover “real

⁷⁰ Michael J. Dodds, *Unlocking Divine Action: Contemporary Science and Thomas Aquinas* (Washington, DC: Catholic University of America Press, 2012), 38.

⁷¹ SCG III, 74, no. 2.

⁷² Arthur Peacocke, *Theology in an Age of Science* (Oxford: Blackwell, 1990), 117.

⁷³ Dodds 2012, 103.

⁷⁴ *Ibid.*, 83–4.

⁷⁵ Baldner 1997, 14.

causes in the world.”⁷⁶ The theologian attempts to understand creatures by means of the first principle and as aimed at the ultimate end of God.⁷⁷ Despite all this diversity of domains, there is only one truth, and all disciplines relate to God, regardless their deviating subject matter.

Aquinas finds the apparent conflict between the natural world and the revealed word is due to uncertainty “regarding the nature of creation and natural change.”⁷⁸ He would, seemingly, explain the controversy over teleology in evolution in terms of this confusion. That is, evolution is a kind of change, whereas God’s creation is not a kind of change, because change has natural cause or passive potency of some kind.⁷⁹ Although it is a cause, it is a cause of a different kind than change. Aquinas distinguishes here between causes that are existential and operational. That is, evolution is an operational cause for *Homo sapiens*, while God is their existential, final cause. Aquinas distinguishes between the existence of natural beings and their operations, inasmuch as God causes natural beings to exist in such a way that they are the agents of their own operations. In the Thomistic account of creation, God does not work from “outside” of his creation to advance things in the way he proposes. Instead, as the order of everything is from God, this prevents him from having to “intervene” in nature to ensure things proceed according to his general plan.

God is a cause within nature, but not just *another* cause. Aquinas thinks of causes in regard to creation in two ways: The first is primary (divine), and the second is creaturely, but both are present at all times in creation.⁸⁰ God’s causation, furthermore, does not reduce the explanatory power of science.⁸¹ One might contend that ascribing

⁷⁶ *ST* 1.105.5 sol.

⁷⁷ Baldner 1997, 34.

⁷⁸ Tkacz 2008. Section: An Earlier Creation Crisis.

⁷⁹ Baldner 1997, p. 44–45.

⁸⁰ Harm J. M. J. Goris, *Free Creatures of an Eternal God: Thomas Aquinas on God’s Infallible Foreknowledge and Irresistible Will* (Peeters Leuven: Thomas Instituut Te Utrecht, 1996), 304.

⁸¹ Thomas Aquinas, *Quaestiones Disputatae De Potentia Dei*. Translated by the English Dominican Fathers (Westminster, Maryland: The Newman Press, 1952).

a cause to nature correspondingly entails taking that cause from God's power.⁸² Doing this, however, is confusing the fact of creation with the "order or mode" of natural development within the world.⁸³ Science often makes claims with theological implications. Misunderstanding in regard to those implications is often the result of the confusion between the types of causes. Science gives a natural explanation, while theology offers teleological explanations.⁸⁴

In response to the tension between disciplines, Aquinas posits two creations: God is transcendent, on the ontological level, which is a different level than the contingent world.¹¹⁶ According to Baldner, Godly creation is original and outside of time, and is the source of all causal connections. Earthly creation, in contrast, is continuous and in time.⁸⁵ As there are multiple levels of causation, so there are various levels of creation. Different metaphysical levels of creation involve different metaphysical levels of causation. The first is the most basic, fundamental understanding of creation, which is accessible through reason, and in this regard, no faith is required. The second, which contains all of the first creation, plus revelation, includes ideas that seem unlikely in view of science, which can be known by faith only. An example Aquinas gives is of the temporal finiteness of the universe.⁸⁶

VI. Conclusion

In conclusion, Aquinas interprets Aristotelian naturalism to fit his theological worldview; he accounts for nature by means of natural explanation, and his concept of teleology – which links function to

⁸² Baldner 1997, 51.

⁸³ *ST I*, Q85, A1.

⁸⁴ William E. Carroll, "Creation, Evolution, and Thomas Aquinas." *Revue des Questions Scientifique* 171, No. 4 (2000): 319-347. Section: Creation and Evolution in the Contemporary World.

⁸⁵ Baldner 1997, 8.

⁸⁶ *Ibid.*, 7.

operation – contributes to the philosophical understanding of the natural world, including the modern evolutionary synthesis. He is able, for example, to account for randomness in the world without undermining his theology. However, he also posits that immaterial concepts, such as consciousness, exist and offers for them immaterial explanations. An adherent to Thomistic philosophy can indeed accept evolution, and even use Thomistic hylomorphism to explain the evolution of species; however, the ultimate order of existence depends entirely upon the final cause of the universe, which is God. Thomistic philosophy is strong enough to withstand the tension between modern science and theology, and provides philosophical accounts for scientific concepts. Its strengths are unparalleled in that regard.

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Aquinas, Teleology, and the Modern Evolutionary Synthesis

Summary

Thomistic teleology maintains that a substance must possess a palatable function in order to subsist. However, many naturalistic adherents posit that the concept of function is no longer apropos to speak of in science. Functions, they contend, must be applied by an intentional agent, and the derivation of species by natural selection is not the result of an intentional agent. Thomistic teleology is dependent on an intentional agent, but his division of the disciplines allows for adherence to the modern synthetic theory of evolution. Aquinas accepts the presence of chance within his system, and considers it consistent with God's design, maintaining that God intends it, and that it provides the opportunity for variation. Aquinas sees chance as an accidental cause, not a proper cause. Adherents to Thomistic philosophy can accept evolution, and even use Thomistic hylomorphism to explain the evolution of species. Thomistic philosophy is strong enough to withstand the tension between modern science and theology, and provides philosophical accounts for scientific concepts.

Key words: Thomistic philosophy, modern evolutionary theory, teleology, functions.