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Opening Message

Just as I began to prepare this introduction to the Winter 2026 issue of *FiRST Principles*, I received an email message including an essay that roundly criticizes something I wrote in an earlier introduction (it will be included in our next issue). I have to tell you … I'm thrilled! These pages are for ITEST members to share thoughts and respond to each other, and I hope that each of you will give some consideration to submitting your own contribution.

In this issue of our journal, the theme is human nature and uniqueness. I have no doubt that the fine articles included here will spark much thought among our readers, and that we will soon receive some new responses – both praising and critical – to enhance the crucial discussion of just how to understand human nature. Our Faith tells us much about this, and it offers timeless wisdom. Our culture also has much to say, but so much of it seems muddled, contradictory, and hopelessly mercurial, not to mention opposed to the truths of our Faith. We need vigorous discussion of human nature from scientific and theological perspectives. We need to find the language and ideologically resonant concepts that will help Christians to deepen our insights into ourselves and to evangelize.

To that end, we are presenting two very interesting articles, two book reviews, and a shorter essay. The Very Rev. David Poecking of the Diocese of Pittsburgh delves into the lessons of J.R.R. Tolkien's *Lord of the Rings* trilogy to explore human dignity, heroism, gratitude, and domination. A key theme is the failure that arises out of possessiveness, whether the object is one's own life, power, or competition with God for some kind of technologically derived divinity.

Valerio Franceschin dives into a philosophical and evidence-based examination of the role of abstract thought in human distinctiveness, arguing that it is not just the power of reason but the particular power of abstraction that sets human beings apart from the animals.

Sister Marianne Postiglione provides a delightful review of the genetic science pioneer Francis Collins' book *The Road to Wisdom*, couched in shared personal thoughts and experiences. Dr. Thomas Sheahen also reviews a Francis Collins book titled *The Language of God*, giving us a succinctly thorough (a very skillfully woven combination) evaluation that emphasizes the compatibility of science and Christian faith. Finally, I have penned an essay that addresses the cultural loss of Aristotle's "final cause" and its consequences for understanding human nature.

Please enjoy your reading, and let us know your thoughts, whether for publication or simply as feedback.

Christopher Reilly, ThD
Editor, *FiRST Principles*

In This Issue...

Announcements

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Date	Title	Presenters	Watch/Register link
12/06/25	Why the Unborn Matter	Randal Mandock, PhD Francis Etheredge	https://faithscience.org/why-unborn-matter/
02/07/26	Can AI Have a Soul? What Theology, Psychiatry, and Science Fiction Say	Robert Kurland, PhD Fr. Robert J. Spitzer, SJ, PhD	https://faithscience.org/can-ai-have-a-soul/

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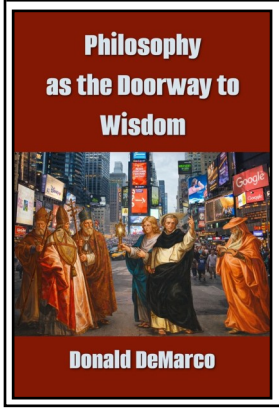
Book Recommendation



Philosophy as the Doorway to Wisdom
by Dr. Donald DeMarco

This book invites readers to rediscover philosophy not as abstraction, but as a lived pursuit of truth, meaning, and God. Drawing on Scripture, classical thinkers, and Catholic tradition, DeMarco shows how philosophy—grounded in common sense and love—opens the path to authentic wisdom. Through reflective essays and cultural commentary, this book challenges modern confusion and restores philosophy's rightful role as a guide to faith, virtue, and human flourishing. Learn more at https://enroutebooksandmedia.com/doorwaytowisdom/.

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The Drama of Human Nature in Tolkien and Contemporary Culture

By the Very Rev. David Poecking

Frodo fails but still emerges as victor. I refer to the most visible protagonist in *The Lord of the Rings*, in which the author, J.R.R. Tolkien, portrays human nature as prelude and platform for the Gospel concerning sin and salvation. His observations are applicable to contemporary controversies related to human nature: artificial intelligence, pornography, and the "culture wars" over human sexuality.

Human Nature

The *Catechism of the Catholic Church* succinctly characterizes human nature: "The dignity of man rests above all on the fact that he is called to communion with God" (27). We see this in the spirituality of the human person - our openness to truth and beauty, the exercise of freedom in choosing good and rejecting evil, our longing for the infinite or for happiness, and even our awareness of the contingency of our own existence, which is necessarily therefore a participation in Being itself (33-34).

Our communion with God takes the form of a calling, a vocation. This fundamental human vocation, by itself, is not yet the salvific vocation of baptism, still less the more refined vocations of holy orders, marriage, or religious consecration.

As any call invites a response, the basic orientation of man is to respond to the gift of God, the offer of shared life. Human dignity is the recognition humans enjoy in virtue of their responsibility to know God's love and respond. Successful responses are gratitude and giving in turn. Thus "it is right and just, our duty and our salvation" to give thanks for our communion with God. And it is also our calling to respond in turn by loving God and all creatures for God's sake (1822).

Alternatively, we fail in our response if we exchange gratitude for possessiveness, seeking to own divinity rather than to receive it as a gift. Man sins not by seeking to be like God, but rather by wanting to be like God "without God, before God, and not in accordance with God" (398). We also fail in our response when we choose not to give in turn, but instead seek to dominate: to hurt, cheat, lie, envy, or steal from one another.

The most distinctive feature of human nature is that we are both body and spirit. As spirits, we enjoy an openness to the infinite and divine. But as bodies, we are changeable over time. Our diachronicity makes us protagonists of narrative and drama: Our failures can become tragedy, or they can have undeserved or unforeseen happy endings, and thus become comedy.

Domination as Failure

Tolkien's characters live in the drama occasioned by the possibility of failure or success in our response to the human calling. Even his wizards, nominally more angelic than human, are still partially in the material world, capable of change. One such figure, Saruman, serves as a kind of arch-prophet, sent from Heaven to guide the "free peoples" of Middle Earth in their defense against enslavement to evil.

But "too long had he studied the ways" of the Enemy, and Saruman's life imitates his art. He fears domination and imagines he can evade it by his own mastery of the arts of domination. He forsakes his original commitment to the freedom, and instead seeks alternately to ally himself with the Enemy or to outwit him, and either way becomes a practitioner of domination.

Similar is Denethor, who serves as a trustee-governor of the chief city of Tolkien's world. He is shrewd but haughty, resentful that despite all his labor for others, he does not get the glory of kingship.

Because of his great intelligence and will, Denethor can use a crystal ball that is under the Enemy's influence. Denethor can look anywhere but fails to see the invisible working of divine Providence. Or perhaps he fails to recognize that the Enemy lets him see only the bad news, and not the good. Either way, Denethor's understanding and power ironically lead him to despair, dying by his own hand rather than face the enslavement he expected.

Denethor and Saruman figure in contemporary conversation as analogues of the doomers and accelerationists of artificial intelligence (AI). Doomers identify real dangers of AI to civilization, but aren't confident in the potential of humans to respond to God's call to transcend AI as a technology.

Accelerationists race ahead with AI research, but not always to serve humanity; rather, their motivation often seems to stem from the hope that the first across the finish line of artificial super-intelligence will acquire the power to dominate everyone else

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thereafter. The doomers' and accelerationists' fear and ambition point to their expectation that AI is not and will never be true intelligence, but will remain merely a technology deployed by humans, whether benign or malign.

Against their example are Tolkien's characters, Gandalf and Faramir. Gandalf must risk the loss of his own existence in battle with a demon, but unlike Saruman he accepts his calling. Faramir, Denethor's son, eschews understanding and power that will undermine his humanity. His choice elicits the bitter scorn of his father, but Faramir perseveres. Both Gandalf and Faramir, by responding to their callings, are ultimately saved and elevated, and contribute to the salvation of the world.

Christians in an age of resentment and rivalry might do well to revive their appreciation for the human vocation by forgoing domination in favor of trust and freedom.

Possessiveness as Failure

Not all failures end in tragedy. In the "paths of the dead," the character of Aragorn offers redemption to the heirs of those who betrayed his ancestor by refusing to honor an oath they took to fight on his behalf. They had thought to cling to their own lives rather than risk them for their rulers, and so they were cursed by clinging to their lives for ages.

Inhabitants of the paths of the dead endure as ghosts of shame and resentment, but Aragorn invites them to fulfill their oath by fighting for him, and so at last they find peace. Denethor was wrong to suppose that failure or even death preclude redemption.

Frodo (a hobbit) and Gollum (a hobbit physically altered by his moral corruption) are images of each other, each enslaved by the magic ring that in Tolkien's corpus focuses all the power of domination and possession. Gollum has been enslaved for centuries, his life unnaturally stretched into a misery of lust and longing for his "precious" ring.

Frodo is a picture of a figure on an earlier stage of the same trajectory. He seeks to destroy the ring, but in end he won't be able to overcome its addictive power, and will prefer to possess it for himself. Nevertheless, Frodo comes to a happy ending as a confluence of several narrative threads, e.g., the providence of giant eagles, the mercy by which Frodo earlier spared Gollum's life, and the blindness of the Enemy to fellowship.

For Frodo, a key figure is Sam, who experiences the full temptation of the ring, but then also renounces it in an extraordinary act of humility and service. Sam's non-possessiveness makes him the most truly human figure, and the subtlest Christ-figure, among Tolkien's characters.

When culture wars rage, I imagine how Aragorn, Frodo, and Sam might engage the issues. The Catholic Church calls marriage as "the one blessing not forfeited by original sin nor washed away by the flood," which I take to be a poetic way of saying that sexuality, uniquely among features of human nature, retains a superlative potential for bliss and blessing.

But for the same reason, human sexuality occasions manifold and grievous possessiveness. Men and women abuse their "precious" potential both in body and spirit: Abortion, extramarital relations, contraception, divorce, homosexual liaisons, masturbation, transgender ideology, and more.

A humane response is what Tolkien offers Gollum or Frodo. For Gollum, there is wariness and anger, but also pity and patience. As Gandalf says of Gollum:

> *Many that live deserve death. And some that die deserve life. Can you give it to them? Then do not be too eager to deal out death in judgement. For even the very wise cannot see all ends. I have not much hope that Gollum can be cured before he dies, but there is a chance of it.*

Sam fails in kindness for Gollum, with some bad results, but he matures and finds the wisdom and strength to aid Frodo as he fails under the burden of the ring: "I can't carry it for you, but I can carry you." Likewise also Aragorn finds a way to restore the lost.

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Their struggles and triumphs make for a decent synopsis of Pope Francis' apostolic exhortation, *Amoris Laetitia*. We may not be able to save everyone the burden of a "possessive" sexual or romantic life, and for some we may have only minimal hope that they will ever escape it, but we can nevertheless resolve to have pity and patience, and to render aid to those who falter.

In this way, our human nature not only renders us fit subjects for the divine work of salvation, but prepares us also to cooperate with that saving work. ■

Very Rev. David G. Poecking, VE, STL is a Regional Vicar in the Catholic Diocese of Pittsburgh. Fr. Poecking was born in Buffalo, New York, and studied math at Carnegie Mellon University. After a few years as a U.S. Peace Corps volunteer and a math teacher, he entered seminary at The Catholic University of America. He was ordained a priest of the Diocese of Pittsburgh in 1996.

Human Distinctiveness: Abstract Thought?

By Valerio Franceschin, BEd, BSc (Hons), MMath (CompSci), MA (Theology)

The question of what distinguishes humans from the other animals has long been a debate between scientists, philosophers, and theologians, as they consider what it means to be human. One area of focus has been higher level cognition, a constituent of human mental abilities that encompasses reasoning, planning, language understanding and processing, and problem solving.[1] But other animals display most, if not all, of these traits, at least to some extent. Evolutionary biology, in particular, questions whether these are ultimately differences in kind, or whether they are just differences in degree. A difference in kind suggests a qualitatively distinct faculty, one that cannot be reduced to simpler forms. A difference in degree implies a quantitative variation of the same capacity. This essay explores abstraction as a defining feature of human cognition, considering its philosophical, scientific, and theological dimensions to assess whether human rationality is truly unique.

"It is rationality that sets us apart from other animals and this rationality depends on the power of abstraction ...."

Man is a rational animal.

Man, in the classical definition, is a rational animal. As such, man is an animal like other animals but is "distinct by having the power of universal, abstract reason."[2] This view was articulated by Aristotle and later adopted by St. Thomas Aquinas, who emphasized that rationality is the essence of a human being. It is rationality that sets us apart from other animals, and this rationality depends on the power of abstraction, namely, the ability to extract universal concepts and meanings from sense experiences of particular things.[3] Abstraction provides the universal concepts that reason requires to arrive at judgments and conclusions beyond immediate sensory experience.[4] John Locke, though an empiricist who did not share the Aristotelian-Thomistic metaphysical foundation, nonetheless affirmed the uniqueness of abstraction in humans: "I may be positive in,- that the power of abstracting is not at all in [beasts]; and that the having of general ideas is that which puts a perfect distinction betwixt man and brutes, and is an excellency which the faculties of brutes do by no means attain to."[5]

More recent thinkers also espouse a similar view of human rationality and its dependence on abstraction. Theologian Christopher Baglow points to some uniquely human abstract concepts such as "justice," "visibility," and "beauty," or "circularity," as applied to all circles and circular objects of any size, position and orientation, a concept of "infinite scope." In addition, he points to other elements of human reason, such as the ability to judge the truth and falsehood of propositions, and the capability for certitude that some truths are necessarily true.[6] In considering whether humans are in fact unique in abstract thought from the other animals, we begin with the scientific viewpoint.

Abstraction in animals.

Some scientific studies have claimed that animals are in fact capable of abstract thought, thereby calling into question such human distinctiveness. One area where this can be demonstrated is relational concept learning. This is the ability to identify and retain logical relations between stimuli and then apply them to

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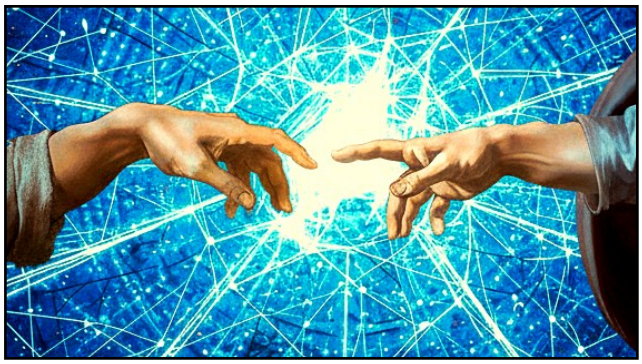
novel stimuli. This ability would be indicative of abstract thinking. Examples of logical relations are "same" and "different." A study[7] conducted with newborn ducklings showed that ducklings understood these logical relations, as determined by their behavior. Newborn ducklings that were initially exposed to a pair of same objects would later prefer a pair of same objects rather than a pair of different objects. Newborn ducklings that were initially exposed to a pair of different objects would later prefer a pair of different objects rather than a pair of same objects. Most notably, the initial objects were distinctly different from the later objects, meaning that the ducklings didn't choose what they had already seen, but rather chose on the basis of objects being same or different. This led the researchers to conclude that the ducklings effectively understood the abstract concepts of "same" and "different," and so "[T]he claim that abstract relational thinking is a unique human ability of human beings can no longer be supported."[8] However, such a conclusion needs to be tempered, as it does not seem to be based on the deeper form of abstraction as described below.



Abstraction in humans.

In order to better understand the question of human distinctiveness, it would be instructive to consider what modern (empirical) science, and in particular neuroscience, has revealed regarding the workings of abstraction in humans. One such study[9] looked at how abstraction manifests itself at the neurological level in the human brain. In this study the researchers identify abstraction as "the unique ability of the human mind to organise information beyond the immediate sensory reality," and state that "it envelops every aspect of our interaction with our environment." This is because abstraction provides the means for reducing the complexity found in environment to a simpler state that makes it easier to deal with. Abstraction, then, is defined by the researchers as "simplified maps carved from higher dimensional space, in which details have been removed or transformed, in order to focus on a subset of interconnected features, that is, a higher order concept, category or schema."

The researchers note that abstraction depends on the goals of a particular task at hand. Learning is one task where abstraction plays a role, one where what is valuable in successful learning would be the focus. Valuation is based on a subjective assessment and selection of information by the brain. In addition, value signals in the brain play an important algorithmic role in the development of sophisticated learning strategies. Hence, the researchers hypothesised that valuation processes are directly related to abstraction.

The study sought to first, demonstrate that abstraction emerges during learning and second, to investigate how the brain, and specifically the ventromedial prefrontal cortex (vmPFC), uses valuation upon low-level sensory features to forge abstract representations. Thirty-three participants were given a task where they were required to learn novel association rules while their brain activity was recorded with functional magnetic resonance imaging (fMRI). fMRI measures the small changes in blood flow that occur with brain activity, allowing researchers to determine what portions of the brain are activated during various stages of the learning task. This can then provide a neurological basis for mental functions. Reinforcement learning (RL) modelling allowed tracking of participants' valuation processes and to dissociate their learning strategies, at both the behavioural and neural levels, based on the degree of abstraction the participants were engaged in.

Two experiments were conducted. In the first, participants learned associations using three visual features, relying mainly on pattern recognition, a simpler form of learning strategy. In the second, the task was simplified to two features, encouraging abstract reasoning, a more sophisticated learning strategy. Here, the participant needed to learn what was most predictive of a reward while presented with less information than in the first experiment. Reinforcement learning models helped classify each trial by strategy and assess how valuation influenced choices.

Results showed that participants increasingly adopted abstraction when it led to higher expected rewards. fMRI data revealed that the ventromedial prefrontal cortex (vmPFC), in coordination with the visual cortex, constructs abstract representations

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through a goal-driven valuation process. This mechanism appears to underlie abstraction-based decision-making, highlighting the central role of valuation in guiding abstract thought.

"Abstraction is a distinctive mental process in which new ideas or conceptions are formed by considering the common features of several objects or ideas and ignoring the irrelevant features that distinguish those objects."

But what is abstraction, really?

A fundamental question is whether this and other research defines abstraction in the same way as philosophers and theologians such as Thomas Aquinas, or as it is understood in the classical tradition of Western philosophy. According to a longstanding tradition in philosophical psychology, abstraction is a distinctive mental process in which new ideas or conceptions are formed by considering the common features of several objects or ideas and ignoring the irrelevant features that distinguish those objects.[10] This is consistent with the definition used in the study just described and the learning tasks involved. In a related, but more penetrating philosophical account,

> [a]bstraction may be defined as a mental separation of things not, or at least not necessarily, separated in the real. The most radical separation is the abstraction of the intelligible object from the data of sense experience. Both the intelligible and the sensible are given together in human knowledge, but the intelligible is cognized by way of insight in and through the sensible. The sensible is the phenomenal in things - their colours and shapes, their sounds, orders, flavors, their heat and heaviness, *whereas the intelligible is the meaningful in them - the stable, definable object of an intellectual insight*[11] (emphasis added).

The intelligible is the object of the intellect, which includes all that is perceived by the senses, but also includes the "whatness" or quiddity of material objects,[12] thereby including the immaterial knowledge of things. The intellect, then, is the faculty of thought. It includes activities such as attention, conception, judgment, reasoning, reflection, and self-consciousness. In Catholic philosophical understanding, these include powers that extend beyond the senses, revealing a cognitive faculty of a higher order than is required for mere sense cognition.

The human soul.

Catholic philosophers have generally held that intellect is a spiritual faculty depending extrinsically, but not intrinsically, on the bodily organism, and includes the cognitive power of the soul.[13] Although animals possess a soul, it is a sensitive soul that enables movement and sensation, but not reason as is found in humans. Human souls are rational souls that enable thought and reflection which, as mentioned so far, claims to be distinctive to humans alone. However, other research brings this into question. In a study[14] it was found that ravens can generalize from their own perceptual experience to infer the possibility that they could be seen. This suggests that ravens are not only conscious of their visual ability, but that they can attribute this mental state of seeing to others. And if perceived that others are watching them, they would modify their behavior. This indicates that ravens appear to be generalizing from their behavior in a way that could not be reduced to simply tracking the behavior of others.

So what of human distinctiveness?

These studies do not conclusively refute human distinctiveness of abstract thought. Additional research is required to better understand the cognitive and neurological basis of abstract thought in humans and other animals. It does seem to be the case, however, that abstraction does exist as different levels between humans and other animals, making it a difference in degree rather than kind. This would then put into question the power of the human soul as understood in Catholic theology. But the questions raised go beyond what empirical science can truly discover on its own. This is because, unlike the senses, the intellect has no material organ or organic structure upon which it directly depends for its operation, and on this account it itself is an immaterial or spiritual faculty.[15] This contrasts with the materialistic perspective assumed by many. But as philosopher Edward Feser concludes when considering arguments in support of this perspective, "Materialism, whatever its merits, may not be in quite as overwhelmingly strong a position as is often assumed."[16] In any event, Catholic theology acknowledges a real distinction between mind and body. In particular, the mind is not

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reducible to the brain, as would be the claim of the materialist. It is the intellect, a power of the mind, that is the seat of human distinctiveness, including what has been discussed here, abstraction. This is not to say that the brain is not involved. The brain, as a finite material system, may contain images that illustrate abstract concepts, but the full meaning of an abstract concept cannot be inscribed in it.[17] Physicist Stephen Barr reports on the work of philosopher Mortimer Adler, who maintains that "there is no scientific evidence that any animal other than human beings can understand universals." Barr goes on to say that,

> He admits that there are some facts that appear at first sight to contradict this. For example, even some species of fish can distinguish between a square object in a circular object. However, this is not an example of true abstract thinking, according to Adler, but rather of what he calls "perceptual abstraction." these fish can only recognize a circle when presented with a circular object. In other words, the "abstraction" is tied closely to a perceptual act. In contrast, human beings can engage in what Adler calls "conceptual abstraction"; they can think about circularity in general, apart from any perceived object.[18]

It is the intellect, a power of the mind, that is the seat of human distinctiveness, including what has been discussed here, abstraction.

A proper formulation of abstraction, then, seems to be warranted in order to fully understand the distinctive nature of abstraction between humans and other animals. Also required is a robust ontological understanding between mind and brain. This requires philosophy.

Philosophy of mind.

Philosophy of mind is a branch of philosophy that studies the ontology and nature of the mind and its relationship with the body. Aspects of the mind that are studied include mental events, mental functions, mental properties, consciousness and its neural correlates, the ontology of the mind, the nature of cognition and of thought, and the relationship of the mind to the body.[19] It involves many other branches of philosophy. It is here that Adler demonstrates, by philosophical argumentation, that the brain is only a necessary, but not a sufficient, condition for conceptual thought; that an immaterial intellect is also requisite as a condition; and that the difference between human and animal behavior is a radical difference in kind.[20]

Returning to neuroscience, it should also be pointed out that it is quite limited in what it can say about any mental phenomenon. As philosopher Raymond Tillis points out, "when it is stated that a particular part of the brain lights up in response to a particular stimulus, this is not the whole story. Much more of the brain is already active or lit up; all that can be observed is the additional activity associated with the stimulus."[21] In addition to this, philosopher Tyler Burge writes, "Correlations between localized neural activity and specific psychological phenomena are important facts. But they merely set the stage for explanation. Being purely descriptive, they explain nothing."[22] Correlation does not imply causation! This is important to understand, because research shows that when neuroscience identifies neural correlates associated with mental phenomena and presents this as strong evidence in support of a wholly materialistic account of the human experience, then belief in the soul diminishes.[23]

Toward an integrated understanding.

It seems that a full understanding of human distinctiveness brings us to the intersection of science, philosophy and theology. The Catholic Church understands well the importance of a proper relationship between these three domains of knowledge. Philosophy has always been a pillar in Catholic thought, helping to shape her doctrines. As Pope John Paul II writes, "the Church considers philosophy an indispensable help for a deeper understanding of faith and for communicating the truth of the Gospel to those who do not yet know it."[24] Her relationship with science is no less important, as he goes on to write,

> What is critically important is that each discipline should continue to enrich, nourish and challenge the other to be more fully what it can be and to contribute to our vision of who we are and who we are becoming. … Theology will have to call on the findings of science to one degree or another as it pursues its primary concern for the human person, the reaches of freedom, the

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possibilities of Christian community, the nature of belief and the intelligibility of nature and history.[25]

The question of human distinctiveness is but one example where Catholics should consider the findings of science in light of faith.

In conclusion, while scientific research reveals impressive cognitive capacities in animals, this does not undermine the philosophical and theological claim that human abstraction, rooted in an immaterial intellect, remains a distinctive hallmark of the human person. The question of human distinctiveness is but one example where Catholics should consider the findings of science in light of faith. This requires not only the proper application of Catholic theology but also engagement with philosophical traditions that span both theistic and nontheistic perspectives. Such careful evaluation fosters a deeper and more faithful account of the most profound questions about human identity, ultimately, who we are. For, as John Paul II writes, "Science can purify religion from error and superstition; religion can purify science from idolatry and false absolutes."[26] ■

Note from the author:

I would like to express my sincere gratitude to Chris Reilly for reviewing this article and providing thoughtful engagement, constructive feedback, and scholarly rigor.

Endnotes

[1] Marco Ragni, Frider Stolzenburg, *Higher-Level Cognition and Computation: A Survey*.

[2] William Wallace, *The Elements of Philosophy: A Compendium for Philosophers and Theologians* (Wipf and Stock, 2011), 80.

[3] Thomas Aquinas, *Summa Theologiae*, I, q. 84, a. 7.

[4] Thomas Aquinas, *Summa Theologiae*, I, q. 85, a. 1.

[5] John Locke, *An Essay Concerning Human Understanding*, XI.10, http://enlightenment.supersaturated.com/johnlocke/BOOKIIChapterXI.html.

[6] Christopher T. Baglow, *Faith, Science, & Reason: Theology on the Cutting Edge, 2nd ed. (*Midwest Theological Forum, 2019), 242.

[7] Antone Martinho, et al., *Ducklings imprint on the relational concept of "same or different,"* Science, 15 Jul 2016 Vol 353, Issue 6296 pp. 286-288, DOI: 10.1126/science.aaf4247.

[8] Edward A. Wasserman, *Thinking abstractly like a duck (ling),* Science, 15 Jul 2016 Vol 353, Issue 6296, pp. 222-223, DOI: 10.1126/science.aag3088.

[9] Aurelio Cortese et al, *Value signals guide abstraction during learning*. Elife. 2021 Jul 13;10:e68943. doi: 10.7554/eLife.68943. PMID: 34254586; PMCID: PMC8331191.

[10] Stanford Encyclopedia of Philosophy, Abstract Objects (Stanford Encyclopedia of Philosophy).

[11] Wallace, *The Elements of Philosophy*, 25.

[12] Wallace, *The Elements of Philosophy*, 73.

[13] Catholic Encyclopedia, CATHOLIC ENCYCLOPEDIA: Intellect (newadvent.org).

[14] Bugnyar, T., Reber, S. & Buckner, C. *Ravens attribute visual access to unseen competitors*. Nature Communications 7, 10506 (2016), https://doi.org/10.1038/ncomms10506.

[15] Wallace, *The Elements of Philosophy*, 73.

[16] Edward Feser, *Philosophy of Mind* (Oneworld Publications, 2006), 82.

[17] Stephen M, Barr, *Modern Physics and Ancient Faith* (University of Notre Dame Press, 2003), 191.

[18] Barr, *Modern Physics*, 192.

[19] Edward Feser, *Philosophy of Mind* (Oneworld Publications, 2006).

[20] Mortimer J. Adler, *Intellect: Mind Over Matter*, Chapter 4, https://web.archive.org/web/20040922115147/http://bookofjob.org/aonimmaterialintell.htm.

[21] Raymond Tillis, *Neurotrash*, (New Humanist, Nov 10, 2009), https://newhumanist.org.uk/articles/2172/neurotrash.

[22] Tyler Burge, *A Real Science of Mind*, (The New York Times, December 19, 2010), https://archive.nytimes.com/opinionator.blogs.nytimes.com/2010/12/19/a-real-science-of-mind/.

[23] Jesse Lee Preston, et. al., *Neuroscience and the soul: Competing explanations for the human experience,* (Cognition, Vol. 127, Issue 1, April 2013), pp. 31-37, https://doi.org/10.1016/j.cognition.2012.12.003.

[24] John Paul II, Encyclical Letter *Fides et Ratio*, 5, https://www.vatican.va/content/john-paul-ii/en/encyclicals/documents/hf_jp-ii_enc_14091998_fides-et-ratio.html.

[25] John Paul II, *Letter of His Holiness John Paul II to Reverend George V. Coyne S.J.* (Libreria Editrice Vaticana, 1988), https://www.vatican.va/content/john-paul-ii/en/letters/1988/documents/hf_jp-ii_let_19880601_padre-coyne.html.

[26] John Paul II, *Letter of His Holiness John Paul II to Reverend George V. Coyne S.J.*

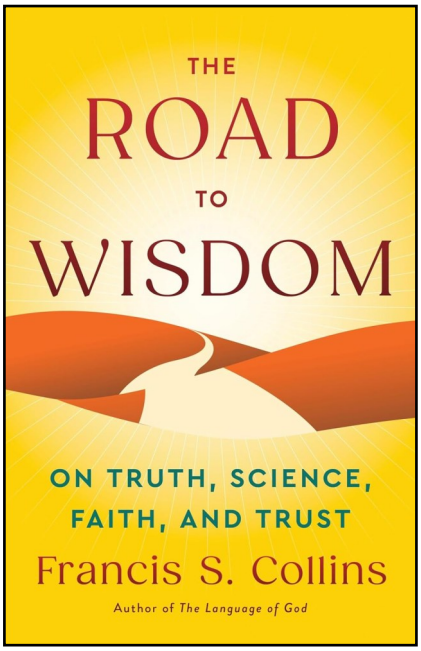
The Road to Wisdom: On Truth, Science, Faith, and Trust

By Francis S. Collins

Little, Brown and Company & Worthy Books, 2024, pp. 277

A Personal Reflection by Sister Marianne Postiglione, RSM

On one of my frequent trips to the Barnes and Noble Bookstore about 25 miles from my home in Swansea, Massachusetts, something caught my eye as I wandered around the attractive displays: that "Something" was a book with a well-designed cover and titled, *The Road to Wisdom*, by Francis S. Collins. Since I had read his first book years ago -- *The Language of God* -- and learned a lot and enjoyed it, there was no question or hesitation; I would invest in the hardcover book. My expectations did not disappoint! My goal here is to highlight those portions of the book that speak to the ordinary reader (like me), not necessarily the scientist, philosopher, or theologian. Yet, this is a book all will enjoy!



First of all, Francis Collins, a convert to the Christian Faith at the age of 27, spent his young adulthood seriously considering the idea of becoming a chemist, with the plan of helping to alleviate human suffering. Yet wider vistas opened to him as he discovered the possibilities for treating human diseases in the study of DNA – hence he pursued degrees in the biological sciences and genetics as his deeper interest in the human being and suffering became his goal. In 1993, that interest, hard work, and years of study and experimentation won him the appointment as director of the International Human Genome Project, which successfully sequenced all three billion letters of our DNA. Not an insignificant accomplishment for a young boy who grew to adulthood in the Shenandoah Valley, and whose original plans had been to become a chemistry teacher, perhaps in a small country school.

This reflection will focus on the fruits and benefits of the four "pillars" of Truth, Science, Faith, and Trust that Collins asserts, if followed wisely, will indeed lead to wisdom for the individual, for families, and nations. That is a tall order! But if we look carefully at the points Collins makes very effectively in this book, one would have to admit that it can be done. We can arrive at Wisdom personally, nationally, and internationally.

Here is how Collins explains the path to Wisdom, first of all by examining the first pillar - "Truth." In much current thought, truth is what you or I decide, becoming in effect "opinion" rather than truth as we know it. "Everything is relative," some say, "your truth may not be my truth." Clearing up that misunderstanding of truth, Collins goes on to explain about necessary truth (2+2=4) and firmly established facts (Germany shares a border with France) that have been understood by observation. Uncertainty and Opinion are also levels of truth, but are more subjective, yet have a claim of reasonableness; for example, "A college education leads to greater earning power." This may be true generally, "but is not necessarily true for every college graduate."

Collins recommends a national organization, Braver Angels, founded in 2016 after the national elections. They work in conference settings to build relationships across the physical divides and to solve problems in the political arena. Braver Angels cautions to listen without judging, discussing differences of opinion or uncertainty and responding with openness and humility. Have they been successful? Braver Angels now has multiple chapters around the United States with membership increasing at a steady pace. Collins himself has participated in these sessions and found it very helpful. Rather than arguing "ad hominem," participants in Braver Angels try to see the opponents' points of view, discussing them without vitriol and arriving at some kind of agreement (or friendly disagreement), on specific topics.

And now to the topic on which we often find not-so-friendly disagreement in some circles: "Science," the second pillar or core resource. Naturally one could expect that the author would devote more space to

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science, his area of expertise, in a book on truth related to science, faith, and trust as paths to Wisdom. And so he has! I will, however, devote this reflection to two of the diseases in which science has finally attained some level of success, especially since the arrival of gene therapy and CRISPR: cystic fibrosis and sickle cell disease.

In the early 60s, I taught at a local diocesan Catholic high school and had in my class a young freshman suffering from cystic fibrosis. I remember exactly where he sat in the class of 40 other students, gasping for breath on bad days -- most days were bad for him. Medical help was uncertain in those days, and the medication provided bare minimal health to the sufferers. On the way to adulthood, this young man's future was very dim. He eventually died in his teens, but today with gene therapy and CRISPR, he would be saved to live a healthy life. Now that is advancement in science!

The other example from my teaching came at Salve Regina University in Newport, Rhode Island, where one of my voice students had sickle cell disease. Her background was Greek and a bit of other Arabic derivations. Although I never witnessed a time when she was in acute distress, I prayed that somehow, men and women of science would intensify their research and eventually find a cure for this disease. She too died at an early age of 36, but she had benefitted at least from some of the early medical interventions in the disease.

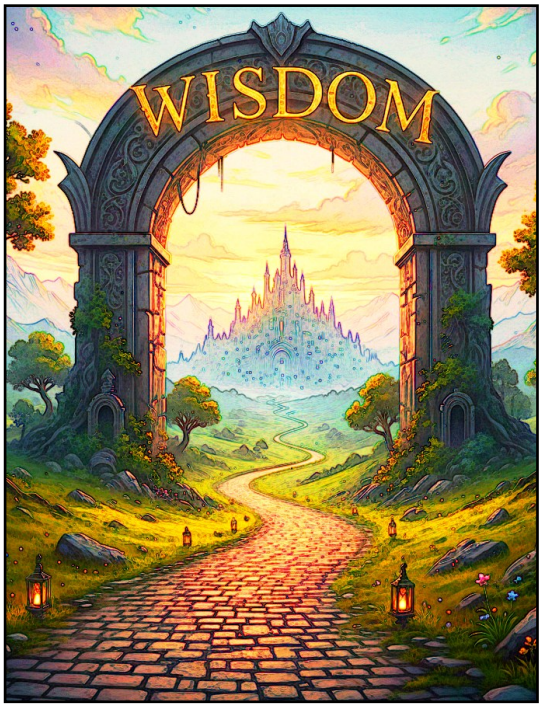
The author describes some of the clinical trials developed and processed for both of these diseases and the success of those trials and experiments. (See pp.78-88 hardcover).

The Limits of Science

True to his principles, the author describes not only the benefits and advances of science but the pitfalls and dangers of thinking that science knows it all. Those who say that there is nothing but the observable deserve a lesson on meaning and reality; this belief, labeled "scientism," is quite prevalent today. Collins further describes scientism this way: "there is nothing outside of science which is worth considering … (scientism) categorically excludes faith and spirituality." Questions of faith and spirituality are simply out of order to those adhering to scientism. Collins then asks "Why am I here? Is there a God?" "What is the basis of morality?" Science has no answers to these legitimate questions. Some may ask who believe that science is the only "truth," "If science has no answer to questions of faith and spirituality, who then does have the answers?" The author offers a reminder to enthusiastic supporters of science "… to be careful not to end up in a place that denies other legitimate ways of finding truth." Keep on reading!

He credits some of his affirmation to reading C.S. Lewis, who went through much of the same angst Collins suffered in his quest for God.

In his exploration of the role of faith in attaining truth and wisdom, Collins tells of his long and often arduous and painful journey on the road of faith, until at the age of 27 and after much study, reading, and prayer, he was able to make a commitment not only to God, but to Jesus Christ who was born, suffered, and died for all. He credits some of his affirmation to reading C.S. Lewis, who went through much of the same angst Collins suffered in his quest for God. Although plagued with doubts for a time after his conversion to Christianity, he found help from a physics colleague at the university who not only shared with him his own doubts, but at the same time gave him support in his spiritual search.



But what role has "Faith," the third pillar or core resource of wisdom, in the title of this book? ITEST members readily see the connections, but others may not be so perceptive or even suspicious of including faith with truth, science, and trust, nonetheless wisdom. Through his deep belief in both the tenets of science and faith, Collins is the perfect one to convince even unbelievers. This he does quite handily. In the final result, what

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attracts even the non-believer is to see "Christians loving one another," not becoming involved in back-biting, holding contentious arguments with people from opposing sides, whether those sides be political, cultural, or ethnic. Truly as a man of science, he could say and believe that there is no conflict between legitimate science and Christian faith.

In 2018, ITEST produced a program titled, "Scientists Speak of Their Faith: A Model for Parish Discussion." Believing scientists from the Archdiocese of St. Louis spoke at parish forums around the archdiocese of their science and their faith. These talks, and the discussions that followed, gave many attendees the assurance that indeed there is no gap or conflict between science and faith/religion. Many even spoke of their better understanding of their faith after listening to these faithful scientists. Imagine that? A scientist increasing our faith? *(This program is available for viewing on the ITEST website at* https://faithscience.org/special-projects/.)

The fourth pillar, or core resource, on the road to Wisdom is the virtue of "Trust." The author begins with a caveat about trust, quoting an anonymous author: "Trust takes years to build, seconds to break, and forever to repair." Let's take a look at how trust worked in solving a dilemma Collins encountered in his volunteer work in Nigeria. While serving in a country hospital in Nigeria in the early 1990's with his daughter, Margaret, a medical student at the time, the threat of upheaval from an unstable government was real. The dilemma: Since Collins had obligations in the U.S. and was planning to leave, he worried about his daughter's safety. She wished to stay for the summer to gain more experience. What would happen if the hospital were attacked? Would she be safe? Relying on a trusted colleague, who promised to assure his daughter's safety in any situation, this worried father rightly put his trust in the strength of his colleague's experience and understanding of the situation. All went well, the country regained stability, and his daughter's life was never in danger.

While examples of positive trust were many, mistrust also found its way into the halls and labs of the National Institutes of Health (NIH) and became part of the life of this scientist, who headed the Institutes during the period of the COVID outbreak. The COVID miscommunication problem asserted itself in a variety of ways: "the vaccine causes infertility in males," "men will develop heart disease from the vaccine," and a variety of other fears originating on social media and indeed in some of the professional media organizations. None were based on science but often on the imaginations of those who were adamantly against the medication. Collins admits mistakes in communication yet shows how in a very short time the vaccine became available and "safe" for those in the general population. Some, however, needed time to rebuild the trust in a science that seemed to be veering off the truth track.

The American Enterprise Institute (AEI) conducted a study in the fall of 2023, and the results were disturbing to the author. "… 69 percent of the public still had confidence in scientists to act in the public interest, but that was down from 86 percent in 2019." Can we attribute this lack of trust in science, and for that matter, in government, churches, universities, and so on to personal and institutional animus? Are we not all somehow in this together? With trust, society finds its way to wisdom; without trust, it loses its way.

The author urges us to start with ourselves to be truthtellers in the sciences and faith, thereby engendering trust in a society, under God, that works together for the true common good.

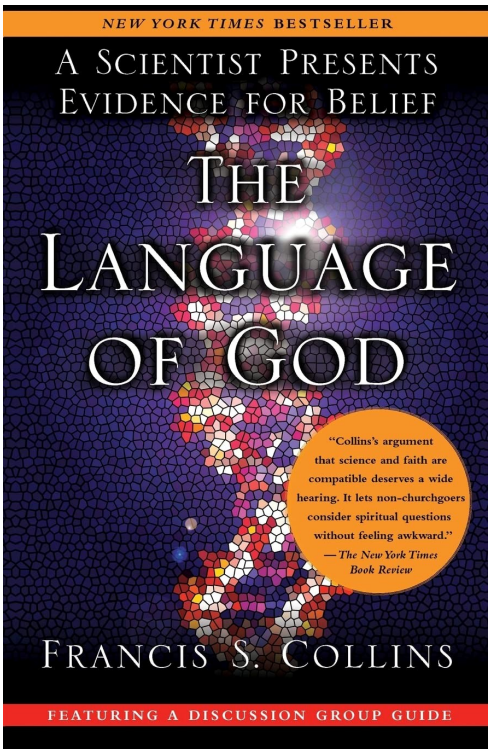
How do we as a society become agents of trust and truth in faith and science along the road to wisdom? The Bible is very specific on this point, for example, with God always as the "core source" of wisdom. "The fear of the Lord is the beginning of wisdom, and knowledge of the Holy One is understanding" (Proverbs 9:10). When a culture forgets God, it disintegrates. Is that the scene we now have in the relatively new 21st century? The author urges us to start with ourselves to be truthtellers in the sciences and faith, thereby engendering trust in a society, under God, that works together for the true common good. Then and only then will we find ourselves on the road to Wisdom! ■

As a longtime and devoted reader of non-fiction books, I find chapter notes and indices very helpful. Kudos to the editors who assisted in the task (including chapter notes and indices), who made this book an even better, more attractive reading experience.

The Language of God

By Francis S. Collins
New York: Free Press, 2006, 283 pages
Review by Thomas P. Sheahen

A fair number of scientists who believe in God have found their way to that position via the writings of C.S. Lewis. Francis Collins, MD, director of the Human Genome Coding Project at the National Institutes of Health, has provided us a splendid testimony of such a pathway in this eminently readable and engaging book. The book is not only about Collins' journey into faith, but also explains very well a number of issues pertaining to DNA. Most of all, *The Language of God* gives a very clear exposition of why believing in God and being committed to science are fully compatible.



In one succinct phrase, "the God of the Bible is also the God of the genome" (211).

Since Collins is a very high-level expert on DNA and its role in human development over history, it is no surprise that he fully supports the theory of evolution, and he presents very convincing arguments for its validity. What may surprise some is that Collins is a member of the Evangelical community, a branch of Christianity widely presumed to hold to a "creationist" position. Collins shows with remarkable clarity why a believer in God should feel comfortable with evolution as God's very elegant means of carrying out creation. At times he speaks directly to the Evangelical community, urging them to perceive the same harmony between religion and science that he sees.

The first part of the book is autobiographical and tells how Collins initially believed science and religion were opposed, but gradually overcame the simplistic viewpoint of polarization. Recognizing that there is such a thing as moral law was the key to his transition. The influence of C.S. Lewis is clearly acknowledged. Once Collins realized that faith and science could be compatible, he was in an excellent position to point out the errors in the outlook of the scientific materialists.

Drawing on his exceptionally deep schooling in the physical sciences as well as the life sciences and DNA, in Part 2 Collins lays out a very clear and well-written exposition of how the universe may have been created and life on this planet developed to its present state. The composite picture makes such good sense that the reader can readily agree with each consecutive piece. (The book title derives from DNA's being called "the language of God.") The way that genes align along the DNA strand provides compelling evidence for the connectedness of consecutive species, including humans.

By the halfway point of the book, it is clear that Collins perceives the unity of God's creative power at work. That perception brings with it a sense of awe and a determination to find the harmony between the different ways to seek a path toward God, including both science and religion.

Part 3 treats a series of distorted views about God's unity of creation. In recounting the Galileo fiasco, Collins traces the problem to the fixed views about interpreting scripture that prevailed at the time; he concludes with a substantial quotation from St. Augustine warning against exactly that mistake. (Sadly, Augustine had been forgotten by the 1600s.)

Collins' treatment of atheism is particularly clear to the scientific reader, who will be attentive to the allegedly "scientific" arguments for atheism promoted by Richard Dawkins and others; Collins quotes Stephen Jay Gould to explain why evolution cannot be used to support atheism. Creationism is an equally faulty outlook; Collins shows how it led to a picture of God as a "great deceiver" or "cosmic trickster," and here he begs his Evangelical colleagues to forgo creationism:

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> You are right to hold fast to the truths of the Bible; you are right to hold fast to the conclusion that science offers no answers to the most pressing questions of human existence; and you are right to hold fast to the certainty that the claims of atheistic materialism must be steadfastly resisted. But those battles cannot be won by attaching your position to a flawed foundation. To continue to do so offers the opportunity for the opponents of faith (and there are many) to win a long series of easy victories. (178)

Unlike nearly every other proponent of evolution, Collins gives a fair hearing to intelligent design (ID) theory. He sets aside the shrill extremists on both sides and presents the basic propositions of ID with clarity, as well as William Dembski's very specific criterion for falsification. Collins concludes, on both scientific and theological grounds, that ID is incorrect, and warns that it risks falling into the "god of the gaps" trap, but he concludes the chapter by firmly rejecting as well the familiar Dawkins quote about "blind pitiless indifference."

Collins then presents his own personal views on religion and science. His preference is for "theistic evolution," and he states its six basic premises. However, he considers that a clumsy term and coins the word "BioLogos" instead. The key argument that Collins makes most strongly is that there is no real conflict between religion and science, and it would be a mistake to think one demands rejection of the other:

> [Theistic evolution] is intellectually rigorous, it provides answers to many otherwise puzzling questions, and it allows science and faith to fortify each other. (210)

In his final chapter, Collins comes full circle with an example from his medical career and gives his personal testimony about choosing Christianity. The words of C.S. Lewis are particularly influential here. Through the preceding two hundred plus pages, the reader has gotten to know the man Francis Collins, so when he speaks directly to us now, his words are like those of a friend. He urges each of us to find our own path and invites us to derive guidance from his. Collins exhorts both believers and scientists "to call a truce in the escalating war between science and spirit" (233).

The subject of the appendix, about bioethics and morality in medicine, is another entire book. The reader expecting answers will be disappointed. Trying to scan the field briefly, Collins focuses mostly on medical genetics. He cites examples of DNA testing and points out some associated ethical questions but usually takes no position. (It is hard to talk about bioethics without stepping into controversy.) Moreover, the pace of change in this field adds to the problem. The ethically dubious therapeutic cloning technique of SCNT (somatic cell nuclear transfer) gets his approval; however, it is likely that Collins was writing before ANT/OAR (altered nuclear transfer/oocyte-assisted reprogramming) came along. As medical advances occur, this appendix will probably be revised in future editions. The main text needs no updating.

This book is suitable for a very broad range of readers. The science is not at all difficult to follow. Collins wisely chose to avoid going into the fine details of biology and DNA. (For example, he never spells out the names of the base pairs.) The reader who is already comfortable with both science and religion will be reassured by this book.

The more important audience, however, will be the questioners who take up the book with the fear that science may pose a threat to their religion.

The more important audience, however, will be the questioners who take up the book with the fear that science may pose a threat to their religion. After all, the popular media are constantly casting the relationship between science and religion as warfare. These readers will benefit the most from *The Language of God*. Collins' arguments for the compatible merging of faith and science are easy to follow and very convincing.

Collins follows in the tradition of St. Augustine, who said "The book of Scripture and the book of nature were both written by the same Author, and cannot be in conflict." By standing at the very forefront of science, Collins has been able to see better than most of us that evolution is God's method of creating. Collins' comfort level comes through very clearly, and he sends the reader onward with a new confidence that there is nothing to fear from studying God's creation. ■

What Have the Four Causes to Do with Human Nature?

By Christopher Reilly, ThD

In his *Prescription Against Heretics*, the early Christian thinker Tertullian famously asked, "What has Jerusalem to do with Athens?" He was concerned that the reasoning of pagan philosophy (represented by Athens) might corrupt Christian experience of faith and divine revelation (Jerusalem).

Similarly, we could ask – with a little less eloquence – "What have the Four Causes to do with human nature?" In contrast to Tertullian's hellenophobia, I propose that we restore to prominence some of the concepts of the ancient Greek philosopher Aristotle.[1]

Among Aristotle's Four Causes, which are factors in explaining how or why something exists or changes, the "efficient cause" – an agent that acts on the thing studied – is most prominent in modern science. Also critically important to modern science is the "material cause," which is the stuff of which the thing is comprised. Aristotle, however, insisted that a full explanation must also include the essential structure or nature of the thing ("formal cause") and its purpose ("final cause"). For Aristotle, every being has a *telos*, or end, toward which it is naturally oriented (or, in the case of a manufactured artifact, indicated by the goals of the creator).

Among Aristotle's Four Causes, which are factors in explaining how or why something exists or changes, the "efficient cause" – an agent that acts on the thing studied – is most prominent in modern science.

The scientific importance of the formal cause and especially the final cause came under attack in Europe during the 16th and 17th centuries. For Francis Bacon, "the final [cause] is so far from being beneficial that it actually corrupts the sciences, except insofar as it relates to the actions of man."[2] Bacon's thought was that intentionality and purpose are entirely human characteristics, whereas non-human objects cannot be oriented in any essential way toward an end. In fact, "the work and aim of human power is to generate and superimpose a new nature or new natures on a given body."[3] The formal cause was also reduced by Bacon to the mechanical laws of nature, which have explanatory importance insofar as they help human persons to accomplish their practical ends. The philosopher René Descartes followed Bacon on both counts: "I think that in physical things I can get no use from the whole kind of cause which people usually seek from the end, because I do not think I can investigate the ends of God with temerity."[4]

While it certainly made sense for these thinkers to avoid any anthropomorphic attribution of a will or intention to non-personal objects, they misinterpreted Aristotle's final cause as being merely a willed or given end. For Aristotle (and later for St. Thomas Aquinas), however, the final cause is an orientation toward the good, and this good is associated with the essence (not merely some intention) of the thing – it is part of the full definition of just what the thing is, including its tendency or drive toward some kind of fulfillment or restful state. Use of "the good" to describe natural drives and processes seems odd to modern ears, as it did to the critical minds of Bacon and Descartes, for the moral sense we typically associate with goodness is most relevant to human persons, who have active wills. As St. Thomas explained, however, Christians can interpret or adapt Aristotle's philosophy to express the purposeful character of God's creation. God's reason pervades that creation and is the source of intelligibility – through human reasoning – of the cosmos.

Bacon and Descartes, however, accepted the theological approaches (often called voluntarism and nominalism) of William of Ockham and John Duns Scotus, believing that the cosmos is ruled only by God's capricious and hidden will and not by His reason. With such a perspective, there seems to be no intelligibility to the ends of things other than the willful power that might be applied by God or human persons. The end or final cause of any thing appears superfluous, or at least imperceptible, to scientific inquiry. Such inquiry must only serve human power to alter the world for practical benefit (which for Bacon was also a path to overcoming original sin).[5]

The theologian Hans Urs von Balthasar comments: "[We see] the emergence of an hegemony of instrumental reason which seeks above all manipulative power over nature and which can do without the personal pole of indebtedness/gratitude and goodness since it reduces nature to the level of brute fact. It

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sees itself simply as an instrument of power and operates as such."[6]

So, what does all this tell us about the nature of human persons? In the aftermath of Descartes especially, it has led to a decline in the understanding of human persons as rationally and essentially oriented to the good; our reason is apparently not able to discern the will of God expressed in His creation. What matters for humanity is instead the process of calculated choice founded on empirical evidence, individual conscience, and the intentions of the will. For Descartes, "freewill is in itself the noblest thing we can have because it makes us in a certain manner equal to God and exempts us from being his subjects."[7] We can see here, perhaps, the beginning of ideologies that propose the malleability of human identity (e.g., contemporary gender ideology) as well as the practicality, but not the rational deducibility from natural knowledge, of moral action (e.g. principlist or utilitarian ethics).

In line with his new scientific vision, Descartes proposed that the human person is divided between two very different substances: the material body governed by the mechanical and mathematical laws of nature, and the immaterial mind (consciousness and will) that is not able to be intelligibly explained.[8] Lacking the rational intelligibility of God's creation, we are supposedly limited to understanding facts about the material and biological world; we can securely rely on our sense experience, albeit only because we trust in God not to deceive us.[9]

Descartes' philosophy opened a Pandora's box of confusion about the interaction of the human mind or consciousness (which unfortunately appear to comprise the whole of the soul) with the body. In our age of artificial intelligence technology, it enables false considerations of spiritual/cognitive powers somehow "emerging" from the complexity of manufactured and material computer machines, and it therefore fuels speculation about our ability to create new persons with our technology (and undermines respect for the unique dignity of humanity). It supports spiritualist excesses that imagine the soul as simply inhabiting a bodily shell, leading to deprecation of the body as merely mechanical or intrinsically sinful. It reduces the concept of intelligence to a series of practical and calculative functions rather than a biologically and personally unique experience of truth by human beings.[10] Reduced definitions of essentially human powers undermine respect for and comprehensive understanding of the uniqueness of human nature, and they supply false pretenses for evaluating categories of human beings on a continuum of ability that designates some persons as less worthy of loving care, protection, and even life.

Returning our attention to the Thomistic-Aristotelian understanding of the final cause – in science, philosophy, and theology – is a return to the understanding of God's creation, and especially of human persons, as essentially purposeful and rationally intelligible (to the extent our limited cognitive powers allow). It is the basis for a renewed understanding of divinely bestowed human dignity. We do not need to undermine the impressive progress of experimental and theoretical science. We should not pretend that we have the power of calculative accuracy in identifying every being's essential good. Just recognizing the presence and role of essential purpose in our world would be enlightening enough for a very significant cultural transformation – one that aims toward the good. ■

Endnotes

1 In much of this essay, I am echoing a line of thought described in greater detail by Michael Maria Waldstein, *Glory of the Logos in the Flesh* (Ave Maria, FL: Sapientia Press, 2021), 140-168; Introduction, *Man and Woman He Created Them: A Theology of the Body* by John Paul II (Boston: Pauline, 2006), 54-60.

2 Francis Bacon, *New Organon* 2.2.

3 Bacon, *New Organon*, 2.1.

4 Rene Descartes, *Meditations on First Philosophy*, 4.

5 Bacon, *New Organon* 2.4.

6 Hans Urs von Balthasar, *Theodrama* (San Francisco: Ignatius Press, 1989), 3:142-3.

7 Descartes, "Letter to Christians of Sweden," in *Oevres*, ed. Charles Adam and Paul Tannery (Paris: Vrin, 1897-1910), 5:85, translation by Waldstein.

8 Descartes, *Meditations*, 6.

9 Ibid.

10 Dicasteries for the Doctrine of the Faith and for Culture and Education, *Antiqua et Nova*, "Note on the Relationship Between Artificial Intelligence and Human Intelligence" (January 28, 2025).