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Editor's Statement

This past summer, Thomas Aquinas College hosted the second annual Thomistic Summer Conference at the California campus, under the theme of "St. Thomas and the Soul." This issue contains expanded versions of five of the papers presented at this conference. First, Michael Augros explains, and responds to common misunderstandings about, St. Thomas's proof for the immateriality and subsistence of the human soul. This is followed by John Nieto's essay arguing that those attending to Thomistic epistemology should study more carefully the role of what Aristotle calls the "passive intellect" (and which St. Thomas also calls the "cogitative power"). Third, Joshua Lo presents what Aristotle has accomplished in the notoriously difficult final chapter of his *Posterior Analytics.* Fourth, Joseph Hattrup draws attention to the implicit presence of the human soul in Aristotle's discussion of substance in the seventh book of the *Metaphysics.* And finally, ending in theology, John Goyette lays out St. Thomas's understanding of how the human soul bears the image of God, and even of the Trinity of persons, in its constitution as understanding and loving.

This issue also contains the transcript of a lively talk given to students by veteran tutor Richard Ferrier on what he finds to be the most helpful way to read the Platonic dialogues, attending especially to *Meno*, *Ion*, and the *Republic.*

Lastly, this issue presents for the first time a section of reviews of recent books that are related to the matters at the heart of TAC's curriculum. Our plan is to include a section of book reviews every few issues, and we hope that our readership finds it of use.

Christopher A. Decaen
Thomas Aquinas College
May 2024

Preface

At Thomas Aquinas College we often say that the education we provide is only a beginning. For the most part, our students are reading the important works in our program for the first time, and the class discussion, while certainly helping them to better understand the principal arguments and themes in the readings and to acquire the intellectual virtues, only introduces them to the profoundest truths and deepest questions that have engaged mankind for centuries.

Accordingly, it is fitting that the College publish *The Aquinas Review* to honor its patron and to provide a forum for deeper consideration of those matters which constitute its curriculum and are central to genuine Catholic liberal education. Consistent with the nature of the College itself, this review is marked by fidelity to the *Magisterium* of the Catholic Church and a respect for the great tradition of liberal learning which is our common heritage.

The essays in *The Aquinas Review* reflect positions taken by their authors and not necessarily by the College itself. The editor—in collaboration with the editorial board—determines the contents of each issue. Any interested person may submit an essay for consideration or letters or comments on articles already published.

It is our hope that *The Aquinas Review* will be a source of wisdom to its readers and contributors.

Paul O'Reilly
President, Thomas Aquinas College

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AQUINAS'S PROOF OF THE HUMAN SOUL'S SUBSISTENCE

Michael Augros

So vast is the soul, said Heraclitus, that one could explore it in all directions and never come to the end of it.[1] That is true not only of soul in general, but also of the human soul in particular, and even of the still-more-particular investigation into its immortality—one can spend a lifetime learning about it. St. Thomas Aquinas infers its immortality, however, from its subsistence,[2] since that is prior[3] to the human soul's natural incapacity to cease existing. The question whether the human soul subsists, therefore, is of profound philosophical importance.

Understanding its subsistence is necessary also for understanding what the human soul is. If we do not understand a thing's natural mode of existence, then we do not fully understand its nature, since its existence is the actuality of its essence. If we do not know whether heat or light exists in the mode of a substance or an accident, for example, we do not yet know what heat or light is. Even after learning that souls in general are the substantial forms of corporeal living things, we do not yet fully

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Michael Augros is a tutor at Thomas Aquinas College. Having taught for many years at its California campus, he joined the first team of tutors to teach at the New England campus in Northfield, Massachusetts. He is the author of several books, including *The Immortal in You* (San Francisco, CA: Ignatius Press, 2017), which presents some of the key points of Aristotle's and Aquinas's philosophy of soul in a manner accessible to a general readership. This essay is an expanded version of the Keynote Address he gave at the Thomistic Summer Conference at Thomas Aquinas College, California, on June 17th, 2023.

[1] "Having traveled every road, one would never discover the limits of the soul—so deep an account does it have." Heraclitus, DK 45.

[2] See *Summa Theologiae* (henceforth *STh*) I, q. 75, a. 6, c.

[3] Prior, that is, in reality and causation, and also in our knowledge.

understand what the human soul is. By that general definition of soul we know that the human soul does not exist in the mode of an accident, but we do not yet see that it also does not exist in the same mode as any other soul or substantial form.

Other souls and substantial forms St. Thomas calls "material forms,"[4] forms of matter that do not have their own existence, but are only that by which some material being itself has existence.[5] Not having any existence of their own, such souls cannot exist apart from the material beings they constitute, and so St. Thomas says that they are "immersed in matter"[6] and do not subsist through themselves. By contrast, the human soul does have its own existence and is not merely that by which something else (a complete human being) exists. To express this, St. Thomas says that the human soul is subsistent, and that it is a *hoc aliquid*.[7] It has an existence that it can share with matter[8] so as to constitute a complete human being, but which it need not share with matter. One could say this means that the human soul alone, of all souls, is not just a soul but is also a spirit—just as it alone, of all the spirits, is also a soul.

Answering the question whether the soul is subsistent is thus necessary in order to fully understand what it is. For that reason, St. Thomas in his discussion of the soul in the *Prima pars*

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[4] *STh* I, q. 75, a. 6, c.

[5] Such a form is "not one that has existence, but is only that by which a composite exists" (*quae non sit habens esse, sed sit solum quo compositum est*), whereas the human soul "is a form that has existence in itself, and not only as that by which something [else] exists" (*est forma habens esse in se, et non solum sicut quo aliquid est*). *Quaestio Disputata de Anima* (henceforth, *Q. D. de Anima*), a. 14, c.

[6] "Because of its perfection, the human soul is not a form immersed in corporeal matter or altogether embraced by it." ("[H]umana anima non est forma in materia corporali immersa, vel ab ea totaliter comprehensa, propter suam perfectionem.") *STh* I, q. 76, a. 1, ad 4. See also *Q. D. de Anima*, a. 2, c. and ad 12.

[7] See *STh* I, q. 75, a. 2; *Q. D. de Anima*, a. 1.

[8] See *Q. D. de Anima*, a. 1, ad 1.

shows first that it is the actuality of the body and then that it is subsistent,[9] and in his *Disputed Question on the Soul* asks first whether the soul is a *hoc aliquid*, which he answers by showing it is subsistent.[10]

Aristotle, too, says that we must come to understand what the soul is through its accidents (that is, through its powers, acts, and undergoings), and the foremost question about these is whether any of them belongs to the soul alone or do they all belong also to the body.[11] He ends up affirming that the soul's act and power of understanding is the soul's alone, and consequently that the soul has an existence of its own. He says, in other words, that the human soul is subsistent, and he arrives at that conclusion by an argument that St. Thomas adopts after him.

The thesis of this essay is that St. Thomas's proof of the subsistence of the human soul is a demonstration. To make that as clear as possible in a brief space, I will first present his argument, then offer a sample of its power to withstand objections, and finally describe the argument's demonstrative nature.

St. Thomas's Argument

First, here is the argument itself, as he formulates it in his *Prima pars*:

> It is necessary to say that that which is the principle of intellective operation, which we call the soul of man, is an incorporeal and subsisting principle. For it is clear that through intellect man is able to know the natures of all bodies. Now, it is necessary for what is able to know certain things to have none of them in its nature, because whatever would be in it naturally would prevent

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[9] See *STh* I, q. 75, as. 1–2.

[10] See *Q. D. de Anima*, a. 1, s.c., c., and ad 8.

[11] See Aristotle, *On the Soul* 1.1, 402b19–403a5.

> knowledge of the others; we see, for example, that a sick person's tongue, saturated with a choleric and bitter humor, cannot perceive something sweet, since instead all things seem bitter to it. So, if the intellective principle had within itself the nature of a body, it would not be able to know all bodies. For every body has a determinate nature. Therefore, it is impossible for the intellective principle to be a body. And similarly it is impossible for it to understand through a bodily organ, because the determinate nature of that bodily organ, too, would prevent the knowledge of other bodies, just as a liquid poured into a glass vase would appear to be of the same determinate color not only as one existing in the pupil, but also as one that is in the glass. Therefore, the intellective principle (which is called the mind or the intellect) has an operation by itself that it does not share with the body. Now, nothing is able to operate by itself unless it subsists by itself (since operating belongs only to something actually existing; hence something operates in the mode in which it exists). For this reason, we do not say that heat, but a hot thing, heats. It remains, then, that the human soul (which is called an intellect or a mind) is something incorporeal and subsisting.[12]

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[12] "Respondeo dicendum quod necesse est dicere id quod est principium intellectualis operationis, quod dicimus animam hominis, esse quoddam principium incorporeum et subsistens. Manifestum est enim quod homo per intellectum cognoscere potest naturas omnium corporum. Quod autem potest cognoscere aliqua, oportet ut nihil eorum habeat in sua natura, quia illud quod inesset ei naturaliter impediret cognitionem aliorum; sicut videmus quod lingua infirmi quae infecta est cholerico et amaro humore, non potest percipere aliquid dulce, sed omnia videntur ei amara. Si igitur principium intellectuale haberet in se naturam alicuius corporis, non posset omnia corpora cognoscere. Omne autem corpus habet aliquam naturam determinatam. Impossibile est igitur quod principium intellectuale sit corpus. Et similiter impossibile est quod intelligat per organum corporeum, quia etiam natura determinata illius organi corporei prohiberet cognitionem omnium corporum; sicut si aliquis determinatus color sit non solum in pupilla, sed etiam in vase vitreo, liquor

The main argument, here, is simply this first figure syllogism:

(Major) What has an operation of its own has an existence of its own (that is, it subsists).

(Minor) The human soul has an operation of its own (namely, understanding).

(Conc.) Therefore, the human soul has an existence of its own (that is, it subsists).

Both the major and the minor are supported. The major is just a particular case of a universal principle, namely, that only what has actual existence can act or operate. Because that is so, only what has its own actual existence can have its own operation. The alternative would be for something to have its own operation yet not have its own existence—for sharpness, say, to cut things by itself, even though it is the sharpness of a knife. Of course, that is impossible. If sharpness does not exist by itself, but is something of a blade or knife, then neither can it cut by itself; for it to cut an apple is really for the knife to cut the apple through its sharpness. So, only what has its own existence, or what subsists, can have its own operation. So much for the major.

Much more difficult to grasp, and far more controversial, is the minor premise: the human soul has an operation all its own, not shared with the body, namely, understanding. St. Thomas proves this by an argument due originally to Aristotle.[13] This cru-

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infusus eiusdem coloris videtur. Ipsum igitur intellectuale principium, quod dicitur mens vel intellectus, habet operationem per se, cui non communicat corpus. Nihil autem potest per se operari, nisi quod per se subsistit. Non enim est operari nisi entis in actu, unde eo modo aliquid operatur, quo est. Propter quod non dicimus quod calor calefacit, sed calidum. Relinquitur igitur animam humanam, quae dicitur intellectus vel mens, esse aliquid incorporeum et subsistens." *STh* I, q. 75, a. 2, c.

[13] See *On the Soul* 3.4, 429a10–27.

cial supporting argument can be presented as a single syllogism reasoning *modus tollens*, as follows:

> If the human intellect were either a part of the body or a power existing in and operating by means of one (say, a portion of the brain), then it would naturally possess its own corporeal nature, would consequently always be knowing that one determinate nature, and would thus be unable to know all other corporeal natures.
>
> But the human intellect is not always thinking about some one determinate corporeal nature, and it is able to know all corporeal natures.
>
> Therefore, the human intellect is not a part of the body, nor does it reside in and operate by means of a part of the body.

An Objection to St. Thomas's Argument for the Minor

Though this argument is not the whole of St. Thomas's proof for the human soul's subsistence, but only the supporting argument for that proof's minor premise, it is the true heart of his proof, so I will focus on it. Most of those who are familiar with Aristotle or St. Thomas are familiar with this argument. But familiarity and complete understanding are not the same; in my own philosophical development I am still somewhere between mere familiarity with this argument and perfect understanding of it. Perfect understanding of this sort of argument requires the ability to formulate and resolve all the powerful counterarguments that can be brought against its premises, or against its way of reasoning, or against its conclusion. Many counterarguments can be made against any of St. Thomas's demonstrations that the human intellect is incorporeal, but that is especially true of this one from Aristotle. By my count, the would-be refutations of it

number over a dozen.[14] In the interests of brevity, I will discuss just one. In the interests of making a small contribution to the understanding of the argument, the one would-be refutation of it that I will discuss here is one that is not easily answered, one that is nowhere considered by St. Thomas himself, one that is often made by his critics today and yet is seldom answered by his living disciples.

The counterargument I have in mind says that St. Thomas's if-then premise is false. The premise, recall, states that if the human intellect were corporeal, then it would be stuck knowing that one corporeal nature all the time, which would interfere with its knowing other corporeal natures. However (says this would-be refuter), it does not follow from the supposition that the mind physically possesses a corporeal nature that it must know that nature. It is not a general rule that a cognitive organ knows its own physical properties, not even when they are its objects.

The visual cortex within the brain, for example, physically possesses certain colors, which are its objects, but it does not see these colors that physically belong to it. Nor does the part of the brain responsible for touch feel its own pressures and temperatures, though these are physically present within it. It is not physical possession of an object that causes a cognitive power to know it, then, but instead another sort of possession of the object causes knowledge of it, namely, possession of the object by way of a cognitive representation. We know an object not by physical possession of it, but by having a sensible or intelligible species of it.

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[14] For a helpful bringing together of some of these criticisms of Aquinas's argument, and also of some of his other arguments for the incorporeal nature of the human intellect, see Adam Wood's *Thomas Aquinas on the Immateriality of the Human Intellect* (Washington, DC: Catholic University of America Press, 2020).

It is strange that St. Thomas has forgotten this (continues the objector), since he himself often insists that all knowledge is through a likeness, or through an assimilation,[15] that is, through the likeness or species of the object existing in the knower, not through the object itself in its own natural existence. Hence he says, in agreement with Aristotle, that "stone does not exist in the soul" that knows what stone is, "but the species of stone"[16] exists there. In other words, not an actual, physical stone itself, but some likeness or representation of stone, exists in the mind that understands it.

We can now appreciate the force of the objection. St. Thomas says that if the human intellect had a corporeal nature, then just by that fact it would know that nature. But in reality, knowledge of its own corporeal nature would follow only if that nature is assumed to exist in the intellect with a representational and intelligible existence, not if it is assumed to exist there only with a natural, physical one. If we assume the intellect is a corporeal power, but not that it is always in possession of an idea of itself, then it does not follow that it always knows itself, or that consequently it cannot know other things. St. Thomas has shown only that the human intellect must not natively possess any intelligible representation of itself, but nothing in his argument prevents the intellect from having its own corporeal nature

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[15] For places where St. Thomas says that knowledge takes place through a likeness (*similitudo*), see, e.g., *Summa contra Gentiles* I, c. 72; II, c. 98; *Quaestiones Disputatae de Veritate* (henceforth *De Veritate*), q. 2, a. 1, ad 6; a. 3, ad 1. For places where he says that knowledge takes place through assimilation (*assimilatio*), see, e.g., *De Veritate*, q. 8, a. 6, c.; a. 7, c. and ad 2; q. 8, a. 8, c. For his distinction between passive and active assimilation of a cognitive power, see *De Veritate*, q. 2, a. 8, ad 2. For his understanding of assimilation in the case of the angelic mind, see *De Veritate*, q. 2, a. 14, c.

[16] "[L]apis non est in anima, sed species lapidis." *STh* I, q. 85, a. 2, c. and *On the Soul* 3.8, 432a1.

in a physical way, just like any other cognitive power we possess. In this way, the argument seems fatally flawed.[17]

How St. Thomas Would Resolve the Objection

To my knowledge, St. Thomas nowhere raises this objection to his argument. He nonetheless supplies us with all we need to answer it, as I hope now to show.

The objector relies on the idea that all knowledge proceeds from a representation that is really distinct from the form of the object in its own natural existence, and even claims that St. Thomas agrees with this. But he does not agree. He does sometimes say that all knowledge is through the likeness of the known being in the knower, or through assimilation, but when he does so he means to include cases in which the form through which the knower knows is just the form of the object in its own natural existence—as happens in divine and angelic self-knowledge and in any creature's vision of the divine essence.[18] In such cases the form within the knower is "like" the form of the known in the understated sense in which a thing is "like itself." Other times, however, St. Thomas uses distinct expressions for talking about these two cases, saying that some knowledge is *per similitudinem* (that is, through a likeness really distinct from the form of the object in its own natural existence), whereas other knowledge is *per essentiam* (that is, through the form of the object in its own existence).[19]

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[17] Certain contemporary scholars criticize St. Thomas's argument in this way. Wood, for example, sums up the view of many commentators, saying, "Thomas wrongly supposes that the spiritual or intentional presence of forms in cognizers requires their literal absence." *Thomas Aquinas on the Immateriality of the Human Intellect*, 210. Robert Pasnau remarks that "there is nothing here that forces us to conclude, for instance, that if the mind were just the gray matter of the brain, the mind would be incapable of thinking of anything other than gray matter. . . . It would be reasonable to follow St. Thomas in thinking of cognition in terms of intentional existence, but I see no reason why we should accept a direct link between the intentional and the concrete. The argument of 75.2 takes this link for granted. . . . It is disappointing that at this crucial juncture there is not more to say on St. Thomas's behalf. But so far as I can see, there is not." Robert Pasnau, *Thomas Aquinas on Human Nature* (Cambridge: Cambridge University Press, 2002), 57. David Foster has offered similar criticism: "there is," he says, "an ambiguity in the argument between intentional being and real being. The way the apple *has* the form of apple is different from the way the intellect *has* the form of apple, yet they are both modes of being for the form. On the one hand, the argument depends on the sameness between intentional being and real being; on the other hand, it counts on the difference. This sameness and difference, however, is never acknowledged in the argument." David Ruel Foster, "St. Thomas on the Immateriality of the Intellect," *The Thomist* 55.3 (1991), 429 (emphasis in original).

St. Thomas provides two signs or indications that knowledge must sometimes be *per similitudinem*, and also gives the reason why it is necessary when it is necessary. The first sign that knowledge must at least sometimes be only *per similitudinem* is that otherwise natural similarity would always suffice for knowledge, and then there would be no reason why one stone would not know another, or why fire would not know fire.[20] Another sign is that if natural similarity were the sufficient and universal cause of knowledge, then the sense of sight would

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[18] For places where St. Thomas makes quite clear that he thinks knowledge can take place *per essentiam*, and not through a mere likeness of the form of the object, see, e.g.: *STh* I, q. 12, a. 2, especially ad 3 (creatures see God through his essence as intelligible form); q. 14, a. 4 (God understands himself through his own essence as intelligible form); q. 56, a. 1–2 (an angel understands himself through his own essence as intelligible form). Passages in which he says that all knowledge takes place through assimilation or through a likeness, therefore, must be read to allow for these kinds of knowledge in which the form of the object exists in the knower with its own natural existence. Hence St. Thomas himself sometimes explains that the likeness involved in knowledge does not always presuppose a real distinction between the form of the object and the form existing in the cognitive power; see, e.g., *De Veritate*, q. 2, a. 2, ad 3.

[19] He will also describe knowledge of an outside object as occurring through the knower's own essence as knowing *per suam essentiam*. In this sense, God knows all things through his substance; see *STh* I, q. 55, a. 1, c.

[20] See *STh* I, q. 84, a. 2, c.

know hearing instead of color, since its nature is more like hearing than like a color,[21] and similarly the senses would know bodies better than the intellect does,[22] whereas these things are false. Hence knowledge must often take place through a certain likeness of the object's form rather than through such a form in its own natural existence.

St. Thomas also explains why this so. The reason is that knowers are meant to know things other than themselves, since it is the proper perfection of knowers to be capable of having the forms of other things while still possessing their own.[23] Obviously, the forms of determinate things other than the knower cannot exist in the knower with their own natural existence;[24] sticks and stones and cats and dogs cannot exist in the human soul with their own natural existence, for example. Hence knowledge through a likeness, rather than through the form of the object in its natural existence, is required in such cases.

But this is not a reason why all knowledge whatsoever must be *per similitudinem*. Rather, this reason applies only to cases in which a knower knows primary and immediate[25] objects that are other than the knower himself. Hence it does not show that a hypothetically corporeal human intellect must know itself *per similitudinem*, since that is a case of self-knowledge.

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[21] See *STh* I, q. 85, a. 8, ad 3.

[22] See *De Veritate*, q. 2, a. 3, ad 9.

[23] See *STh* I, q. 14, a. 1, c.; *De Veritate*, q. 2, a. 2, c.

[24] The form or essence of God is of course a unique case. Since his essence is not determinate or finite, nothing prevents it from being the form or actuality of a created intellect.

[25] It is necessary to add "primary and immediate" because sometimes a knower can know an object but not through its own dedicated species or likeness being received or existing in the knower, but through the species of something else received or possessed in the knower. E.g., God knows evil not by a species or likeness of evil in him, but through the species of the good (*STh* I, q. 14, a. 10, especially ad 3 and ad 4), and the human intellect knows itself, but not as a primary object and not through its own species, but through the species of other things through which it understands (*STh* I, q. 85, a. 2, c.; q. 87, a. 1, ad 3).

In sum, the would-be refutation falsely assumes, without supplying a reason, that knowledge in all cases follows upon possession of the object's form not in its natural existence. And the reason St. Thomas himself supplies for knowledge needing to be *per similitudinem* applies only to knowers knowing things other than themselves, and so it cannot apply to a hypothetically corporeal intellect knowing itself. Thus does the refutation fail to overturn St. Thomas's if-then premise.

On the other hand, the failure of an attempt to show St. Thomas's if-then premise is false does not imply that it is true. And even if the would-be refutation has failed to prove it false, it has drawn attention to the fact that it is a strange if-then statement, one whose truth is not immediately clear.

Why, then, must we admit that on the hypothesis that the human intellect is the brain (or some portion thereof) it follows that it knows its own nature all the time? The answer comes from St. Thomas's very argument, which posits that the primary object of the human intellect is "the natures of all bodies." Given that the human intellect is itself a body or a corporeal nature in a part of the body, such as the brain, it follows that it is one of its own primary objects. Consequently, it will know itself, since all that is required for knowledge is for a cognitive power to fully possess the form of one of its primary and immediate objects.[26]

Two questions arise here. First, how can we be sure that knowledge requires nothing more than the existence of the object in the cognitive power? Might not some special mode of existence also be required? Second, if there is nothing more required, then why does the part of the brain responsible for the sense of touch not always feel its own tangible qualities, and why does the visual cortex not always see its own visible qualities?

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[26] See *STh* I, q. 56, a. 1, c.

Consider the first question first: why is it enough for the object to exist somehow in the corresponding cognitive power? Why do we not have to add "with the appropriate mode of existence capable of causing knowledge"?

The answer is this: a special mode of existence of the object's form, other than its own natural existence, is required for knowledge only when the object cannot exist in the cognitive power with its (that is, the object's) own natural existence. To take a lofty example of this, a creature cannot exist in the mind of God with the existence natural to the creature, but instead exists there with none other than the divine existence.[27] Nor can a first creature exist in the cognitive power of a second with the existence natural to the first. One angel, for example, cannot exist with his own natural existence in the mind of a second angel; consequently, the one angel, say Gabriel, must exist in the mind of a second one, say Raphael, with another sort of existence that is compatible with Raphael in his natural existence.[28] Gabriel's existence in Raphael is therefore not Gabriel himself, simply and absolutely, but is only an intelligible likeness or representation of Gabriel. He exists in the mind of Raphael, then, not with the existence natural to Gabriel (in which Gabriel subsists), but with an *esse intentionale* that is Raphael-compliant. Nor can a stone (to take a more down-to-earth example) exist in the mind of an angel or even the mind of man with its own natural existence; a stone has a corporeal existence, whereas an angel or human mind has an immaterial one. In order for the form of stone to exist in the mind, therefore, it must have there another sort of existence, distinct from the natural existence it has in actual stones. Again, there is no way for the colors of a stone to exist in vision with the existence natural to those colors, even though vision resides in a corporeal subject (namely, eyes and brain). Vision is not a body or a surface of a body, or any other such natural subject of color, but a cognitive power in a body, and such a thing cannot take on color in the ordinary physical sense in which a body can do so. Since there is no way to get color to exist in vision with color's own natural and material existence, it must exist there instead with another mode of existence, namely, as a visual representation of color, which representation can have its natural existence in eyes and brain. In general, when the object to be known cannot exist with its own natural existence in the corresponding cognitive power, it must exist there instead through a representation whose natural existence complies with the exigencies of such a cognitive power.

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[27] This existence of a creature in the mind of God is not an example of *esse intentionale*, however. That expression is appropriate when the known exists in the knower through an accidental form added to the essence of the knower. God, of course, has no accidents. But neither does he need any in order to possess the forms of creatures, since they all exist in his essence *virtute*; see *STh* I, q. 14, a. 5, c., end, and q. 4, a. 2, c.

[28] See *STh* I, q. 56, a. 2, c. and ad 3.

The primary and universal requirement for knowledge is for the object[29] to exist in the cognitive power. But whatever exists in something must exist in it through the mode or capacity of the thing it is in.[30] Therefore, this secondary and particular requirement for knowledge must follow: whenever the object cannot exist in the cognitive power with its own natural existence, knowledge will require it to exist there with some other sort of existence compatible with being in that power.

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[29] Again, a primary object.

[30] "All knowledge, whether it be by reception from things or by an impression on things, is through the mode of the knower, because either one is a consequence of the fact that the likeness of the thing known exists in the knower, and that which is in something is in it through the mode of that in which it is." ("[O]mnis scientia, sive sit per receptionem a rebus, sive per impressionem in res, est per modum scientis; quia utraque est secundum hoc quod similitudo rei cognitae est in cognoscente; quod autem est in aliquo, est in eo per modum eius in quo est.") *De Veritate*, q. 2, a. 13, ad 3.

But not otherwise. If a primary and immediate object exists in a cognitive power with its own natural existence, that short-circuits any need for it to exist there in some other mode in order for knowledge to follow. Hence St. Thomas holds that knowledge does in some cases follow on the natural existence of the thing known within the knower. When asking whether an angel sees the divine essence through a created likeness of that essence existing in the angelic mind, St. Thomas entertains the objection that all knowledge is by assimilation, hence by means of some likeness of the known existing in the knower. He answers it in this way:

> Knowledge does not require assimilation except in order for the knower to be in some way united with the thing known. And a union by which the thing itself, through its very essence, is united to an intellect is greater than if it were united by its likeness. And so, since the divine essence is united to the intellect of an angel as its form, it is not required, in order for [the angelic intellect] to know that [essence], for it to be informed by a likeness of it so that, by means of this [likeness] coming in between, it would know it.[31]

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[31] "[A]d cognitionem non requiritur *assimilatio* nisi propter hoc ut cognoscens aliquo modo cognito uniatur. Perfectior autem est unio qua unitur ipsa res *per essentiam* suam intellectui, quam si uniretur *per similitudinem* suam. Et ideo, quia essentia divina unitur intellectui angeli ut forma, non requiritur quod ad eam cognoscendam aliqua eius similitudine informetur, qua mediante cognoscat." *De Veritate*, q. 8, a. 1, obj. 7 and ad 7. The divine essence itself, in its own natural existence, is the intelligible form of any intellect that sees that essence, whether a created intellect (*STh* I, q. 12, a. 2, ad 3) or the divine intellect (*STh* I, q. 14, a. 4, c.). Also, an angel knows his own essence through itself in its own natural existence, not through an intelligible likeness of it: *STh* I, q. 56, a. 1, c.; q. 87, a. 1; *De Veritate*, q. 8, a. 6. And not only in knowing oneself, but also in the case of knowing something more intelligible than oneself, knowing it by its own essence being in the knower is superior to knowing it by a likeness of its essence in the knower; see *De Veritate*, q. 3, a. 1, ad 1.

Hence a hypothetically corporeal human intellect would not need to be informed with a representation of itself so that, by means of this intermediate likeness, it could know itself. Instead, its form and nature in its own natural existence would already exist in it, and that would cause it to know itself.

So much for the first question. Consider now the second. Does St. Thomas's if-then premise oblige us to say that the sense of sight or imagination must always see certain colors, since the part of the brain housing such powers naturally possesses certain colors?

Not at all. The natural existence of colors (or temperatures, and so on) in the brain does not unite them with the cognitive powers in the brain. Though their organs *have* natural colors, neither sight nor imagination itself *consists in being* a certain color; by contrast, intellect itself would consist in being a certain corporeal nature if it were a power of the brain. If, analogously, the power of sight itself were the color pink, for instance, then indeed the sense of sight would always see pink. So too, if the intellect were a certain corporeal nature, then it would always understand itself.

Moreover, it is not the entire organ of an external sense that is receptive to its object in that object's own natural existence.[32] Instead, one part of the organ is dedicated to being thus receptive, while other parts serve the sense in some other way. St. Thomas knew, of course, that the iris of the eye is colored, and surely thought the iris served sight in some way, but he held that only the pupil, not the iris, receives the colors of things. One particular division of labor found in the organs of the external senses is especially useful to know in order to solve the difficulty we are now considering: a certain part of an organ of external sense receives from objects, while another part acts on the received information to turn it into a complete sensory representation of an object, sufficient to produce sensation. Aquinas was not aware of this,[33] since the evidence for it is mainly of the sort that has come to light in centuries after his time. Tactile sensation of what the hand is grasping, for instance, is completed in the brain, not in the hand (though the work of gathering tactile information from the object begins there), and yet the object thus felt by an act taking place within the brain exists in the hand grasping it, not in the brain. If it is true that the hand has no way of feeling by itself without the brain, it is just as true that the touch centers within the brain have no way of receiving tactile information immediately from the tangible qualities materially existing in the brain itself. Likewise, the seeing of an object whose color enters through the eyes via light is completed in the brain, not in the eyes or even in the optic nerves (though certainly the gathering of visual information takes place in these),[34] but what is thus seen is the external object, not something existing in the brain. And it is only the receptive part of the organ of external sense that would affect sensation by physically possessing its own object.

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[32] Nor is every part of an organ of sense receptive to the object in its existence in the medium of the sense; the visual centers of the brain, for example, cannot receive colors either directly from colored objects themselves or from a transparent medium informed *intentionaliter* with their colors.

[33] He takes external sense to be passive not only in regard to its object (*STh* I, q. 78, a. 3, c.; q. 79, a. 3, ad 1), but also in regard to its own sensory representation, species, or form, whereas other cognitive powers can also be productive of their own species (*Quaestiones Quodlibetales* 5, q. 5, a. 2, ad 2; *STh* I, q. 85, a. 2, ad 3). There is still much truth in that. Sense is essentially a passive power, for example, and it can never form a representation of its object in the absence of that object.

[34] St. Thomas did not think that sight was entirely completed in the eyes. But he thought this completion was brought about simply by light passing through the aqueous humor of the eye and penetrating all the way to where the two optic nerves meet. Possibly he thought this was necessary in order to produce a single image of the visible object, rather than two images, one for each eye. See *Sentencia De sensu*, tr. 1, lec. 5.

For example, it is not all parts of the complete organ of sight, but only certain parts of the eye, that are receptive to light and color in its natural being. And so only in certain parts must it lack color—in the cornea, aqueous humor, lens, and vitreous humor.[35] If the eye physically possessed a lit color in one of these places, it would always be seeing that color. As things are, it is possible for a body to lack all colors, to be perfectly or nearly transparent, and so the organ of sight takes advantage of that, putting only transparent materials between the retina and the incoming light from the object, so that we do not find ourselves always seeing one set of colors naturally existing in our own eyes.

Touch is a different case, since it is impossible for a body to lack all tangible qualities, such as temperatures and pressures. Consequently, touch has no choice but to allow the temperature of its own medium—human tissue—to become a component in all its temperature sensations of outside objects. That of course fits with experience; which of two bowls of water feels warmer to our two hands, for example, is determined in part by the temperatures of the water in the bowls, but also by the temperatures of our hands. This is one way, then, in which touch respects St. Thomas's rule that a cognitive power receptive of certain determinate objects must lack them in its own

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[35] The retina is also receptive, of course, and it is not exactly colorless. It performs phototransduction (the translation of incoming light-information about the object into electrical signals sent to the brain) by means of a certain pigment in retinal cells called rhodopsin (here used generically for any opsin), or "visual purple." Photons striking this light-capturing protein deform it, which changes its polarization, which in turn eventually causes changes in the electrical signals leaving the eye via the optic nerve. If there were nothing colored in the eye to thus receive and respond to photons, light would simply pass all the way through the would-be seer, and seeing would not take place. Still, though the retina has pigment (rhodopsin is reddish-purple), the retina lacks what it is to receive, namely, photons, and so the rule that a cognitive power must lack determinate objects (or messengers from objects, such as photons) that would prevent it from receiving others is obeyed even in the retina.

nature: touch in some way *does* always know its own temperature, and this does interfere with, or restrict, its knowing the temperatures of other objects.[36]

Like tangible qualities, corporeal natures cannot be entirely absent from a corporeal organ. Hence if the intellect were some part of the brain, every part of it would have a determinate bodily nature. Then the intellect itself, already being one of its proper and primary objects, would bypass the need for any intelligible representation through which to make its own corporeal nature present to itself. Therefore, the intellect would always be in full possession of one of its own primary and proper objects, and consequently would always know itself, just as St. Thomas says. Its own specific nature would enter into every one of its thoughts. But that is contrary to experience. We can think of corporeal natures entirely other than that of the human brain, apart from any relation they have to it.[37]

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[36] There are more parts to the story of how touch respects the rule. Another part of the story is found in St. Thomas's writings: "In the case of grasping powers, it is not always true that a power is totally deprived of its object. For this fails to be the case in those powers that have a universal object, such as the intellect. . . It fails also in the case of touch, because, although it has specific objects, nonetheless they are necessary for an animal to have. Hence its organ cannot be altogether without hot and cold—and yet it is somehow outside the hot and the cold insofar as it is constituted in a middling degree, and what is in the middle is neither of the extremes." ("[I]n apprehensivis potentiis non semper hoc est verum quod potentia denudetur totaliter a specie sui obiecti. Hoc enim fallit in illis potentiis quae habent obiectum universale, sicut intellectus cuius obiectum est quid, cum tamen habeat quidditatem; oportet tamen quod sit denudatus a formis illis quas recipit. Fallit etiam in tactu, propter hoc quod, etsi habeat specialia obiecta, sunt tamen de necessitate animalis. Unde organum eius non potest esse omnino absque calido et frigido: est tamen quodammodo praeter calidum et frigidum, in quantum est medie complexionatum, medium autem neutrum extremorum est.") *De Veritate*, q. 22, a. 1, ad 8. See also *Sent. De Sensu*, lec. 9 and *Sent. De Anima*, bk. 2, lec. 23.

[37] One could raise this similar objection to St. Thomas's if-then premise: it is an absolutely universal rule that the form of the object must exist immaterially in the knower, whereas the corporeal nature of the brain in its own natural

Logical Classification of St. Thomas's Arguments

As promised, that counter-argument is the only one taken up here. Let us now move on to a consideration of the logical nature of St. Thomas's argument for the subsistence of the human soul.

It is a demonstration, since one premise (viz., "what has its own operation has its own existence") follows immediately from things that are self-evident, and the other (viz., "the soul has its own operation") is itself demonstrated. More specifically, the argument is a demonstration *quia*, a demonstration *that* its conclusion is true. It is not telling us *why* the human soul subsists. That it has its own operation does not cause it to subsist. Rather, that it subsists is why it has its own operation.[38]

It is in this way similar to the argument for God's existence from motion. The whole argument is a demonstration, but *quia*;

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existence exists materially, i.e., in the materials for a brain, and so it seems that no knowledge should follow. To this, one can reply that every cognitive power, including sense, is immaterial in some degree. If it is given that the intellect is a cognitive power, then it is immaterial in some way, and so self-knowledge should follow, so far as that requirement goes. But one might object further: only if the intellect's nature is actually intelligible will it understand itself through itself, and it will not be actually intelligible if it is in matter, since forms are intelligible to the degree that they are separate from matter. To this, one can reply that if one combines the hypothesis of a corporeal intellect with the truth that forms are intelligible only when separate from matter, it follows that the intellect could not understand itself but perhaps only sense itself or else know nothing (*Super Sent*. II, d. 3, q. 1, a. 1, c.), but combined instead with the truth that the intellect would be one of its own primary objects, it follows that it would understand itself (*STh* I, q. 75, a. 2). Hence the same hypothesis, when combined with different truths, produces incompatible results. This does not present any problem for St. Thomas. Rather, it proves that there is something impossible in the hypothesis.

[38] Could one say that its subsistence is for the sake of its operation, and therefore its having an operation of its own is the cause of its subsistence in the mode of a final cause? That seems backwards. Though a substance exists "for" its operations, that does not mean it exists for their benefit, but that it exists in order to be benefited by them.

it is not showing us why God exists, but that he exists, reasoning from motion, whose existence is evident to us, to the ultimate reason why it exists. Still, that argument is based on the crucial premise that motion needs a mover, which can be demonstrated *propter quid*. What about St. Thomas's supporting argument for his crucial premise that the human intellect is not a part of the body? Is that a demonstration? And is it demonstration *quia* or *propter quid*?

We will be able to tell more easily whether this argument is a demonstration if we reformulate it as a categorical syllogism, as follows:

1. A power of receiving and knowing all corporeal natures must lack corporeal nature;
2. The human intellect is a power of receiving and knowing all corporeal natures;

C. Therefore, the human intellect must lack corporeal nature.

The major premise is self-evident, or borders on something self-evident: what is to receive and thereby know all things of certain determinate natures must lack them all, since a thing cannot already have what it is to receive.[39] Nor can it naturally possess one of the things in a whole genus of things it is to receive, and lack only the others, if the one thing would prevent it from receiving all the others. This is the case with corporeal natures.[40]

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[39] See *Sent. De anima*, bk. 3, lec. 7. A related principle is that a thing must somehow have whatever it is to give, or *nihil dat quod non habet*.

[40] It is not the case, incidentally, with angelic natures. Every angel knows himself all the time; how, then, can he know other things? Unlike a corporeal nature, an angelic nature is not "determinate" except in the sense of being finite. One corporeal nature (e.g., horse) cannot constitute one object of simple understanding together with another coordinate nature (e.g., gorilla), whereas one angelic nature (e.g., Michael) can constitute one object of simple

Having one corporeal nature does not permit receiving others (for example, being a cat prevents something from receiving the nature of a dog), and knowing one corporeal nature through an intelligible species dedicated to it[41] does not permit knowing other natures not represented through that species (for example, simple grasping of what a cat is, through a species of cat, does not enable, but prevents, simple grasping of what a dog is).

The minor premise, too, is self-evident, and is made known through experience. Hence St. Thomas says it is "clear that man through intellect can know the natures of all bodies."[42] By definition the human intellect is a power of receiving and knowing all corporeal natures. And it is a matter of experience that we are in possession of such a power. It is a matter of experience that the human mind can grasp all bodies in general, say, by forming a definition of *body* that applies to all of them, and also by making true statements about them all, as we see it does both in the case of all natural bodies (as in physics) and also in the case of all mathematical bodies (as in geometry). It is also a matter of experience that the human mind can grasp all bodies in their common principles, since it can understand the chemical elements or ultimate particles that compose them all. It is also

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understanding together with another angelic nature (e.g., Gabriel). An angel's own nature is to his mind like light, which is per se visible, but can also be the reason that some other thing is seen (*De Veritate*, q. 8, a. 14, ad 6). Hence Michael can see Gabriel while seeing himself at the same time, without interference.

[41] This is how we know corporeal natures (when simply grasping natures, vs. when combining them into statements or into things only accidentally one): one at a time, by themselves, through species or thoughts dedicated to them, expressed through a definition of each one. God and the angels also know corporeal natures, but do not know them in that way. If God were to know what a cat is through a definition of cat, then he, too, could not know other natures so long as he was thinking of the definition of a cat.

[42] "Manifestum est enim quod homo per intellectum cognoscere potest naturas omnium corporum." *STh* I, q. 75, a. 2, c.

a matter of experience that the human mind can grasp all bodies in their specific natures at least to some extent, since these become knowable to it through experience of individuals, from which it learns both their common genus and the differences that divide it, and also their common materials and the special compositions that distinguish them.

St. Thomas's argument for the premise that the human soul has its own operation, then, is indeed a demonstration of some sort. But is it demonstration *quia*, or *propter quid*? Comparison with a similar argument about an easier matter may help to decide. Consider this argument about the aqueous humor of the human eye:

1. A medium receptive to all colors must lack color;
2. The aqueous humor is a medium receptive to all colors;

C. Therefore, the aqueous humor must lack color.

Here the middle term is "receptive to all colors." Is that an effect, or a cause, of the fact that the aqueous humor lacks color?

If we refer to material causation, it's an effect. The humor is receptive of all colors because it lacks them all. On this understanding, "because" means "due to the following disposition in the humor, rendering it apt to receive." In a similar sense, a movie screen is receptive of projected images "because" it has no image on itself that would interfere with those images. Similarly, prime matter is receptive of all forms "because" it lacks them all in its own nature. Of course, prime matter receives materially, whereas the aqueous humor does not.[43] Still, the dispositions required for its special kind of receptivity are more like material causes of its receptivity than they are like any of the other three genera of causes. Understood analogously, the argument for the intellect's incorporeal nature is effect-to-cause reasoning, hence demonstration *quia*: because the intellect lacks all corporeal natures, it is tied to none, and is capable of understanding them all. The conclusion gives the quasi-material[44] cause of the truth of the minor premise that the intellect can understand all things.

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[43] I.e., it does not receive the colors of objects so as to become similarly colored.

But what if we refer instead to final causation, and ask again whether being receptive to all colors is an effect, or a cause, of the fact that the aqueous humor lacks color? In this way, it is a cause. The aqueous humor lacks all colors because it receives them all. Here, "because" means "due to its being for the sake of the following end." In a similar sense, a movie screen has no image on itself "because" it is meant to receive projected images. And prime matter lacks all forms "because" it is to receive them all. Understood analogously, the argument for the intellect's incorporeal nature is cause-to-effect reasoning, hence demonstration *propter quid*.

Which way of taking the argument is correct? They are both correct. It would be a mistake only to think that the mind's receptivity to all corporeal natures is both a cause and an effect of its incorporeality in the same genus of causation. Its universal receptivity is an effect of its incorporeality in the line of quasi-material causation, but a cause of it in the line of final causation.

In which way did St. Thomas intend his argument to be taken? The language of the argument itself[45] seems indeterminate, open to either way of being understood. But St. Thomas quite clearly holds that the acts and objects to which powers are ordered are their final causes. Here is what he says:

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[44] "Quasi" because the intellect is not a material thing. But a condition of receiving, even if in an immaterial power, is akin to a material cause.

[45] See *STh* I, q. 75, a. 2, c.

> Powers [of the soul] are differentiated by [their] acts and objects. Now, some say that this should not be understood in the sense that the diversity of acts and objects is the cause of the diversity of powers, but only in the sense that it is a sign of it. Others say that the diversity of objects is the cause of the diversity of powers in the case of passive powers, but not in the case of active ones. However, if one considers the matter carefully, one finds that in the case of both kinds of powers their acts and their objects are not only signs of their diversity but are in some way the causes of it. For everything whose existence is only on account of some end has a mode determined for it from the end to which it is ordered. A saw, for example, both in its material and in its form, is of such a sort as to be suitable for its end, which is to cut. And every power of the soul, whether active or passive, is ordered to its act as to an end, as is plain from *Metaphysics* 9. Hence each and every power has a determined mode and species as a consequence of which it can be suitable for such and such an act.[46]

Accordingly, as the eye's transparency is for the sake of receiving and seeing all colors, so is the intellect's incorporeality for the sake of receiving and understanding all corporeal natures.

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[46] "[P]otentiarum diversitas penes actus et obiecta distinguitur. Quidam autem dicunt, hoc non esse sic intelligendum quod actuum et obiectorum diversitas sit causa diversitatis potentiarum, sed solummodo signum. Quidam vero dicunt quod diversitas obiectorum est causa diversitatis potentiarum in passivis potentiis, non autem in activis. Sed si diligenter consideretur, in utrisque potentiis inveniuntur actus et obiecta esse non solum signa diversitatis, sed aliquo modo causae. Omne enim cuius esse non est nisi propter finem aliquem, habet modum sibi determinatum ex fine ad quem ordinatur; sicut serra est huiusmodi, et quantum ad materiam et quantum ad formam, ut sit conveniens ad finem suum, qui est secare. Omnis autem potentia animae, sive activa sive passiva, ordinatur ad actum sicut ad finem, ut patet in IX Metaph.; unde unaquaeque potentia habet determinatum modum et speciem, secundum quod potest esse conveniens ad talem actum." *De Veritate*, q. 15, a. 2.

The intellect must not be composed of corporeal principles, or combined with any of them, *in order that it may know them all*.

The argument reasons necessarily and does so from necessary truths that contain the proper cause of the truth of the conclusion. It is, then, a philosophical demonstration in the fullest sense.

Conclusion

And yet it also seems to be somehow first for us. It is prior to other demonstrations for the incorporeality of the human intellect. One sign of this is that Aristotle gives no other demonstration of the human intellect's incorporeal nature, and none existed, or not fully fledged, prior to him.

Another sign of its primary character is that St. Thomas prefers it when addressing "beginners" in sacred theology. In his *Summa contra Gentiles*, which is not for beginners, he offers many other arguments for the incorporeality and immateriality of intellect.[47] In the *Summa Theologiae*, he offers only one argument for the incorporeality of intellect on the way to proving the human soul's subsistence, namely, the one from Aristotle.

Probably the reason it is somehow first for us is that it argues from the things that the soul somehow has in common with the senses and even with matter, namely, receptivity to corporeal things. Though the intellect does not "receive form" in the same way, or even in the same sense, as matter does, or as the senses do, it does receive form, and in that way it is like sense.[48] The argument begins with what the intellect has most in common with the senses, and in that way begins with what is most known to us about the intellect. Like the senses, and most especially like sight,[49] the intellect must lack its primary objects in its own constitution. Unlike sight, intellect has all corporeal natures as its primary objects. From these facts it follows that unlike the senses, the human intellect has no corporeal organ. It is most natural for reason to proceed from the sensible to the intelligible—and here we have a particularly striking example of this, since Aristotle's argument proceeds, as it were, from the intellect's likeness to the senses[50] to its distinction and difference from them.

St. Thomas and Aristotle are certainly admirable for their brilliant discovery and articulation[51] of this argument for the human soul's subsistence. But more than them, we should admire the human mind itself, since this way it has of coming to know itself is no human innovation. The fact that such a path lies open to it is not due to anyone's philosophical genius or imagination. No, it is inscribed in the very nature of the human intellect. Its true origin, therefore, is no philosopher or any other human being, but is human nature's author Himself.

We should be moved with joy and gratitude at the thought. How wonderful, how provident, that something as desirable to know as the subsistence of the human soul and the incorporeality of the human mind can be known by so decisive and perfect an instrument as a demonstration *propter quid*.[52] How deplorable, then, that the argument is so rarely considered, and is received by too many of those few philosophers who do consider it as something less than it really is—as a probable argument, or worse, as a piece of sophistry or pre-scientific, medieval bungling. In truth, it is one of the greatest common goods of reason. But access to that good must diminish considerably as long as published criticisms of it are left unanswered. So let those who see it for what it is profit from it themselves. But let them also, in their spare moments, remove whatever obstacles to it they can that lie in the way for others.

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[47] See *Summa contra Gentiles* II, c. 49–50.

[48] St. Thomas himself draws attention to the fact that Aristotle's argument seems to be proceeding from something that intellect has in common with the senses. See *Sent. De anima*, bk. 3, lec. 7.

[49] As opposed to, say, touch, which in some sense does have some of its own primary objects built into its natural and conjoined medium.

[50] Of course, the argument also proceeds from an evident difference of the intellect from the senses, namely, its object. Its object is not "colored things" or "flavored things," but "corporeal natures." But from this evident difference and the evident likeness to the senses, it deduces a difference harder for us to say, namely, that the intellect is incorporeal.

[51] If Aristotle first discovered it, St. Thomas in a sense rediscovered it, since other philosophers before him, such as Avicenna, in some measure misunderstood it. And most philosophers who consider the argument today misunderstand it, if indeed their criticisms of it are unjust, as I take them to be.

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[52] Surely this is part of what Aristotle had in mind when he praised the science of the soul for being very "exact" (*On the Soul* 1.1, 402a2, the opening line).

A THOMISTIC REHABILITATION OF THE PASSIVE INTELLECT

John Francis Nieto

1. The principal purpose of these remarks is to encourage Thomists to make attention to the cogitative power, which I identify with the passive intellect, an habitual element in their consideration of intellectual activity. I am saying that we should habitually consider the human intellect not only through the work of the agent intellect and the possible or potential intellect but also through the activity of the passive intellect or cogitative power. So another purpose here is to distinguish the passive intellect from the possible. I will usually speak of this power as the passive intellect throughout these remarks because this name most distinctly expresses the intimate role of its activity in the work of the human intellect.[1]

2. I will divide my remarks into three considerations. The first (4–32) of these is a discussion of the nature and existence of

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[1] I suspect that some reasonably prefer the name "cogitative power" precisely because its sound does not introduce any confusion with the possible intellect. I prefer the name "passive intellect" because it suggests how close the two powers are and how easily confused they are. My own experience is that habitual use of both names helps one not only to distinguish the two names but also the two powers.

the passive intellect. The second (33–38) proposes that experience is a habit proper to the passive intellect. The third (39–48) offers an example of the utility of considering the passive intellect's activity alongside that of the possible intellect.

3. To make the nature and existence of the passive intellect clear, I will do three things. First (4–6), I will compare my present use of the names "cogitative power" and "passive intellect" with St. Thomas's use of these names.[2] Second (7-20), I will discuss the passage in which I see Aristotle describe the act of what he later calls the "passive intellect." Third (21–32), I will

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[2] The translation of the commentary by St. Thomas on the *De Anima* by Kenelm Foster, O.P., and Silvester Humphries, O.P. (first published in 1951 by Yale University Press and reissued *"légèrement retouchée"* in 1994 by Dumb Ox Books) includes an unfortunate mistranslation in paragraph 742 of the third book (Marietti: lec. 10; Leonine: cap. 4, l. 205). They have translated the phrase *intellectus possibilis* as "potential intellect" throughout the comments on *De Anima* 3.4–5, until they reached this last use of the phrase. Here they translate the phrase as "passive intellect." The passage occurs in a sentence in which St. Thomas is teaching that Aristotle does not mean only the agent intellect or only the possible intellect is separate (in its operation) but both, insofar as he speaks here "of the whole intellective part." St. Thomas goes on to conclude from the principle stated in the first book that "only this part of the soul, namely the intellective, is incorruptible and perpetual." Three paragraphs later (Marietti: p. 745; Leonine: l. 235–36), St. Thomas quotes the phrase *passivus intellectus*, the "intellect" Aristotle describes as corruptible; here Foster and Humphries rightly translate this with "passive intellect." They suggest therefore that St. Thomas asserts in one paragraph that Aristotle holds that the passive intellect is incorruptible and asserts three paragraphs later that Aristotle considers that intellect corruptible. In fact, St. Thomas never confuses the possible intellect with the passive intellect. He considers the possible intellect the immaterial power of the soul by which the forms of beings exist in us intelligibly; he considers the passive intellect a sensitive power of some sort, though he does not always identify it the same way. The newly published revision of this translation by The Aquinas Institute has corrected this passage. Robert Pasnau's translation (Yale University Press, 1999) does not make this mistake and has a helpful footnote on the use of the phrase "passive intellect."

examine the act of the passive intellect through a general principle of knowledge taught by St. Thomas.

The Names "Passive Intellect" and "Cogitative Power"

4. Aristotle himself distinctly uses the name "passive intellect" only once, to my knowledge, near the end of *On the Soul* 3.5. After he describes the agent intellect, or perhaps the agent and the potential intellect, as being "only this which it is, when separated," he makes the cryptic remark:

> But we do not remember because this is impassive, but the passive intellect [ὁ . . . παθητὸς νοῦς] is corruptible and without this it understands nothing.[3]

We must keep in mind that Aristotle did not himself establish the terminology we have received together with his teaching. Some, with reasonable arguments, understand this phrase, ὁ παθητὸς νοῦς or passive intellect, to name what most Thomists understand as the possible or potential intellect. St. Thomas shows this cannot be so, and I will merely assume this here. I will argue that Aristotle uses this name in chapter 5 to refer to the intellect insofar as it performs an act described in the previous chapter, *On the Soul* 3.4.[4]

5. I am arguing that one of the acts Aristotle describes in *On the Soul* 3.4 is definitive of the passive intellect. This is an attention to some sensible singular precisely as it is flesh.[5] We can all recall this kind of attention. As you find a seat in a darkened theater, you set your hand down upon an armrest here and

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[3] 430a23–25. All translations will be my own.

[4] I think he also distinguishes the passive intellect from the possible intellect in *Nicomachean Ethics* 6.11, though I will not discuss that passage in these remarks.

[5] See 429b12–17.

a seatback there, and finally upon an arm instead of an armrest. That immediate attention to human flesh in the sensible singular is the act I understand Aristotle to assign to the passive intellect or cogitative power. St. Thomas may read this passage in *On the Soul* 3.4 otherwise than I do. Still, I think he clearly conceives the cogitative power as performing the act I understand Aristotle to assign to the passive intellect.[6]

6. We should also keep in mind that St. Thomas did not always read Aristotle's mention of the passive intellect in *On the Soul* 3.4 in the same way. Following Averroes, he identifies the *vis cogitativa* or cogitative power with the passive intellect mentioned in *On the Soul* 3.5 earlier in his writings.[7] Later,[8] he prefers to distinguish the two and proposes that "passive intellect" names other powers or some aggregate of powers. To this extent, St. Thomas seems to concede that Aristotle did not identify the cogitative power. I am not concerned principally with names here. But I do think that Aristotle recognized the power that St. Thomas calls the cogitative power and that Aristotle refers back to the passage in which he did so when he uses the phrase "the passive intellect." Still, my considerations here, if correct, will constitute a development of St. Thomas's teaching both in the order of naming and in the distinction of cognitive acts. I am focusing on an act here that St. Thomas did not articulate in sufficient detail.

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[6] In many places, St. Thomas also names this power the "ratio particularis" insofar as it reasons about a subject that is particular rather than universal. In *Quaestio Disputata de Anima*, a. 13, c., he brings the same power under all three names: "Unde ad hoc in aliis animalibus ordinatur aestimativa naturalis; in homine autem vis cogitativa, quae est collativa intentionum particularium: unde et ratio particularis dicitur, et intellectus passivus."

[7] See *In IV Sententiarum*, d. 50, q. 1, a. 1, ad 3; *Summa contra Gentes* II, c. 60, n. 2; c. 73, n. 14; c. 80, n. 6; *Quaestio Disputata de Anima*, a. 13, c.

[8] See *Summa Theologiae* (henceforth *STh*) I, q. 79, a. 2, ad 2; *Sententia Metaphysicae*, bk. 7, lec. 10, n. 13; *Expositio Peryhermeneias*, bk. 1, lec. 2, n. 6; *Sententia Libri De anima*, bk. 3, lec. 10, n. 745.

The Passive Intellect in On the Soul *3.4*

7. Aristotle begins *On the Soul* 3.4 by doing two things: he clarifies the nature of the potential intellect and considers the condition in which such an intellect is able to know its own nature. He goes on in 429b10–21 to distinguish sense and intellect according to their objects. Here he makes a distinction in the intellect's object that implies the distinction of the passive intellect from the possible intellect.

8. The passage begins with a parallel distinction made in two orders: "magnitude and the being to a magnitude are one thing and another as are water and the being to water."[9] Or, as we would say in English, "magnitude is one thing and the being to a magnitude another, and water is one thing and the being to water is another." One of these exemplifies mathematical beings, which he later calls "things existing by abstraction,"[10] while the other exemplifies natural beings. I will only speak here about the natural beings. In each order, there is a distinction between the thing and its essence, here called its being.[11] In the discussion of mathematical beings he refers to such an essence as the τὶ ἦν εἶναι, "what was [its] being,"[12] a formula by which Aristotle brings essence under the name οὐσία or substance, most clearly in *Metaphysics* 7.6. Here, in *On the Soul* 3.4, Aristotle goes on to say that in many other things this distinction of the individual and its nature exists, though not in everything. In some beings the thing and its essence are the same.

9. Aristotle then proposes two ways in which the soul "discerns" the things and their essences or natures. He now uses

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[9] 429b10–11.

[10] 429b18.

[11] Here Aristotle uses one of his formulae for what we often call essence: the infinitive εἶναι (which I translate here as the "being") with the dative naming the thing whose nature this is.

[12] 429b19.

flesh and the being to flesh rather than water and its essence as examples of the object of our natural knowledge. The passage is difficult and subject to various interpretations. Still, I think the following judgment is unavoidable. Aristotle proposes two possibilities for such discernment, that is, two ways we distinguish the essence of flesh from flesh. Note, however, he is not proposing two ways discernment might occur, one of which turns out to be the true one. Rather, Aristotle proposes two ways that we in fact discern flesh and what it is to be flesh. Each way is a way of doing so. He uses a terse Greek expression: the soul "discerns [these] either by another [power] or by [one] standing otherwise."[13] In English we might express the same thought more diffusely: the soul discerns these either by one power and another or by the same power working one way and another way. But one must also note that, exhibiting his customary complacency with pronouns, Aristotle does not use the word "power" or "part" in this passage and this is among its various difficulties.

10. Aristotle defends the need for these distinctions by the fact that "flesh is not without matter but is like the snub, this in that."[14] Aristotle thereby draws our attention to the fact that we have psychological acts in which we encounter flesh as it includes matter and these are among acts by which we distinguish this flesh and that flesh from the nature of flesh as common to both. I do not think it difficult to see that each of the two ways we discern flesh and what it is to be flesh demands that one of the acts of awareness attends to the nature of flesh as such and the other act of awareness attends to that nature as "this in that," namely, in matter determined by sensible differences, or, to use St. Thomas's phrase, in designated matter. I also think it clear that in these alternative ways of discerning flesh and its nature, the

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[13] 429b13: "τὸ σαρκὶ εἶναι καὶ σάρκα ἢ ἄλλῳ ἢ ἄλλως ἔχοντι κρίνει."

[14] 429b14: "ἡ γὰρ σὰρξ οὐκ ἄνευ τῆς ὕλης, ἀλλ ὥσπερ τὸ σιμόν, τόδε ἐν τῷδε."

act attending to the nature is the same act in each pair, although described in two distinct ways. The difference in these pairs follows the fact that Aristotle describes two ways of attending to this flesh. The sameness of one act in each pair and the otherness of the remaining act in each pair implies that Aristotle distinguishes three specifically distinct acts here which have—as I will argue—three objects, one proper to each: the nature of flesh, the singular as having this nature, and the singular as having these sensible qualities by which we define flesh.

11. The passage where Aristotle clarifies these alternatives is another example of how compact Greek expression often is. Perhaps most surprising in this passage is how diffuse the first part of his articulation of the first alternative is:

> So by [its] sensitive [part] [the soul] discerns the hot and the cold and [the things] of which flesh is a λόγος.

He completes this option by stating,

> but by another separate [part] . . . it discerns the being to flesh.[15]

(Note that I have suppressed some elements of this passage that I will presently (13) restore.)

12. I take this first alternative as involving only one difficulty. Aristotle's account of the sensitive power discerning or recognizing flesh resolves to this power's awareness of the sensitive qualities by which we define flesh. I will merely assert here that this amounts to the judgment that sense grasps flesh accidentally; sense attends to the qualities in which the intellect attends to flesh and from which it forms a definition of flesh. Whatever else this passage achieves, it explains what Aristotle

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[15] 429b15–16.

meant earlier[16] by describing substance as sensible *per accidens*. The intellect, however, as a power separated from matter, discerns this nature insofar as it is intelligible, without immediate attention to this nature as falling under these sensible differences or as existing in this designated matter.

13. The other option is difficult to sort out for many reasons. I will offer an interpretation without much attention to these difficulties. At first, I will give a translation of the passage without separating the second option from part of what I have proposed as the first option. (Here I will include the elements of the sentence I ignored earlier.) Aristotle says:

> [The soul] discerns the being to flesh by another [part] either separated or as a bent [line] stands to itself when unfolded.[17]

The first part of the disjunction, "separated," completes the first option; the second part of the disjunction—the formula following "or"—offers what I will call a metaphor that expresses one of the acts and merely implies the other act that constitutes the second option. Further, even the manner in which Aristotle presents the principal act he is considering here is confusing.

14. I will translate the passage again with an omission and a clarification: "[The soul] discerns the being to flesh by a [part] [that discerns] as a bent [line] when unfolded stands to itself." Aristotle is using a metaphor to express the two ways something "standing otherwise" (or standing one way and another) can discern flesh and what it is to be flesh. The metaphor is an "unfolded bent line." I draw your attention to the fact that Aristotle went out of his way not to say that what discerns what it is to be flesh is as a straight line to the same line folded up or as an unfolded line to itself folded. Rather, he describes this as a folded or bent or inflected line when unfolded and then refers it to itself. I will merely assert for now that I suspect he is suggesting that being bent back—toward the sensible—is the first and most natural condition of the human intellect, the attention connatural to this intellect.

15. I will begin examination of this metaphor by quoting the beginning of St. Thomas's interpretation. In its general outlines, his interpretation agrees with my own:

> So the intellect knows each but in one and another way; for it knows the nature of the species, or the "what it is," directly by stretching itself out, but [it knows] the singular by a kind of bending back, insofar as it returns to the imaginations from which the intelligible species are abstracted.[18]

One might say that St. Thomas has understood the line metaphor in terms of arrows. He describes the unfolded line as expressing the order between an act of sensing followed by an act of understanding. The directional character of this image becomes clearer when he interprets "bending back" as a return to the imaginations from which the intelligible species are abstracted. With St. Thomas, I see the folded or inflected line as describing a double order: the intellect receiving from sensation and the intellect returning to sensation.

16. I am proposing that Aristotle's definitive attention to the passive intellect follows his observation that the intellect which knows universals also knows the singulars somehow. Together with St. Thomas, I understand the first part of

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[16] See *On the Soul* 2.6, 418a20–23.

[17] 429b16–17: "ἄλλῳ δέ, ἤτοι χωριστῷ ἢ ὡς ἡ κεκλασμένη ἔχει πρὸς αὑτὴν ὅταν ἐκταθῇ, τὸ σαρκὶ εἶναι κρίνει."

[18] *Sententia Libri De anima*, bk. 3 (Marietti edition lec. 8, ns. 712–13; Leonine edition c. 4, ll.181–186): "Intellectus igitur utrumque cognoscit, set alio et alio modo: cognoscit enim naturam speciei, sive quod quid est, directe extendendo seipsum, ipsum autem singulare per quamdam reflexionem, inquantum redit super phantasmata, a quibus species intelligibiles abstrahuntur."

Aristotle's formula—the description of the unfolded bent line—as expressing the order by which the possible intellect receives from the imagination. The possible intellect receives the intelligible species of the nature represented in our imagination after (albeit, not temporally after) the illumination of such an image by the agent intellect and attends to that nature.

17. Let me turn now to the second part of the folded line metaphor. St. Thomas says that the intellect knows the singular "insofar as it returns to the imaginations from which the intelligible species are abstracted." In my reading, this return occurs in the part of the brain (more or less the pre-frontal cortex) that is the seat of the passive intellect. I will go so far as to assert that this is in fact the only way in which the soul knows flesh as flesh. When you set your hand down upon an arm in a darkened theater, you are aware that this is flesh precisely by the passive intellect or cogitative power.

18. To make this clear, note that, when one suddenly recognizes flesh in this way, the activity of the hand itself, occurring in the hand, has become in some way most formal to the sensitive presentation. The passive intellect attends to flesh through the definitive notes of flesh present to the hand that senses them. I also recall your attention to the fact that Aristotle described the sensitive part of the soul as discerning flesh insofar as it knows the hot and the cold and whatever other sensible qualities fall into the definition of flesh. I said earlier that this describes awareness of flesh as an accidental sensible. I complete that judgment here by saying that the intellect, by its return to the sense—a bending back toward the sensible—grasps the singular under the intention of flesh as its proper object. This return to sense is how, in my reading, Aristotle distinguishes the passive intellect from other powers of the soul.

19. Of course, Aristotle leaves the intellect's attention to flesh implicit in the metaphor of the bent line. He focuses on the act of discerning the essence of flesh, which corresponds to the unfolding of the line. The bent line does not discern this essence as such in its bent state but when unfolded. Aristotle merely implies that, when bent, it discerns flesh itself. He also asserts that the intellect discerns the essence of flesh insofar as it is a power separate from the body, or from the sensitive part; this description therefore implies that intellect discerns flesh itself insofar it is in some way united to the body, or to the sensitive part of the soul. The attention of this organ follows the intelligible apprehension of the nature, but it returns to the sensible differences through which we drew this nature from the singular.

20. Yet, as I pointed out above, Aristotle goes out of his way to introduce the power that knows the essence of flesh under the metaphor of a bent line that needs to be unfolded to attend to the essence and nature of flesh. I think the bent state of the line refers to what I will call our "natural attention" to things—an attention that involves no dialectic, science, or philosophy. Without a distinct method, the human intellect pays attention to singulars. The illumination of the imagination causes intelligible species to exist in act in the possible intellect, but by nature the human intellect bends back to the singulars determining it to think about those singulars. Our intellect does this in the cogitative power, in the passive intellect. Some method is necessary, such as results in the attention that Socrates urges Meno to pay to virtue, if the human mind is going to draw away from sensible individuals and consider the natures of things habitually.

Distinguishing the Object of the Passive Intellect

21. To develop what I have just said about the difference in attention between the possible and the passive intellect, I will now turn to this power through attention to a very general principle St. Thomas observes regarding the nature of knowledge. I will

begin (22) by stating that principle. Then (23–27), I will comment upon its primacy in the order of knowledge. Finally (28–32), I will apply this principle to the work of the passive intellect.

22. In the following passage from his commentary on the *Sentences*, St. Thomas discusses the species or *ratio* by which a cognitive power knows and the thing to which that species belongs. He uses the word *ratio* here rather than *species* because of the particular subject of discussion.[19] In most human acts of knowledge, what he refers to here as the *ratio* of knowing something is some sensible or intelligible species proper to something outside the soul. He compares the species and the thing known to form and matter. In my translation I will leave the word *ratio* in Latin:

> That in which something is seen is the *ratio* of knowing that which is seen in it. But the *ratio* of knowing [something] is the form of the thing insofar as it is known, because through it knowledge comes about in act; whence just as from matter and form there is one *esse*, so the *ratio* of knowing and the thing known are one known, and for this reason there is one knowledge of both, as such.[20]

As St. Thomas makes clear here, the cognitive *ratio*, its form or species, whether intelligible or sensible, is not merely something through which we know the thing outside the soul, as we look through a window or even through a lens. Rather, this species

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[19] This is particularly clear from the fact that all three objections proceed through the notion of *species* as does the reply to the first objection.

[20] *In III Sententiarum*, d. 14, q. 1, a. 1, qla. 4, c.: "illud in quo aliquid videtur, est ratio cognoscendi illud quod in eo videtur. Ratio autem cognoscendi est forma rei inquantum est cognita, quia per eam fit cognitio in actu: unde sicut ex materia et forma est unum esse; ita ratio cognoscendi et res cognita sunt unum cognitum: et propter hoc utriusque, inquantum hujusmodi, est una cognitio."

and the thing outside the soul constitute one object of the knowing power.

23. I will defend the primacy of St. Thomas's teaching here by focusing on the comparison with form and matter. He points out that from form and matter there is one *esse* or being. Let me restate this in another way. Nothing could be more unnatural—more opposed to the order we call nature—than matter being disposed to some form without having that form. Should atoms of oxygen and hydrogen come together in the appropriate way, they must bear the form of water. Once sperm and egg come together such that they constitute the body proper to some plant or animal, that body must have the soul proper to it. Nothing could be more unnatural—more opposed to the order between nature as form and nature as matter—than matter disposed to a form and lacking that form. This is so because matter and form have an existence that belongs to them as they constitute something one.

24. So, I propose, in the order of knowledge nothing could be more opposed to the nature of knowledge than this, that a knower should attend to some sensible or intelligible species without knowing something that has that species. Just as form and matter constitute one being with a single existence, so the *ratio* of knowing and the thing known constitute one knowable object grasped in a single act of knowledge. Just as the form correlative to matter cannot exist without that matter, so the species proper to the knowledge of some composite being necessarily refers to that being.

25. In speaking of the intellect, I will refer to this *ratio* of knowing as an intelligible species. Nothing could be more opposed to the nature of intellectual knowledge than attention to an intelligible species—whose very nature is to present the intelligible to the intellect—without any awareness of or attention to the object represented in that species. To attend to such

a species is necessarily to turn toward that species as it and the being known in it together terminate or complete an act of the intellect. In discussion of the possible intellect's act, we sometimes call this a "concept" or an "expressed species" to indicate the fact that it terminates the act of the possible intellect. Such a concept or expressed species is the *ratio cognoscendi* in which the possible intellect attends to its object, insofar as such a species is the intelligible form of that object.

26. But the converse of this principle is equally true. One cannot attend to an object except through and in a cognitive species proportioned to that object. Just as matter demands the form that makes it to be what it is, so any object is grasped in a cognitive species representing it as it is. It follows, I propose, that we must understand something we can also call a "concept" in which we attend to the singular insofar as it falls under a common nature. Clearly the imagination brings forth images we look at; likewise, the cogitative power or passive intellect must bring forth a representation of its object in which we grasp that object as a singular of a determinate nature.

27. I recognize this is a secondary sense of the name "concept," one that is not said univocally in the formation of the passive intellect and the formation of the possible intellect. At present I will merely note that the concept of the possible intellect is also called a "word." I think the concept or conception of the passive intellect can only be called a "word" in a way that corresponds to a proper noun or a phrase that performs the work of a proper noun. These are the names and concepts to which logic assigns the intention of "first substance," names properly said of composites of matter and form.

28. I will now apply the principle articulated by St. Thomas to the human intellect in the two activities by which it attends to flesh and again to the essence of flesh. I assume here that, by nature, whenever the sensitive powers enter into act, the agent

intellect necessarily illuminates the nature represented by the sensible qualities brought together in the imagination. Again, by necessity the possible or potential intellect receives the intelligible species of that nature. But, so long as the intellect remains bent back to the sensible beings, the concept that proceeds from this intelligible species is not a concept proper to the possible intellect. So long as the intellect attends to the sensible singular through the intelligible species of the possible intellect, the concept in which it does so expresses the nature known through that species only as determined to this singular. St. Thomas describes this as a *refluentia*, a back flow, from the possible intellect into the cogitative power.[21] The actualization of the intelligible species in the possible intellect raises the passive intellect to an attention to the non-sensible nature, while its seat in an organ contracts that attention to the presence of that nature in a sensible singular.

29. I will confine myself here to two observations about this attention. First, in such an act the passive intellect attends to the representation in the imagination and senses through those aspects definitive of the nature in question. The intelligible species actualized in the possible intellect raises the passive intellect to an attention to the sensible substance through these sensible aspects. Second, the passive intellect can only form a concept of substance as something sensible. The passive intellect can attend to a sensible or imaginable triangle, but if there is a triangle that has no sensible properties (even if it exists together with the sensible one in the same place), the passive intellect cannot attend distinctly to it. Likewise, the passive intellect can attend to sensible beings and can even recognize in them the need of various

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[21] See *STh* I, q. 78, a. 4, ad 5: "illam eminentiam habet cogitativa et memorativa in homine, non per id quod est proprium sensitivae partis; sed per aliquam affinitatem et propinquitatem ad rationem universalem, secundum quandam refluentiam. Et ideo non sunt aliae vires, sed eaedem, perfectiores quam sint in aliis animalibus."

principles and causes, but it cannot attend directly to a substance that is not sensible, such as God. It can attend to the names and definitions for such beings, but it cannot attend to such a substance as such.

30. But the most proper act of the intellect—the most proper use of the intelligible species that arises in it through the illumination of the agent intellect—is an attention to the nature and essence represented in that species. Aristotle proportions this to the bent line when unfolded and assigns it to the intellect as a separated power. I take the metaphor of unfolding the bent line as corresponding to the use of intellect as a power separate from matter. As St. Thomas makes clear, when the possible intellect attends to a nature in this way, an act proceeds from the possible intellect informed by such an intelligible species that terminates in that species as it belongs to, and is one with, something outside the intellect, something that has the nature represented by the species. Here, because the nature is not considered as determined to this or that singular, the imagination brings forth an image or images sufficient to represent that nature's presence in one or more individuals without limiting its presence to some one of them. In this way, the possible intellect attends to any being having that nature or to all of them indifferently. While the passive intellect must contribute in some way to this act, the act does not terminate in the passive intellect and the object of the act is not a singular but the nature as common to many.

31. I suggest here that our first and most rudimentary act of drawing the intellect away from its natural attitude of bending back to sensibles—an act common to all of us—is that of imposing common names. In the imposition of these names, seduced, as it were, by the passive intellect's attention to the name as a sensible singular, the possible intellect can attend to the nature signified by that name as common to many individuals. To the extent

that such names are inseparable from nominal definitions, an order arises in the possible intellect—habitual but yet implicit—by which it grasps the natures of sensible beings according to the order, perhaps several orders, implied in these nominal definitions. Even here, however, the passive intellect attends to this name as said of several individuals, one after another.

32. But the power to draw the possible intellect away from the passive intellect's addiction to singular substances requires more than this. Mathematics has the power to do this, even from an early age, through the clarity and certitude it attains about natures considered universally, though the student is not always aware of this. But the manner in which mathematics refers to reality is not something mathematics is clear and certain about. And natural sciences other than mathematics cannot determine the truth about their subjects without dialectic. So, if the human intellect is going to draw away from the sort of attention proper to the passive intellect and habitually enjoy the attention to the natures and essences as they exist in reality, the individual having that intellect usually needs some "gadfly" to urge it to its proper attention, as Socrates urges Meno to attend to the nature of virtue as something common and universal. Without such help (even with such help, if it does not result in a habit of employing the potential intellect in this way), the actualization of the potential intellect will merely result in the connatural back flow, *refluentia*, by which the soul bends back, in the passive intellect, to sensible singulars.

Experience and the Passive Intellect

33. To make clear that experience, as Aristotle uses this name, is a property of the passive intellect (37–38), I will first (33–36) consider the power of experience to judge singulars. To this end, I will distinguish experience from other principles of judging the

singular, namely, memory and some habit of art or science. I will begin with an anecdote that attends to experience in its distinction from memory. Some years ago, while I was driving my first Jeep around campus, the student riding with me said, "I think you have a muffler problem." I said, "Really?" He answered, "I once had a muffler problem and it sounded like that." I drove later that day to my mechanic. I said, "I think I have a muffler problem." He said, "Really?" I said, "Someone told me the Jeep sounded like it has a muffler problem." He said, "Turn it on." I turned the key in the ignition and the motor turned over. Before I let go of the key, my mechanic said, "It's the catalytic converter." I postponed fixing the problem; before a month was up, a recall for catalytic converters on my model of Jeep showed up in the mail. Here the sound of my Jeep was clearly sufficient for my mechanic to attend to the catalytic converter in distinction from the muffler.

34. When my mechanic recognized the catalytic converter in that sound, I recognized his judgment as employing experience rather than memory. Both sorts of judgment are fallible, but as this case illustrates, the use of memory is more fallible than the use of experience. Let me give a few examples. To knead dough well, the baker must have experience of the feel of well-kneaded dough; the best beginning in this training is for the teacher to offer to the student a batch of dough very well-kneaded. The student will use the memory of the feel of this batch of dough in judging whether one batch after another is well-kneaded, needs more kneading, or is hopelessly over-kneaded. The student remains a student of this act until he can discern the feel of well-kneaded dough with his hands. By then the apprentice baker has experience, at least with the kneading of dough. Again, many who hear the beginning of an English poem will recognize iambic pentameter with the thought, "That sounds like Shakespeare," or "That sounds like the poetry we

used to recite in school." When one has experience of iambic pentameter, one merely recognizes its sound.

35. Of course, sometimes an abstract consideration of the nature serves as a principle for judging the singular. So we can compare definition and experience as principles of this judgment. Here my first example involves counting, since number is something like definition. Anyone who has worked out regularly with barbells knows the look of at least two set-ups: a 45 pound bar loaded with two 25 pound plates to a weight of 95 pounds and a bar loaded with two 45 pound plates to a weight of 135 pounds. The first few times the beginner loads these bars, he must count; eventually he just sees the loaded bars as 95 pounds or 135 pounds and even 225 pounds, though he must still count in loading bars to other weights.

36. Likewise, someone can recognize a line of verse, say a line of iambic pentameter, by an analysis of the line according to the definition of iambic pentameter: five feet in which each foot has two syllables, the first of which is unstressed and the second stressed. By experience one simply hears the line as a line of iambic pentameter. Again, one might have made such a judgment through remembering a line of iambic pentameter that the line now being heard sounds similar to. Experience is a principle of judging singulars distinct from memory and definition and is in some way a mean between them. Memory compares the present singular with another, or others, encountered in the past; definition brings that singular under intelligible concepts ordered to the discernment of this or that nature. Experience attends to the nature insofar as sensible differences are proper to it and distinguish it from another.

37. Saint Thomas proposes that experience belongs to an interior sense in his consideration of prudence in the *Summa Theologiae*. There he describes prudence as, in part, existing

> in the interior sense which is perfected by memory and experience to promptly judge about the particulars [with which it is] experienced.[22]

As he makes clear in other places,[23] the interior sense he has in mind is the cogitative power—which I am calling the passive intellect—and he probably introduces memory here principally as it serves the cogitative power in its act of judging. (Prudence does not remember for its own sake.) St. Thomas clearly thinks the cogitative power or passive intellect judges the singular; in doing so, the passive intellect must attend to the singular according to sensible differences in its definition. Experience is the habituation by which it attends promptly and correctly to sensible singulars according to these differences; the definition itself belongs to the potential intellect. This attention to the singular under such differences allows the passive intellect to see the singular as something of this or that nature; it also allows the passive intellect to place the singular alongside other individuals of that nature according to various orders implied by the differences of the nature.

38. I call experience a habit (ἔθος) formed through habituation (ἕξις) because experience arises, like the moral virtues, from practice rather than from learning. One becomes able to pitch a baseball, to throw a punch, to draw a bow across a violin, to knead dough, and so on, by performing these acts in the right way. This usually occurs first under direction from others; often one completes the habituation by directing oneself in these acts through memory of previous acts and through some conceptual account of the act received from a teacher or formed from one's own observations. Someone has experience when he can judge

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[22] *STh* II-II, q. 47, a. 3, ad 3: "prudentia . . . consistit . . . in sensu interiori, qui perficitur per memoriam et experimentum ad prompte iudicandum de particularibus expertis."

[23] See *Sententia Ethicorum*, bk. 6, lec. 7, n. 21; lec. 9, n. 15 & n. 21.

the singular as being this or that without reference to memory or definition; he merely sees the singular as being of such a nature. Experience demands a habituation to judge singular substances well that arises from repeatedly judging sensible singulars rightly.

The Passive Intellect in Posterior Analytics *2.19*

39. In these remarks, I first (4–32) proposed the cogitative power under the name "passive intellect" as the power that apprehends sensible individuals insofar as they have determinate natures. Then (33–38), I discussed experience as the habituation of the passive intellect to judge singular sensibles well. Now (39–48), I will clarify Aristotle's solution to the impasse regarding our acquisition of first principles as a manifestation of the understanding of the passive intellect and experience that I have offered here.

40. Aristotle proposes this impasse in *Posterior Analytics* 2.19. His account of demonstration makes clear that scientific knowledge depends upon an indemonstrable knowledge of the premises. Though logic grasps the necessity of such knowledge through its resolution of the truth and necessity of the demonstrative syllogism to its principles, logic cannot see how we come into the possession of these principles. So Aristotle proposes an order of psychological acts that makes it reasonable to the logician that we attain the principles through sensation.[24] I assume the reader is familiar with this chapter and will focus only on three statements employed in the solution. I think the account of

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[24] This defense does not employ principles proper to logic. Rather, *ad bonitatem doctrinae*—in this case by strengthening logic through a reference to the science of the soul—Aristotle introduces principles proper to psychology to make our possession of self-evident principles clear.

the passive intellect and experience offered here helps us understand Aristotle's solution to the impasse more distinctly.

41. The first statement follows Aristotle's recognition that from sensation arises memory and from many memories of the same thing arises experience. He then says,

> But from experience or from the whole universal resting in the soul . . . arises a principle of art and science.[25]

I have abbreviated the sentence here to focus on the aspect I am interested in. The strange phrase "whole universal" translates an unusual Greek phrase—παντὸς ἠρεμήσαντος τοῦ καθόλου—that I could more accurately translate "all the universal resting in the soul." I suggest another way to hear this phrase: "the universal resting in the soul as a whole." I will offer two observations on this statement.

42. First, Aristotle offers either experience or what he calls the whole universal as sufficient for the principle of art or science. My previous comments imply that experience describes the principle employed in attention to a singular sensible substance by the passive intellect habituated to judging such a substance well. What I translate here as the "whole universal" refers to the principle by which the possible intellect attends to that object universally. I assume from the language and order in which Aristotle presents these alternatives that the "whole universal" goes beyond experience in some way. But this sort of attention by the possible intellect goes beyond experience precisely by its focus on the nature as common to many. Further, Aristotle seems to express the completeness of the universal over experience not only by calling it a "whole" but also by describing it as "resting." This rest goes beyond experience in ways Aristotle insinuates by the "rout in battle" image and by the clarification he offers later in the chapter.

43. Second, I take the disjunctive construction employing "or" to express the fact that experience is sufficient to begin the productions proper to art even if the universal does not yet exist in the manner described here. This implies that the attention of the passive intellect to sensible substances suffices in some measure for the understanding of a principle of art and perhaps for a principle of science, especially mathematics. (I take Aristotle's comments in the opening chapter of the *Metaphysics* on the difference between experience and art in production to support this reading.) Experience most clearly suffices for a principle of art as determined to the singular, that is, insofar as art is some account of the singular as subject to the movement or change that art brings about. Only the "whole universal," however, suffices for expression of the principle of art in the act of teaching; the artist properly so-called does not have only ἔθος, habituation, but also ἕξις, a habit founded in learning.

44. The second statement I want to look at directly addresses the impasse raised at the beginning of the chapter regarding the manner in which the principles come to be in us. Most of us rightly understand this statement to reject the need to receive the first principles in a Platonic way, by knowledge attained before the soul's presence in its body or by infusion as it enters the body. So, Aristotle says,

> Clearly determined habits [knowing these first principles] do not [already] exist [in the soul] nor do [those habits] come to be from other habits more eminent with respect to knowledge but from sensation.[26]

I suggest that, beyond the rejection of such a Platonic possession of the principles, Aristotle also proposes that his resolution to sense, memory, and experience shows us how we can have the principles without distinct awareness of them. By experience we know the principles as determined to singulars before we give them the attention by which they become determinate habits. This parallels the manner in which each science knows the axioms as proportioned to its subject, while an understanding of such axioms as they belong to all sciences is proper to first philosophy. Our pre-scientific grasp of the axioms (and postulates) is still proportioned to singular substances; the habit of science allows us to clearly articulate these principles in a manner proportioned to their power in that science.

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[25] 100a6–7.

[26] 100a10–11.

45. My brother, who is not a man of letters, asked me some years ago what my class had been discussing that afternoon. When I told him we were discussing a certain kind of truth, the truths known to all men, such as "the whole is greater than the part," he said, "Oh, I guess that is true." I dare say he had never considered that truth in so abstract and distinct a manner before then, and I suspect he has never considered it that way again. He knew that principle and still knows it as it is found in sensible singulars, but he does not have a determinate habit of attending to that principle as a principle of demonstration. In fact, very few hold these principles in this way, and Aristotle has never suggested in *Posterior Analytics* 2.19 that very many form these habits so determinately. Rather, the knowledge that most men have of the principles falls under the dictum St. Thomas offers in the first lesson of his commentary on Dionysius's *On the Divine Names*: "Multa cognoscimus virtute quae non actu speculamur." "We know many things virtually which we do not actually look at."[27]

46. I understand the third statement I will focus on to identify the beginning of the process completed when the "universal rests in the soul as a whole." After proposing to explain more clearly what he has already said, Aristotle begins,

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[27] *In Librum Beati Dionysii De Divinis Nominibus Expositio*, c. 1, lec. 1, n. 9.

> One of the indivisibles standing, the universal is first in the soul—for the singular is sensed, but sense is of the universal.[28]

I take this to describe the possession of the sensible singular we have as we immediately sense it and again as we hold onto it through memory. Some individual of a determinate nature is present to the senses or remains in the memory. Aristotle says that then the universal is first in the soul. Or perhaps he calls this the "first universal" or the "primitive universal." I am not concerned with defense of any translation; what matters is Aristotle's clear intention to express an incomplete possession of the universal. He emphasizes this by making clear that the universal exists in the soul only through the sensible singular: "For the singular is sensed, but sense is of the universal." I will offer one brief observation here.

47. This observation concerns what Aristotle means when he says, "sense is of the universal." I suggest he means something that I can articulate through three statements. First, sense has as its object some nature that is apt to be universal, though one act of sensation is not sufficient for attention to that nature precisely as it is universal; attention to the nature as universal demands some awareness of many as they fall under that common nature. Second, sensation is of a nature that is universal insofar as sense knows the sensible qualities proceeding from the intelligible nature of a sensible substance. The presence of these qualities in the imagination moves the intellect to attend to that nature, at first only as the nature exists in that singular and eventually also as the nature exists in many singulars, that is, universally. Third, only when many individuals of the same nature remain determinately in the memory, can we draw the passive intellect away

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[28] 100a15–17: "στάντος γὰρ τῶν ἀδιαφόρων ἑνός, πρῶτον μὲν ἐν τῇ ψυχῇ καθόλου (καὶ γὰρ αἰσθάνεται μὲν τὸ καθ’ ἕκαστον, ἡ δ’ αἴσθησις τοῦ καθόλου ἐστίν . . .)."

from its contribution to the possible intellect's attention to the nature in the singular. As Plato suggests in the *Meno*, attention to the nature through a common name seems the most efficient way—and perhaps the only natural way—of doing this.

48. Let me conclude by noting that this "first universal" or inchoate universal would arise in an attention of the passive intellect to a nature that happens to be universal. Because that nature does not belong only to that singular but is common to many, the passive intellect encounters it again and again. In doing so, it attains some experience with the nature that it exhibits by grasping such singulars promptly and ordering them according to differences belonging to that nature. This experience is itself a foundation to the possible intellect when it rises above attention to the existence of the nature in this or that singular and attends to the nature as found commonly in all such singulars. In this way, the earthly life of the possible intellect is as inseparable from the passive intellect as its life is inseparable from the agent intellect. I encourage you all to habitually attend to the nature and activity of the passive intellect as an element of your scientific consideration of the human intellect.

"AND THE SOUL EXISTS AS THE SORT OF THING CAPABLE OF UNDERGOING THIS": INDUCTION IN *POSTERIOR ANALYTICS* II.19 AND THE POWER OF INTELLECT

Joshua Lo

At the end of the *Posterior Analytics* (*APo*), Aristotle addresses a long-awaited question: How do we come to know the first principles of scientific knowledge? His answer: "by induction" (100b1).[1] This answer, however, is unsatisfying to many. Induction may lead us to probable knowledge, but not to necessary knowledge; it helps us to know *that* something is so, but not *why*. In short, induction is too weak to lead us to the first principles.

The details of Aristotle's account raise even more problems. For example, while we would expect him to give us an account of how we learn the *statements* used as the first scientific premises, Aristotle instead describes a process whereby we arrive at *concepts*, like "man" and "animal" (100a16–b3). Again, when he illustrates this inductive process with an image of a retreating army re-establishing its front-line, Aristotle characterizes this

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[1] For a contrasting interpretation, see David Bronstein, "The Origin and Aim of *Posterior Analytics* II.19," *Phronesis* 57, 1 (2012): 29–62. Bronstein argues that when Aristotle asks "how" he is not asking for the *method by which* but rather the *source from which*. He takes Aristotle's answer to this question not to be "induction" but "sensation." Of course, it is worth noting too that taking "induction" to be the answer to the "how" question need not be referring to a method or argument form.

with what seems a vacuous explanation: "And the soul exists as the sort of thing capable of undergoing this" (100a14). Has Aristotle's explanation simply fizzled out?

At this point, scholars mobilize into two camps: either Aristotle has given us an incomplete, *empirical* account of how we come to know scientific principles—what Jonathan Barnes calls "honest empiricism,"[2] or Aristotle assumes a cavalier, *rationalist* position in which the intellect is a mysterious power, brought in at the last moment to ratify the inductive conclusions.[3] Barnes calls this "easy rationalism." In either case—honest empiricism or easy rationalism—Aristotle fails to give us a satisfying account of how we learn scientific principles.[4]

In this essay, I would like to resist these empiricist and rationalist readings of Aristotle and consider more carefully the role that the intellect plays in the acquisition of scientific principles. In particular, I will offer an interpretation of induction in II.19 and argue that induction there describes a process whereby

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[2] Jonathan Barnes, *Aristotle: Posterior Analytics* (Oxford: Clarendon Press, 1994), 259.

[3] On this reading, the intellect is taken to be a faculty or power of the soul which just sees or intuits which statements are the scientific principles and which are not, a sort of "brute, non-inferential form of rational intuition" as one scholar puts it. Marc Gasser-Wingate, *Aristotle's Empiricism* (Oxford: Oxford University Press, 2021), 22. For those defending this type of rationalist reading, see Greg Bayer, "Coming to Know Principles in *Posterior Analytics* II 19," *Apeiron* 30 (1997):109–142, esp. 136–41; Terence Irwin, *Aristotle's First Principles* (Oxford: Clarendon Press, 1988), 134–37; Jean-Marie Le Blond, *Logique et méthode chez Aristote* (Paris: J. Vrin, 1939), 136.

[4] To divide the interpretational readings into "rationalist" and "empiricist" is to oversimplify. For a more nuanced division of *APo* II.19, see James G. Lennox, *Aristotle on Inquiry: Erotetic Frameworks and Domain-Specific Norms* (Cambridge: Cambridge University Press, 2021), 16–35. Barnes's division, however, is a helpful oversimplification. It points to a real, perennial tension between the empiricist and rationalist tendencies, present both in the more nuanced interpretations of *APo* II.19 and generally in trying to understand our highest rational achievements.

the intellect separates and knows the universal concepts from our sense experience of singulars, and ultimately arrives at first principles. But this is not a cavalier rationalism, in which the intellect descends as the *deus ex machina* to save the day; rather, I believe that Aristotle has the resources in the *De Anima* (*DA*) to make a compelling case for how the intellect, along with sense experience, lead us to the scientific principles.

The essay will be in four parts. First, I raise two problems with *APo* II.19, and give the typical empiricist and rationalist reactions to them. Second, I offer a reading of *DA* III.4–5, considering more generally the power of intellect: its nature, object, and proper activity. I then give an interpretation of "induction" in II.19 and finally offer some ways of answering the two aforementioned problems.

Two Problems with Posterior Analytics *II.19*

Let me begin by describing two problems typically associated with *APo* II.19. I have already mentioned one of them: Why does Aristotle give us an account of how we come to know *concepts*, like "man" and "animal," when we would expect him to explain how we come to know *statements*—since only statements can be used as the first premises of scientific demonstrations.[5] Let me explain.

At the beginning of the *Posterior Analytics*, Aristotle argues that scientific knowledge is based upon forming scientific syllogisms or demonstrations. He claims that "the demonstration is a syllogism . . . according to which, by having it, we know-scientifically (ἐπιστάμεθα)."[6] Now, the reason for this close relationship between scientific knowledge and demonstration is based upon Aristotle's understanding of what science is. Science, or scientific knowledge (ἐπιστήμη), is a most noble form of knowledge:[7] the one who has it is absolutely certain that what he knows is true. He is, as Aristotle later describes, "simply incorrigible"[8]—not because he is stubborn or dogmatic, but rather because the knowledge that he has achieved—this scientific one—is itself stable and based upon a stable reality.

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[5] This tension has been raised by many scholars. See, for example, Charles H. Kahn, "The Role of *Nous* in the Cognition of First Principles in *Posterior Analytics* II.19," in *Aristotle on Science: The Posterior Analytics*, ed. Enrico Berti (Rome: Editrice Antenore, 1981), 385–414, especially 385; Barnes accuses Aristotle of vacillating between propositional and conceptual accounts of the principles; see Jonathan Barnes, *Posterior Analytics*, 259.

So, think about arithmetic or geometry. You would not be considered stubborn or dogmatic for insisting that two plus two equals four or that it is impossible to fit a straight line between a circle and its tangent. Insisting upon these things is not stubborn dogmatism. Rather, you insist upon these because *what* you know is itself necessary and unchanging; and *you*—the knower—have somehow tapped into that necessity.[9]

But how is it that you have tapped into these arithmetic and geometric necessities? That is, how exactly does your mind participate in the stable necessity of the thing you are knowing-scientifically? Aristotle suggests that it is because we have recognized the cause or explanation of that thing's necessity.

> We think we know-scientifically . . . when we think we know the *cause* through which the thing is, that it is the

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[6] *APo* I.2, 71b17–19. In this essay, all translations are my own.

[7] See *APo* II.19, 99b33, *DA* I.1, 402a1–2.

[8] "ἁπλῶς ἀμετάπειστος." *APo* I.2, 72b3.

[9] In the *Categories*, Aristotle speaks about "science" as a habit or stable disposition (8, 8b27–31, 11a24–36) which, as a type of knowledge, is itself related to (10, 11b27–31) and dependent on (5, 4a21–37; 12, 14b11–23) what is known. It follows that both the *object* of science and the *way* in which the object is grasped must be stable and unchanging. On the asymmetric dependence of knowledge upon the known, see Terence Irwin, *Aristotle's First Principles* (Oxford: Clarendon Press, 1990), 5–7.

> cause of it, and that it cannot be otherwise. And indeed, it is clear that this is the sort of thing scientific-knowing is, . . . so that the thing about which there is science *simply speaking* [ἁπλῶς] is not able to be otherwise.[10]

So, we can be absolutely certain—"simply incorrigible"—about the things of which we have science because (1) the object of science is itself necessary, (2) we have tapped into that thing's necessity and (3) we have done this by identifying the *cause* or explanation of that thing's necessity.[11]

We are now in a position to see why Aristotle, in the first passage quoted, associates science with demonstration. For the demonstration is the syllogism which features the cause of a given scientific truth as its middle term. So, for example: *Why* does the triangle have interior angles equal to two right angles? What is the cause of this scientific truth? Ultimately, this is because the triangle is a rectilinear plane figures with three sides. Here is the demonstration:

> The triangle is a rectilinear plane figure with three sides.
> Rectilinear plane figures with three sides have interior angles equal to two right angles.
> Therefore, the triangle has interior angles equal to two right angles.

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[10] *APo* I.2, 71b9–12, b15.

[11] In the Greek, Aristotle does not supply a subject for the last quality "that *it* cannot be otherwise." Is the "it" there referring to the cause, the "thing" known-scientifically, or to the connection between the cause and the "thing," i.e., that the cause not only explains the "thing" but also its necessity? Regardless of how we interpret the passage, Aristotle is at least claiming that we need to know the cause and that it is necessary. From this it can be argued that the cause is explaining the "thing's" necessity. For this argument, see Lucas Angioni, "Aristotle on Necessary Principles and on Explaining X through X's Essence," *Studia Philosophica Estonica* 7.2 (2015): 88–112.

Now, perhaps I can go on in a science and develop *further* truths based on the truth that triangles have interior angles equal to two right angles. I then create a sort of syllogistic chain in which the conclusion of one demonstration features as a premise in the next demonstration. And in this way, I may discover many scientific truths with many different middle terms.

And yet, Aristotle is eager to point out that any demonstrative chain must ultimately be derived from some original demonstration, and finally stop at some fundamental premises that are themselves "un-middled" (ἄμεσα), causeless, and indemonstrable.[12] Not everything can be caused by something else; not everything can be defined by other things; and not every statement can be demonstrated by other statements.

And so, Aristotle argues in *APo* I.3 that there must be some first and un-middled statements (τὰ ἄμεσα) that will be the first premises in the first demonstrations, and that these are the foundation for all other demonstrations in a given science. He calls these statements the "proper principles [or foundations] of proof," stating explicitly that "a principle of demonstration is the un-middled premise."[13]

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[12] See *APo* I.3, 72b18–25.

[13] *APo* I.2, 71b23 and 72a7, respectively. The language of "foundation" is my insertion, but Aristotle-inspired. In *Metaphysics* V.1, 1013a5, Aristotle gives the example of the "foundation of a house" (οἰκίας θεμέλιος) as an example of one of the senses of "principle," namely, "that from which first things come to be, existing within." I use the term "foundation" here as a *manuductio*, both both because it is a helpful image of what Aristotle means by "principle," and because it connects Aristotle to foundationalist theories of science/knowledge.

Aristotle here gives a detailed account of the qualities that these first premises must have: they must be "true, first, un-middled, more known, prior, and causes of the conclusion" (*APo* I.2, 71b21–22). I take "first" and "un-middled" together, and "more known," "prior" and "causes of the conclusion" together. The three qualities of the first scientific premises are (1) true (2) first, un-middled and (3) more known, prior, and causes of the conclusion. In his discussion of "first," Aristotle also brings in the language of "indemonstrable" (*APo* I.1, 71b26–29).

All this leads us to the first problem of II.19, and to our expectation that Aristotle is about to give us an account of how we come to know these first, un-middled premises: *statements* (ἕν καθ᾽ ἑνός; see 72a9) that are themselves indemonstrable but from which all other demonstrations come. Aristotle himself seems to confirm this expectation at the beginning of *APo* II.19.

> Now [we must speak] about the principles, how they come to be known . . . . For it has been said before that it is impossible for someone to know-scientifically through a demonstration, if he does not know the first un-middled principles.[14]

Am I right in thinking that the "un-middled principles" are the un-middled *statements* discussed above?[15] If so, then we *should* be confused when Aristotle goes on to give us an account only for how we learn *concepts*, like "man" and "animal." And this is the first problem.

This leads us to the second problem. Assuming that there is some way to resolve this discrepancy between coming to know concepts and coming to know statements, we must ask next whether Aristotle's account explains how we come to know the first principles *as such* or merely *per accidens*. It is one thing to arrive at a statement that *happens* to be a first principle; it is quite another to know this statement *as* a first principle.[16]

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[14] *APo* II.19, 99b17–21.

[15] Some, wishing to avoid this problem, claim that Aristotle is not talking about un-middled statements, but un-middled concepts. See, for example, Richard Sorabji, "The Ancient Commentators on Concept Formation," in *Interpreting Aristotle's Posterior Analytics in Late Antiquity and Beyond*, ed. Frans A.J. de Haas, Mariska Leunissen, and Marije Martijn (Leiden: Brill, 2010), 3–26. But this is not likely: first, because of the clear reference back to *APo* I.2–3, and second, because next in the chapter, Aristotle discusses problems with the un-middled principles, and here he claims that they must be more precise than what we know through demonstration (*APo* II.19, 99b26–32). But what we know through demonstration is a conclusion (a statement). The comparison, then, is between two *statements*. Again, there is a question raised about whether there is *science* about the un-middled principles (*APo* I.2, 71b16–17, II.19, 100b5–16); but this would not even arise as a question if Aristotle were not referring to *statements* about which we can or cannot have science.

The distinction here between knowing *as such* and *per accidens* can be illustrated by Mary Magdalene when she sees the resurrected Jesus at the tomb (Jn 20:1–18). She sees Jesus, but she does not see him *as such*: she thinks that he is a gardener. It is only when Jesus says her name, "Maria," that she recognizes him *as such*. So too when Aristotle offers an account of how we come to know the first principles, we need not only an account of how we come to know the *statements* that may *happen* to be the first principles of demonstration, but an account of how we come to know these statements *as* the first principles.

But what exactly does it mean to come to know a statement *as* a first principle? From the account of the scientific premises in *APo* I.2, coming to know first principles *as such*, means coming to know these statements to be (1) necessarily true, (2) the appropriate causal explanations of the scientific conclusion, and (3) the foundational explanations in a given science.[17] And so, if we are expecting Aristotle to explain how we come to know the first scientific premises as such, and not merely *per accidens*, then we need an account for how we come to know certain statements as (1) necessary, (2) causal explanations, and (3) the foundational explanations of a given science.

But if this is what we are expecting Aristotle to give us, then we should be surprised when he identifies *induction* as the

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[16] For a more complete account of this problem, see Aryeh L. Kosman, "Understanding, Explanation, and Insight in the *Posterior Analytics*," in *Exegesis and Argument*; *Phronesis* supplementary, volume I, ed. Edward N. Lee, Alexander P. D. Mourelatos, and Richard M. Rorty (Assen, Netherlands: Van Gorcum, 1973), 374–92.

[17] This is one way to understand the list of six qualities that the first premises must have; see note 13.

process whereby we arrive at this knowledge. Induction can give us probable knowledge but not necessary knowledge; it tells us *that* something is so, but not *why*. Finally, how could induction ever lead us to know that certain statements are the *first*, causally foundational statements within a given science? And so, this is the second problem: How could induction lead us to necessary, causal, and foundational knowledge?

Confronted with these two problems, scholars have opted for either empiricist or rationalist readings of Aristotle, which I will now briefly sketch. On the face of it, Aristotle's account in II.19 is thoroughly empiricist. He begins with a rejection of Platonic recollection, a form of what we would now call rationalism;[18] he details a step-by-step account of how *from sensation* we develop *experience* of the world, which eventually leads us to the principles of art and science;[19] he even identifies "induction" (ἐπαγωγή) as the means by which we reach these principles.[20] How much more empiricist can you get?

As I understand it, the rationalist reading basically does not think Aristotle can get all the way to rigorous scientific knowledge without undermining his own empiricist tendencies. Charles Kahn, I think, well describes the rationalist reading:

> [Aristotle's] emphasis on the indispensable starting-point in sense perception seems to ally him with the empiricists, whereas the ultimate appeal to *nous* [intellect] then takes on the air of a last-minute betrayal, a sellout to the rationalists—particularly if *nous* is understood as an infallible intuition of self-evident truths.[21]

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[18] *APo* II.19, 99b25–35.

[19] *APo* II.19, 99b36–100a14.

[20] *APo* II.19, 100a14–b5. In the Philosophy of Science, "induction" can be used as a catch-all term to describe any empirical method.

[21] Kahn, "The Role of *Nous* in the Cognition of First Principles in *Posterior Analytics* II.19," 386. This description seems to characterize well the two major rationalist readings of Frede and Irwin. Irwin, for example, writes, "I

Looking especially to the second problem, the rationalist reading claims that the empiricist account of II.19 can at best explain how we learn first principles *per accidens*. It will lead us to the formation of first principle statements and perhaps also to the concepts involved in forming these statements; but, induction will also lead us to form many statements which are *not* first principles. By induction alone, they argue, we will not be able to distinguish between the two kinds of statements. Ultimately, the intellect, or *nous*, must step in to adjudicate which statements are first principles and which are not.

The empiricist reading makes a similar assumption: Aristotle's empirical starting-points cannot lead to the scientific principles, and thereby to science—at least as Aristotle describes them in *APo* I.2. But, unlike the rationalists, instead of claiming that Aristotle brings in the intellect to lead us from *per accidens* knowledge of the principles to a *per se* one, the empiricist reading takes Aristotle to abandon his theory of science. He is an "honest" empiricist, who reconsiders his theoretical sketch of science upon realizing that sensation and induction can only take you so far.[22] In place of the rigorous idealized view of science outlined in the *Posterior Analytics*, in practice we should settle for something more modest: a sophisticated presentation of causes and explanations, but something which is finally not necessary. You must always be prepared, they might say, to take that inductive risk and present your findings with hesitation.[23]

We should be suspicious of both readings, however. For on the one hand, it is unlikely Aristotle gave up his views of scientific knowledge. In the *Posterior Analytics*, he never asks *whether* we know-scientifically, but only *how* this is possible.[24] On the other hand, the rationalist reading cannot really account for Aristotle's sustained critiques of Plato on the origins of our knowledge. In fact, it is not uncommon for the rationalist readings to reduce Aristotle to a form of Platonic rationalism.[25] Let us, therefore, take a closer look at Aristotle's discussion of the intellect in *De Anima* III.4–5.

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will argue that he [Aristotle] sketches the appropriate sort of account [of *nous* as an intuitive power to see first principles], and that the puzzles it raises are serious enough to justify us in reexamining the assumptions that lead him to it." (134) For Irwin's full account, see Irwin, *Aristotle's First Principles*, 132–36. For Frede's account, see Michael Frede, "Aristotle's Rationalism," in *Rationality in Greek Thought*, ed. Michael Frede and Gisela Striker (Oxford: Oxford University Press, 1996), 157–73, esp. 172.

[22] For simplicity, I am taking two parts of the literature to explain what Barnes means by "honest empiricism." One set of scholars would be called "foundational empiricists." They insist that the ultimate source of *justification* is sensation. For foundational empiricism, see, for example, Robert Bolton, "Aristotle's Method in Natural Science: *Physics* I," in *Aristotle's* Physics*: A Collection of Essays*, ed. Lindsay Judson (Oxford: Clarendon Press, 1991), 1–29, and for a summary of this view, see Lennox, *Aristotle on Inquiry*, 33–35. Foundationalist Empiricism does not explicitly draw the consequence that Aristotle has given up his theory of science. This is what the second set of scholars do: they distinguish between Aristotle's theory of science in the *Posterior Analytics* and his practice in the biological works. See, for example, G.E.R. Lloyd, "The Theories and Practices of Demonstration in Aristotle," in *Proceedings of the Boston Area Colloquium in Ancient Philosophy* 6 (1990): 371–412, and Petter Sandstad, "Essentiality Without Necessity," *Kriterion* 30 (1) (2016): 61–78.

[23] For the language of "inductive risk," see John D. Norton, *The Material Theory of Induction* (Calgary: University of Calgary Press, 2021), *passim*. Norton is not giving a reading of Aristotle, but I think the consequence of taking up an Empiricist foundationalist reading of Aristotle cannot avoid this conclusion. The inductive risks may be controlled and mitigated with certain norms, but the risk will always remain. On this, see Lennox, *Aristotle on Inquiry*, 33–35, especially note 32.

[24] And even in *APo* I.3 (72b18–25). Aristotle gives no reasons for insisting that we know-scientifically; but rather he assumes that this is true in order to argue that we must have knowledge of the first principles. Also, all of the *Posterior Analytics* assumes that we know-scientifically. Again, Aristotle is famous for opposing Plato, not on whether we have science, but on the way in which we have it. The common assumption is *that* we know-scientifically.

[25] See Irwin, *op. cit.*, and Frede, *op. cit.* And for a good critique of these positions, see David Charles, *Aristotle on Meaning and Essence* (Oxford: Clarendon Press, 2000).

The Power of Intellect in De Anima *III.4–5*

The first thing to note about the intellect is that it is a passive knowing power. In *De Anima* III.4, Aristotle sets out to discuss

> the part of the soul by which it knows [γινώσκει] and makes practical-judgements [φρονεῖ] . . . by which the soul thinks-through [διανοεῖται] and apprehends [ὑπολαμβάνει].[26]

Now, in English, all of these activities attributed to the intellect are expressed in the active voice. Likewise in Greek, all are active except διανοεῖται, which is in the middle voice. But we should not be fooled by the grammar. For although these verbs are in the active or middle voice, what they *signify* is a certain passivity.[27]

> Understanding [τὸ νοεῖν], as it is with sensing, is . . . to undergo [πάσχειν] something by the understandable thing [ὑπὸ τοῦ νοητοῦ].[28]

As he previously showed about sensation,[29] our intellect is not a power to act upon another, but rather one which is acted upon by its object. It is a *passive* power. Accordingly, the intellect could be likened to a piece of clay which is able to undergo and receive certain forms. Unlike the clay, however, the intellect does not *become* the form it receives, but *knows* it. The clay becomes a pyramid or cube when it receives these forms; but the intellect *knows* red, when it receives the form. For clay, form is a principle of being; for intellect, form is a principle of knowing.

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[26] *DA* III.4, 429a10–11, 23.

[27] For the distinction between the thing signified (*significatum speciale*) and the way of signifying (*modus significandi*), see Martin de Dacia, *de Modis Significandi*, c. 4: while the *way* in which these verbs signify is *as* active or middle, the *thing* signified is a certain passivity or undergoing. Aristotle warns of this type of mistake in the *Sophistic Refutations* (I.4, 166b10–19).

[28] *DA* III.4, 429a13–15.

[29] *DA* II.5, 416b32–34; II.12, 424a22–23.

It is for this reason that Aristotle likens the intellect to sensation: both are passive, receptive powers whose reception results in *knowing* and not in *becoming*. For example, my eye does not become red when it sees red,[30] and likewise my intellect does not become stupid or ignorant when it thinks about stupidity or ignorance. So, this is the first point to make about the nature of the intellect: it is a passive knowing power.

Although similar, however, there is this important difference between sense and intellect: While the senses know each thing *individually*, the intellect knows things *universally*.[31] When I see red, I see *this* particular red which is in *this* particular chair, here and now. By contrast, when I *understand* red, I have in mind something that is common to any particular red, whether past, present, or future, here or there. And this is to have a *universal grasp* or *apprehension* of red, the nature which is found commonly in any particular red thing.

In light of this distinction, Aristotle concludes that the intellect—as opposed to the senses—is “separate from bodies,” or immaterial:

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[30] There is a disagreement in the literature about this point: the so-called literalists about sensation in Aristotle would claim that sensing consists in becoming the thing sensed; see Richard Sorabji, “Intentionality and Physiological Processes: Aristotle’s Theory of Sense-Perception,” in *Essays on Aristotle’s de Anima*, ed. Martha C. Nussbaum and Amélie Oksenberg Rorty (Oxford: Clarendon Press, 1992), 195–225. For a summary of the debate, see Cynthia Freeland, “The Science of Perception in Aristotle,” in *The Cambridge Companion to Aristotle’s Biology*, ed. Sophia M. Connell (Cambridge: Cambridge University Press, 2021), 159–75, especially 161–64.

[31] “[S]ensation according to act is of particulars, but science is of universals” (*DA* II.5, 417b22–23); and “for, sensation is of particulars; and it is not possible to take science of these” (*APo* I.18, 81a6–7).

> For, on the one hand, the sensitive power [τὸ αἰσθητικόν] is not without body, but on the other hand, the intellect is separate.[32]

As I understand this passage, Aristotle is here *not* making any claim that the intellect itself is a *substance*, something separate or separable from bodies (a claim that I think is false), nor do I think Aristotle is claiming here that the intellectual soul is able to exist apart from the body, but not as a complete substance (a claim that I think is true and follows from this, but not what Aristotle is focusing on here).[33] Rather, Aristotle's point here is more modest: he is claiming that the intellect does not require a bodily organ for its operation.[34] And it is in this sense that among the powers of the soul, the intellect alone is immaterial. For the senses operate through a bodily organ: eyes are for seeing, ears for hearing; but the intellect does not.[35] In sum, we can say this about the nature of the human intellect: it is a passive knowing power of the soul, and it is an immaterial power of the soul.

We can also say some things about the *object* of the intellect. It is the universal, what is "unrestricted by particular, material conditions."[36] To take the previous example, the "red" that is

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[32] *DA* III.4, 429b5.

[33] Aristotle hints at this consequence, using this sense of "separable" (χωριστή) in *DA* I.1, 403a10-16.

[34] For Aristotle on separability in *DA* III.4, see Caleb Cohoe, "Why the Intellect Cannot Have a Bodily Organ: *De Anima* 3.4," *Phronesis* 58 (2013): 347–77. For Aristotle on separability more generally, see Caleb Cohoe, "The Separability of *Nous,*" in *Aristotle's On the Soul: A Critical Guide*, ed. Caleb Cohoe (Cambridge University Press, 2022), 229–46.

[35] This seems to be the point of the question raised in *DA* I.1: Does the soul have a passion proper to it, or do all activities belong to the living composite through the soul? (See *DA* I.1, 402a9–10.) Anger, for example, would not be a passion or activity proper to the soul; but it belongs to the body *and* the soul. See *DA* I.1, 403a30–b7.

[36] Aristotle does not give a precise definition of "universal" in the *De Anima*, but this formula which I have come up with seems to me a good way to

thought about and understood, is itself without any particular or material restrictions to the here and now, whether past, present, or future. But this is to know the universal "red," or to know red in a universal way. The universal character of the intellect's object, I believe, is what Aristotle has in mind when he claims, "And in general, as things are separate from matter, so too do they pertain to the intellect."[37] The universal can be called "separate from matter" or immaterial because when it is known, it is "unrestricted by the particular material conditions," like that of place and time. If this is right, then "separate" or "immaterial" does not apply to the object of the intellect in the way that it did when applied to the intellect, that is, as able to operate without a bodily organ; rather, when applied to the object of the intellect, it means "what is unrestricted by particular, material conditions," like that of place and time.[38]

It is at this point, however, that we run into a serious problem which, according to St. Thomas, caused Plato to "deviasse a veritate."[39] It was this same problem which compelled Aristotle to propose a new intellectual power, the agent intellect. Now Plato noticed that most, if not all, things that we understand—like "red," "courage," "justice," and other universals—were never really experienced apart from material things. In the world, we only experience *this* red, *this* courageous action, *this* just deci-

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describe what Aristotle is talking about in *DA* III.4. The language is loosely inspired by Cohoe's description of organs with are "spatiotemporally limited" (Cohoe, "Why the Intellect Cannot Have a Bodily Organ") and the cognition of "spatiotemporally individuated instances of a thing" (Cohoe, "The Separability of *Nous,*" 238–39). The definition of "universal" given in the *de Interpretatione* seems to be the linguistic expression of what is understood: "I say that the universal is that which is naturally apt to be predicated of many" (*de Int* 7, 17a39–40).

[37] *DA* III.4, 429b21–22.

[38] It is also unrestricted by determinate qualities. The triangle I understand is not equilateral, isosceles, or scalene.

[39] St. Thomas Aquinas, *Summa Theologiae* (*STh*) I, q. 84, a. 1, c.; see also a. 6, c.

sion—individuals, a "*this* in *that*" (τόδε ἐν τῷδε).[40] Accordingly the problem arose: How could these material things act upon the intellect, an immaterial, passive power? Here is how St. Thomas characterizes the problem:[41]

> Plato . . . proposed that the intellect differed from sense and indeed that the intellect was an immaterial power not using any bodily organ for its own act. And because the unbodily is not able to be affected [*immutari*] by the bodily, he [Plato] proposed that intellectual knowledge does not occur by the affection of the intellect by sensible things but by the participation in the separate and intelligible forms.[42]

Since the intellect is not only an immaterial power, but also a passive power, in order for it to be in act—that is, to think about and understand things—it must be acted upon by its object. But since most, if not all, of its objects are material things, or at least material natures existing in material things, it seems that the intellect can never get into actuality. For a bodily thing cannot act upon an un-bodily power.

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[40] *DA* III.4, 429b14.

[41] Aristotle himself raises this question in *DA* III.4, but for this essay I have chosen to look at St. Thomas's formulation of the problem, both because it is more clearly stated and because there is an explicit reference to Plato. Here's how Aristotle phrases the question: "But someone could question: How will the intellect understand, if it is simple and impassible, having nothing in common with anything else, and if understanding is a certain undergoing? For only inasmuch as there is something common to two things, it seems, is there acting-upon [ποεῖν] and undergoing [πάσχειν]" (*DA* III.4, 429b22–26).

[42] St. Thomas, *STh* I, q. 84, a. 6, c.: "Plato . . . posuit intellectum differe a sensu; et intellectum quidem esse virtutem immaterialem organo coporeo non utentem in suo actu. Et quia incorporeum non potest immutari a corporeo, posuit quod cognitio intellectualis non fit per immutationem intellectus a sensibilibus, sed per participationem formarum intelligibilium sepatarum." All translations of St. Thomas are my own.

Put another way, the nature of our intellect and its object are both potential. Inasmuch as the intellect is also passive, it awaits actualization by the intelligible form. Inasmuch as the object of our intellect only ever exists in matter, it is only *potentially* intelligible. All we have here are two potential things: a potential intellect and its potential object. How then can we get two potential things to ever interact with each other? How can anything happen between two potential things? What we are missing is some *active* intellectual principle.

Plato, of course, proposes the separate, immaterial Forms to be the needed active intellectual principles. It is not by sensible things that we come to know the universals but rather by a participation in these forms, which exist immaterially. And so, they are actually able to act upon the immaterial intellect. The senses may excite our minds to recollect our past knowledge of these things, but they can never be the true source of intellectual knowledge.

Aristotle, however, opts for a different solution—and it is important to notice that he is proposing this solution *to avoid* the Platonic position and preserve our fundamental reliance on the senses for intellectual knowing.[43] Instead of proposing the existence of separate immaterial forms actually able to act upon the intellect, Aristotle proposes a new *active* power of intellect, which *makes* what is potentially intelligible in sensation, actually so:

> Because in every nature there is matter . . . and another that is the cause and maker [ποιητικόν], so too it is necessary that there exists this difference within the soul. So there is, on the one hand, the sort of intellect that can become all things, and another which makes all things . . . as . . . light . . . makes what is potentially color actually color.[44]

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[43] This is what makes Aristotle an empiricist in some broad sense of the word.

[44] *DA* III.5, 430a14–17.

Because the common natures existing in material things are only potentially separate and thereby only potentially intelligible, Aristotle proposes a new intellectual power of the soul that makes what is potentially intelligible actually so—as light makes what is potentially color actually color.[45] Once illuminated by this power, the natural forms of material things are made separate and actually intelligible; they can now act upon the intellect. By proposing this active intellectual power, Aristotle can now explain how we can come to understand the universal natures of material things from sensation. There is no need to posit a separate, immaterial form for every thought we have.[46]

In sum, Aristotle's account of the intellect outlines a twofold power: one passive and the other active. The *passive* or *undergoing* intellect is first discussed in *DA* III.4 and taken to be an immaterial power able to receive and know sensible things universally. These universals do not exist universally but in individual, material things. It is the *maker* or *active* intellect which is responsible for making what is potentially intelligible in these

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[45] *DA* III.5 is notoriously difficult to interpret. I am here assuming the traditional Thomistic interpretation of III.5 where the "another which makes all things" refers to the agent intellect: an intellectual power of soul distinct from the intellectual power described in III.4 but together with it in the same soul. Aristotle calls this new maker power a "sort of intellect" (ὁ μὲν τοιοῦτος νοῦς . . . ὁ δὲ . . .), which I think best makes sense if we attribute this power to the very soul which is understanding. We do not, for example, call "light" a "sort of seer" or "sight" just because it makes the object of sight actually visible, but we do call this active power "intellect," which to my mind is because it is *in* the very intellect which is knowing. A full account of the Thomistic position is, I think, defensible but beyond the scope of this essay.

[46] Aristotle takes Plato to have proposed an infinity of active, intellectual principles (one for every universal we know). According to the principle of simplicity, Aristotle's position is superior, since it proposes only one: the so-called agent intellect. Notice too that Plato will also need to explain how the forms are responsible for the being of sensible things, such that they excite the intellect to recollect the innate knowledge of forms. Aristotle's characterization and arguments against Plato's position is presented in *Metaphysics* I.6, 9.

sensed individuals actually so—which is to separate or abstract the common nature from its particular, material conditions. Moving forward, I will refer to these two intellectual powers as, respectively, the *undergoing* intellect and the *agent* intellect.[47]

Induction in Posterior Analytics *II.19 and the Power of Intellect*

Let me now return to *Posterior Analytics* II.19 and give an interpretation of the passage on induction. I will quote this passage in full and then go through it part by part. Aristotle has just given us the famous image of a retreating army re-establishing its front line. This was a way to illustrate how we come to know first principles from sensation. He then writes,

> [i] And the soul is the sort of thing capable of undergoing [πάσχειν] this. But let us speak again about what was said before, but not clearly. [ii] For when one of the undifferentiated things [τὰ ἀδιαφορά] comes to a stand, there is first within the soul the universal. ([iii] For while

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[47] In *DA* III.5, Aristotle associates the verb ποεῖν (430a12) with the operation of the intellect of III.5. He also describes its nature as ἐνεργεία (430a18). From these two words we derive two names: the maker (ποιητικός) and the active (ἐνεργητικός) intellect. The name "agent" intellect no doubt comes from the Latin *agere*, which approximates the Greek ποεῖν. Similarly, the intellect of III.4 can be named from its operation πάσχειν (429a14) or from its nature as δυνάμει τοιοῦτον (429a16, 29, b8-9, b29–430a9). The two names which might follow from this is the passive intellect (παθητικός) and the possible (δυνατός) intellect. This is, of course, the source of the confusion when Aristotle later claims in III.5 that the νοῦς παθητικός is corruptible (430a22-25), and so dependent upon a bodily organ. Since this seems to contradict the account in III.4, St. Thomas takes this νοῦς παθητικός *not* to be referring to the intellect of *DA* III.4, but to the *vis cogitativa*, an inner sense power which relies upon a bodily organ for its activity; see his commentary on this passage and *STh* I, q. 78, a. 4, c. I have here called the intellect of *DA* III.4 the "undergoing" intellect to avoid this confusion; it may also be called the "possible" intellect. As far as I am aware, Aristotle never names an intellect "δύνατος" or "παθητικός," except for the one passage on the νοῦς παθητικός, mentioned above.

> one senses the particular, sensation is of the universal, for example of man and not of Callias the man).
>
> [iv] Again, [others] in these come to a stand until the partless things [τὰ ἀμερῆ] stand, which are also the universals [τὰ καθόλου], for example, this sort of animal, until animal, and in this similarly.
>
> [v] It is clear, therefore, that for us it is necessary to recognize [γνωρίζειν] the first things [τὰ πρῶτα] by induction [ἐπαγωγῇ]. For thus sensation makes-within [ἐμποιεῖ] the universal.[48]

When Aristotle claims that [i] "the soul is the sort of thing capable of undergoing this," I take him here to be referring principally to the *passive* or *receptive* power of intellect: the ability to undergo and know the universal. Apart from the language of πάσχειν,[49] this is supported by the clarification of [ii] and [iii] given below.

In [ii], Aristotle claims that "*when* one of the undifferentiated things comes to a stand, *then* first there is within the soul the universal." I am taking this "when/then" construction to be expressing identity and not consequence. For example, parents

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[48] "ἡ δὲ ψυχὴ ὑπάρχει τοιαύτη οὖσα οἵα δύνασθαι πάσχειν τοῦτο. ὃ δ᾿ ἐλέχθη μὲν πάλαι, οὐ σαφῶς δὲ ἐλέχθη, πάλιν εἴπωμεν. στάντος γὰρ τῶν ἀδιαφόρων ἑνός, πρῶτον μὲν ἐν τῇ ψυχῇ καθόλου (καὶ γὰρ αἰσθάνεται μὲν τὸ καθ᾿ ἕκαστον, ἡ δ᾿ αἴσθησις τοῦ καθόλου ἐστίν, οἷον ἀνθρώπου, ἀλλ᾿ οὐ Καλλίου ἀνθρώπου)· πάλιν ἐν τούτοις ἵσταται, ἕως ἂν τὰ ἀμερῆ στῇ καὶ τὰ καθόλου, οἷον τοιονδὶ ζῷον, ἕως ζῷον· καὶ ἐν τούτῳ ὡσαύτως. δῆλον δὴ ὅτι ἡμῖν τὰ πρῶτα ἐπαγωγῇ γνωρίζειν ἀναγκαῖον· καὶ γὰρ ἡ αἴσθησις οὕτω τὸ καθόλου ἐμποιεῖ." *APo* II.19, 100a12–b4.

[49] I certainly am not claiming that this is all that he means by the "undergoings" of the soul, since this undergoing of the receptive intellect presupposes the undergoing of sensation, memory and experience. What I am claiming here is that this is principally and directly referring to the passive or receptive power of the intellect, and secondarily to other presupposed powers.

might explain to their children, "*When* a man loves a woman, *then* there is a child." This construction expresses consequence: the child is the consequence of the man and woman coming together. By contrast, you might say, "*When* you have a man, woman, and child, *then* you have a family." This expresses identity, where the "when" clause states more distinctly what is in the "then" clause.

Now, I think there is some textual evidence to suggest that Aristotle had in mind the when/then of identity. He uses the word "πρῶτον" adverbially, stating in [ii] "when one of the undifferentiated things comes to a stand, then *first* there is within the soul the universal." To my mind, this suggests identity. For assuming that a family is composed of a man, woman and child, I might say, "when you have a man, woman and child, that is when you *first* have a family." The insertion of "first" is not as natural if the when/then were of consequence.[50]

If we read the "when/then" construction as expressing identity,[51] then there are basically two ways to understand the relation between what Aristotle writes in [ii] and [iii]. These turn on how one translates ἀδιαφορά in [ii] either as "undifferentiated" or "indivisible." **Reading 1**: If translated as "indivisible," the passage would seem to be referring to the individual singulars. Aristotle in [ii] would then be saying that when we somehow retain or hold on to this individual singular, then for the first time the universal is in the soul. Presumably, this is the retention of the sensed singular in the memory. Then when Aristotle goes on in [iii] claiming "although one senses the particular," that is, the sensed individual, "sensation is of the universal." What I see is Callias, but really in seeing Callias I am also in some way seeing the universal "man." On this reading, both [ii] and [iii] express how we know can be said to know the universal *before* it is grasped by the intellect.

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[50] In Greek the when/then clause reads "στάντος γὰρ τῶν ἀδιαφόρων ἑνός, πρῶτον μὲν ἐν τῇ ψυχῇ καθόλου." Crucial for this interpretation is taking "πρῶτον" as an adverb. For the adverbial use, see LSJ on "πρῶτον" III.3 d-e. But the word could also be used as an adjective. In this case the translation would read, "when one of the undifferentiated things comes to a stand, then there is within the soul a *first* universal." To my ears, "πρῶτον" is more naturally taken as an adverb in the Greek than as an adjective, not only because it is far from "καθόλου" but also because Aristotle does not supply an article like "τὸ καθόλου."

[51] The reason for preferring the identity reading over the consequence reading becomes clear below.

On the other hand, **Reading 2**: if we translate ἀδιαφορά as "undifferentiated,"[52] then [ii] is referring to the universal *not* as present in sensation and memory, but as present already in the intellect. For, it is only in the intellect that the universal is separated from and understood without particular, material conditions, like place and time. But it is these conditions which in fact *differentiate* the universal in sensible realities: *this* red is differentiated from *that* red by being over here and not over there, or here at *this* time but not at *that* time. It makes sense, then, to call the universal in the intellect "undifferentiated," since only there is the universal known apart from these differentiating conditions. Note that this reading implicitly refers to the abstracting activity of the agent intellect; for the undergoing intellect could not actually know these universals without presupposing the activity of the agent intellect.

Now, on Reading 1, [ii] and [iii] are fundamentally saying the same thing: [ii] when the "individuals" (τὰ ἀδιαφορά) come to rest in the soul, i.e. in memory, that's when first there the universal. And [iii] although sensation is of this individual, in some way it is of the universal. We can make sense of the universal existing in the memory in [ii], because this sensation also knows the universal in this way [iii]. I sense "man," and I remember "man" in the same way. But in what way is sensation of the universal? If we read this passage alongside *DA* III.4, the universals

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[52] "Un-differentiated" better reflects the etymology of the term "ἀ-διαφορά."

are potentially in sensation and only potentially intelligible. In sensation, they have not yet been "undifferentiated" by the agent intellect, such that the intellect could know them.

By contrast, on Reading 2, the "undifferentiated" (τὰ ἀδιαφορά) are the universals already abstracted from their material conditions. [ii] refers to the intellect actually knowing the universals. [iii] is on the level of sensing particulars and its potential knowledge of universals. This is a crucial point to make since [iii] states the necessary precondition of [ii]. Before [ii] the intellect can abstract and actually consider the universals—the "undifferentiated," [iii] the soul must potentially know the universal in sensation. Strictly speaking, *proprie et per se*,[53] "one senses the particular," but *in some way*, "sensation is *of* the universal," that is, potentially.[54] And the point must be made in this way, otherwise our intellectual knowledge of universals would not really be from sensible things.[55]

But we should be careful here. On the one hand, sensation is not said to be of the universal "potentially," with reference to the power of sensation itself—as if sensation could eventually know the universal. Rather it is with reference to the power of intellect, which can, from sensation, abstract and know the universals potentially present therein. I sense *this* red, *that* red, and *that other* red, and from these sensations of particular red things, the intellect can separate the "red" from these particular sensations. On the other hand, this work of separating and knowing the universal is *not* the imposition of some intellectual order upon sensation. What is common in the sensations of particular red things, is truly present within those sensations; but because it is known with the particular conditions which differentiate it, one from the other, it requires the agent intellect to abstract or take out what is common to all within the many. The intellect knows the "one apart from the many" but the senses know only the "one in the many."

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[53] This phrase comes from St. Thomas's commentary. See *In II Posteriorum Analyticorum,* lec. 20, n. 14.

[54] I do not wish to deny here that sensation can be of the universal in other ways. For example, perhaps sensation is of the universal *per accidens*, as in, the universal is a *per accidens* sensible—something which even the animals can sense without the need for an abstracting intellectual principle. For an interesting and compelling account of this position, see Gasser-Wingate, *Aristotle's Empiricism*, 105–188. Nevertheless, it seems to me that even the sensation of the universal as a *per accidens* sensible needs to be a particular perception of that sensible.

[55] "Si autem ita esset quod sensus apprehenderet solum id quod est particularitatis, et nullo modo cum hoc apprehenderet universalem naturam in particulari, non esset possible quod ex apprehensione sensus causaretur in nobis cognitio universalis." St. Thomas, *In II Post. An.*, lec. 20, n. 14.

To my mind, Reading 2 is more compelling. For in Reading 1, while it may be true that we retain the sensed universal in our memory, we seem to be left with the same problem that Plato and Aristotle were confronted with: in memory the universal is still only potentially able to act on the intellect. In other words, if [ii] and [iii] are both about sensing particulars, we would be stuck at the level of knowing the universal potentially.[56]

In Reading 2, however, Aristotle gives us just the explanation we need: There is a power of the soul that separates the universal from the particular material conditions in which the universal exists. It is due to this power that we can advance from our sense knowledge of the "one in the many" to the intellectual knowledge of the "one apart from the many."[57]

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[56] There is the added infelicity of making Aristotle repeat himself twice times: [ii] the individual comes to a stand, the universal known potentially by sensation is in the soul (in memory), and [iii] sensation is of the universal, i.e., potentially.

[57] For the language of "one apart from the many," see *APo* II.19, 100a7. This second reading also avoids the problem of repetition: [ii] also states distinctly what it means for the universal to rest in the soul and [iii] explains the dependence that this coming to rest of the universal has upon sensation.

But perhaps the most compelling reason to adapt Reading 2 is that it leads well into what Aristotle next says:

> [iv] Again, [others] in these come to a stand until the partless things [τὰ ἀμερῆ] stand, and the universals [τὰ καθόλου]. For example, this sort of animal, until animal, and in this similarly.

The syntax in the Greek here is obscure; but I think this is the best way to makes sense of it. The "others" referred to here are more universal concepts which are "in these," namely, in the less universal concepts recently abstracted from the sensation of universals (the process described in [ii] and [iii]). To take Aristotle's example, from the sensation of Callias, there is a first advance to the universal concept "man." But from "man," there is a similar advance to a more universal concept "animal." The advance from "man" to "animal" is the same, except instead of abstracting something universal from sensed particulars; you are abstracting something *more* universal from things less universal. And at the beginning of [iv], the "Again" signals that what happened in [ii] and [iii] is mirrored in [iv]. But the "Again" here makes most sense if in [ii] and [iii] we find a similar description of an advance to things more universal.

In Reading 1, however, there was no description of an advance in [ii] and [iii]. On Reading 2, Aristotle outlines the advance from the singulars sensed to the universal understood: the advance from the "one in the many" to the "one apart from the many." But this is the advance in [iv]—except it is not from the sensed singular to the universal understood, but rather from the less universal concepts to the more universal. Aristotle's description process in [iv] can be assimilated naturally to the account given of [ii] and [iii]: "Again, others," that is, more universal concepts, which were "in these," the less universal concepts, "come to a stand," just as "one of the undifferentiated things" first known, which were in sensations potentially, "comes to a stand."[58]

Finally, when this process is repeated again and then again, there comes a point at which the "partless things (τὰ ἀμερῆ) stand which are also universals." If we adopt Reading 2, then this passage refers to our arrival at certain universals in which we no longer find some "part" or aspect that they share in common with the other universals. These final, partless universals, then, will be the ten categories, as can be illustrated by extending the examples given above: from Callias to man; from man to animal; and "similarly thus," that is, from animal to living body, to body, to substance.[59]

If this is correct, and Aristotle is referring here to the ten categories, then the second reading also makes good sense of why Aristotle calls these highest genera—i.e. the ten categories—the "partless universals." For among the ten categories, there is no part of them which they all have in common with any of the other categories. There is no generic part to be considered *as* undifferentiated, nothing "in the many" able to be "apart from the many."[60] It is true that they share the name "being" in common,

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[58] In [iv], the "others," more universal concepts, could also be called "undifferentiated things," which are abstracted and understood not apart from particular material conditions, but rather from the species-making differences that differentiate the more universal natures as they are understood to be in less universal things. So "triangle" is understood as undifferentiated when it is understood apart from the relation of the sides to one another: whether all equal, two equal, or none equal.

[59] Note also that Aristotle speaks about "universals" in the plural, which suggests that the ascent from singulars is not just in the category of substance, but in any of the highest genera, for example, from my sensation of this red in Callias's toga to red, from red to color, from color to affective quality, from affective quality to quality. And similarly, with the other categories. Reading τὰ ἀμερῆ as referring to the ten categories is Ross's suggestion. See William David Ross, *Aristotle's Prior and Posterior Analytics* (Oxford: Clarendon, 1949), 678.

[60] For Aristotle's explicit discussion of the generic "part," see *Metaphysics* V.25, 1014b6.

but Aristotle rejects this as being a true genus of the categories, since it is said equivocally and not univocally of the ten.

Finally, Aristotle concludes, bringing in the term "induction,"

> [v] It is clear, therefore, that for us it is necessary to recognize [γνωρίζειν] the first things [τὰ πρῶτα] by induction [ἐπαγωγῇ]. For thus sensation makes-within [ἐμποιεῖ] the universal.

I take the "first things" here to be referring to any of these universal concepts abstracted either from less universal concepts or from a sensation of singulars. They are called "first" because all scientific questions and statements must be composed of universal terms or concepts abstracted in this way. They are prior as a material cause is prior to the composite. Induction, then, refers to the process of abstraction and consideration: coming to know the one apart from the many, from a previous knowledge of the one in the many. Finally, when Aristotle goes on to say that sensation "makes-within" the universal, that is, one of these "first things," we should understand that sensation is only *potentially* able to "make-within" the universal; and it makes within *us* the universal when the sense object acts upon our sensitive power. For the universal potentially contained within sensation only acts upon the undergoing intellect once it is actually separated by the agent intellect.

Replies to the Problems

I return now to the two problems raised above and say how I think this reading of induction bears upon them; I will conclude with a few comments on how I think this reading avoids the empiricist and rationalist accounts given above.

According to the interpretation of induction just given, Aristotle still runs into the two problems raised above. "Induction," I am claiming, names that process by which we come to know *concepts* from our sense experience, not *statements*. But that was Problem 1. Aristotle set out in *APo* II.19 to explain how we come to know certain *statements*, not *concepts*. We also run into Problem 2. For, if induction only leads us to a knowledge of concepts, it will not be an explanation for how we come to know the first principles *as such*: *statements* known (1) *as* necessarily true, (2) *as* causal explanations and (3) *as* the first foundational explanations within a given science.[61]

First, let me simplify Problem 2. There are two ways to think about knowing principles *as such*: absolutely and in relation to those of which they are principles. Compare the foundation of a house:[62] absolutely, a foundation needs to be sturdy, flat and grounded; but relatively, it needs to be *under* a house—it is not really the foundation of a house until there is a house on top of it.[63] St. Thomas brings out this distinction nicely in a passage where he distinguishes between the two intellectual habits science and *intellectus*:[64]

> Now the principles of demonstrations can be considered separately, without the conclusions being considered. But also they can be considered together with the conclusions [*simul cum conclusionibus*], inasmuch as the principles are led into the conclusions. Therefore, to consider the principles in this second way, pertains to science, which also considers the conclusions; but to consider the principles according to themselves [*secundum seipsa*], pertains to *intellectus*.[65]

The distinction here is between knowing first principles "in themselves" (*secundum seipsa*) and knowing them "together with the conclusions" (*simul cum conclusionibus*). Both are ways of knowing first principles *as such*. But knowing principles "together with their conclusions"—in this second way—is to know the first principles in relation to their conclusions. And this is to know them *as* (2) causal explanations and *as* (3) the foundation explanations. For, "cause" and "foundation" are terms defined in relation to the conclusions: I cannot know that something is the cause of the conclusion, unless I know simultaneously the conclusion of which it is the cause; and it is similar with the foundational explanations.[66] This relative way of knowing the principles, St. Thomas points out, "pertains to science" (*pertinet ad scientiam*). If, then, we are asking about how we come to know the first principles of demonstration (2) *as* causal explanations, and (3) *as* the foundational explanations, then we should reply: It is by the habit of science and by the scientific demonstration that we know the principles in these ways.[67]

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[61] Recall how Problem 2 splits into three sub-problems. See notes 15 and 16.

[62] One meaning of principle or ἀρχή that Aristotle gives in *Metaphysics* V.1 is "that from which first something comes to be, existing within; like the keel of a ship, or the foundation of a house" (1013a4–5).

[63] Aristotle calls the (3) foundational qualities of the principles "first" "un-middled" and "in-demonstrable" (see note 12): "un-middled" and "indemonstrable" seem to name absolute qualities of the first principles statements; but "first" certainly names a relative quality: what is first is before all the rest.

[64] St. Thomas is not referring to that power of intellect discussed above, but rather to the habit which is called "*intellectus*" in St. Thomas and "νοῦς" in Aristotle. This is the habit which knows first principles. For this use of νοῦς, see *APo* II.19, 100b5–17, and *Nicomachean Ethics* VI.3 and 7. To distinguish, I call this habit of principles "*intellectus*"; and the power I just call "intellect."

[65] "Principia vero demonstrationis possunt seorsum considerari, absque hoc quod considerentur conclusiones. Possunt etiam considerari simul cum conclusionibus, prout principia in conclusiones deducuntur. Considerare ergo hoc secundo modo principia, pertinet ad scientiam, quae considerat etiam conclusiones, sed considerare principia secundum seipsa, pertinet ad intellectum." St. Thomas, *STh* I-II, q. 57, a. 2, ad 2.

[66] The fifth property of "relation," from *Categories* 7 (8a35–37), is that you cannot determinately know one relation without determinately knowing the other.

On the other hand, knowing these statements "in themselves" will pertain to knowing the principles (1) *as necessary*—the first feature of knowing principles *as such*. This is knowing the first principles absolutely, since I can know statements to be necessary *apart* from their relation to the conclusions and their explanatory role thereof. This is the quality of necessity and certitude from which comes the necessity and certitude of science, which is not known by science but by *intellectus*. Given that Aristotle, at the end of *APo* II.19, goes on to speak of this very habit,[68] it is likely that Aristotle believes that his account of induction only answers how we come to know the first principles *as necessary*, in themselves and absolutely. Problem 2, then, simplifies into this question:

> How does induction lead us to statements known *as* necessarily true—especially since on my interpretation induction does not even lead to statements, but simply to a knowledge of concepts (Problem 1)?

But I think that this is precisely what makes Aristotle's account of induction—or at least the interpretation I am here proposing—so appealing. For while the scientific conclusions are known and judged to be necessary by reducing them to their scientific first premises, these first principle statements are known and *judged* to be necessary from the *terms* or *concepts* out

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[67] Certainly much more could be said about this, but for the purpose of this essay it is sufficient to see that this is not what Aristotle is attempting to explain in *APo* II.19, which I argue for below.

[68] See *APo* II.19, 100b5–17. Νοῦς or intellect here is not naming the power discussed above in this paper, but the *habit* which already knows the first principles and, according to St. Thomas, this is the habit of knowing the first principles *secundum seipsa*. On this, see Barnes, *Aristotle: Posterior Analytics*, 267–70.

of which they are made. To be clear, I am claiming two things here: the concepts we induce from our sense experience allow us to know not only (a) *what* a first principles statement *means*, but also (b) *that* the statement is true and necessarily so.[69]

But is this true? Can the intellect really know and judge statements in this way? I think so. In fact, St. Thomas gives an account of how this might work. I quote two passages in which St. Thomas explains how a knowledge of terms may lead to necessary knowledge. In the first, St. Thomas explains how the "infallibility of truth occurs" in us; and in the second, he gives a helpful example:

> One is not able to be mistaken concerning those propositions which are immediately known when the "what it is" of the terms are known—as happens concerning first principles from which also happens the infallibility of truth—according to the certitude of science—concerning the conclusions.[70]

> The truth and knowledge of the indemonstrable principles depends upon the *ratio* of the terms; for when what a "whole" is and what a "part" is is known, then immediately it is known that every whole is greater than its own part.[71]

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[69] And this is why my position differs from the rationalist position sketched above. For the intellect does not just judge statements to be true and necessary by itself, but it does so *through* a knowledge of the terms induced from sense experience.

[70] *STh* I, q. 85, a. 6, c.: "Et propter hoc etiam circa illas propositiones errare non potest, quae statim cognoscuntur cognita terminorum quidditate, sicut accidit circa prima principia, ex quibus etiam accidit infallibilitas veritatis, secundum certitudinem scientiae, circa conclusiones."

[71] *STh* I-II, q. 66, a. 5, ad 4: "Veritas et cognitio principiorum indemonstrabilium dependet ex ratione terminorum: cognito enim quid est totum et quid pars, statim cognoscitur quod omne totum est maius sua parte."

By simply recognizing what a "whole" is and what a "part" is, I *statim cognosco* that "every whole is greater than its parts." Through a knowledge of these terms, I do not just know (a) *what* the statement means but I also (b) *judge* the statement to be necessary and true. But how is it that we come to know concepts like "whole" and "part"? It is by induction, I am arguing, that we come to know these concepts and their linguistic expressions, namely, terms. By knowing certain terms, I also know certain statements to be necessarily true.

Admittedly, Aristotle does not make this connection in II.19. But he may yet have something like this in mind. For, immediately after his comments on induction, he discusses the intellectual habits whereby we "know the truth," explicitly naming four habits: opinion, reasoning, science, and intellect.[72] Now, because each of these habits know the truth as found *in statements*, it is likely that Aristotle thinks that he *has* somehow explained how we come to know certain statements; and I am proposing, along with my reading of induction, that Aristotle might have in mind what St. Thomas describes above, in which the "infallibility of truth occurs" immediately from a knowledge of terms.[73]

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[72] *APo* II.19, 100b6–9: "Because some of the intellectual habits, by which we are true, are always true, but others are able to be false, e.g., opinion and reasoning (λογισμός); but science and intellect (νοῦς) are always true…"

[73] For Aristotle, "truth" need not only refer to a quality of statements. Here, for example, Aristotle is discussing "habits" which are true: "Some habits are always true; but others are able to be false" (*APo* II.19, 100b6–7). In this passage, however, Aristotle calls *habits* "true" because they are a habitual knowledge of true *statements*; but also he says the *we* can be true (ἀληθεύομεν) because we have the habits of true statements. In other passages, Aristotle calls appearances (φαντάσματα) and sensations true (see *DA* III.3). In this passage, "we" and "habits" being true must ultimately be explained by statements being true, as is clear from the examples he gives: opinion, reasoning, science, and intellect. All of these are called "true" with reference to true *statements*. I thank Gasser-Wingate for bringing this to my attention.

Now, if this were the whole story, then I think I would have made a satisfactory defense of the reading of "induction" presented above—and how it can address Problems 1 and 2. But this is not the whole story. And one might object in this way: many, if not all, of the *proper principles* are statements that cannot be judged just from an understanding of the terms involved.[74] The account and example, which St. Thomas gives in the texts quoted above, seem to describe only the way in which we come to know the *common principles*: those first indemonstrable statements which are too general to be restricted to any particular science.[75] One might object, then, that the type of explanation given above may explain how we come to know the common principles, but it does not explain how we judge the proper principals *as* necessary and true.

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[74] I mentioned in passing that Aristotle calls the un-middled premises the "proper principles of demonstration" (*APo* I.2, 71a23). I also pointed out that these "un-middled things" (II.19, 99b22) are the principles which Aristotle sets out to discuss in *APo* II.19. These "proper principles" refer to those principles "about which" and "which" the science proves, such as the subject genus and the *per se* attributes (see *APo* I.7, 75a40–b1; I.10, 76b2–16). They are contrasted with the "common principles" which Aristotle calls "axioms" (*APo* I.10, 76a41–b15). See note 75. Aristotle explicitly claims that "most of the principles for each science are private. Accordingly, it belongs to experience to provide the principles for each (τὰς περὶ ἕκασον). And I say, for example, that astronomical experience [provides the principles] of the astrological science" (*Prior Analytics* I.30, 46a17–20).

[75] For Aristotle, the "common principles" or "axioms" are described as the principles "from which" (ἐξ ὧν, see *APo* I.7, 75b2; I.10, 76b14, 22; I.11, 77a27) because they are either (i) the statements without which there is no learning whatsoever (see *APo* I.2, 72a16–17—Aristotle is likely referring to the principle of non-contradiction, which is operative in any type of reasoning whatsoever; see I.11, 77a13) or (ii) they are truths which can be applied to various genera, "to the extent that they are sufficient" (*APo* I.11, 77a23–24). The examples Aristotle gives of axioms are "Equals subtracted from equals are equal" (*APo* I.10, 76a41–42) and that "each thing is either said of or denied of the same" (*APo* I.1, 71a13–14; I.11, 77a30). St. Thomas's example that "every whole is greater than its part" would be counted among the axioms for this second reason (ii): it is able to be applied to various genera.

St. Thomas recognizes this need for different sciences to manifest and judge the proper principles in different ways. In his commentary on Aristotle's *Nicomachean Ethics*, St. Thomas discusses how different sciences manifest their principles in different ways.[76]

> These principles [the various ones in different sciences], however, are not manifested in the same way. But certain ones are considered by induction, which is from particular things imagined, as in mathematical things, for example, that every number is either even or odd. Certain ones, however, are taken by sense, as in natural things, for example, that everything that lives needs nutriment. Certain others by accustomed-habit [*consuetudine*], as in moral matters, for example, that sense-desires [*concupiscentiae*] are diminished if we do not obey them. And other principles are manifested otherwise, as in the operative arts the principles are taken up through a certain type of experience.[77]

The passage here presents different ways in which different sciences *manifest* their principles. In other passages St. Thomas speaks explicitly about the different ways they *judge* their principles.[78] And so the objector is correct. Concerning the proper

principles, the different sciences will resolve to the proper modes of manifestation, judgment, and perhaps even definition and explanation.[79] But this means that I cannot judge the proper principles to be necessary and true, just from a knowledge of certain concepts. To take an example from the passage just quoted, a proper principle of biology is that "every living thing needs nutriment." I may understand "living thing" and "needing nutriment" but I do not immediately—as I did with the "whole" and "part" statement above—know the statement to be necessary, or even true. This judgement occurs when we resolve to our sense experience of living things.

This suggests a need, then, to know which knowing power to turn to (whether it be sense experience, the imagination, or something else) in order to judge whether a proper principle is necessarily true.[80] There is need for domain-specific *norms*, which will direct me in my judgement of the proper principles.[81]

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[76] The passage St. Thomas is here commenting on is Aristotle's *Nicomachean Ethics* I.7: "Now, principles are considered by induction, others by sensation, others by custom and others in other ways" (1098a28–29).

[77] *In I Ethicorum*, lec. 11, n. 137: "Ipsa autem principia non omnia eodem modo manifestantur, sed quaedam considerantur inductione, quae est ex particularibus imaginatis, sicut in mathematicis, puta quod omnis numerus est par aut impar; quaedam vero accipiuntur sensu, sicut in naturalibus, puta quod omne quod vivit indiget nutrimento; quaedam vero consuetudine, sicut in moralibus, utpote quod concupiscentiae diminuuntur si eis non obediamus; et alia etiam principia aliter manifestantur, sicut in artibus operativis accipiuntur principia per experientiam quamdam."

[78] In mathematics, judgement resolves to the imagination; in natural science, it is to the senses; in ethics, it is to moral experience. See, for example, St. Thomas's *Super Boetium de Trinitate,* q. 6, a. 2, c.: "Dicendum quod in qualibet cognitione duo est considerare, scilicet principium et terminum. Principium quidem ad apprehensionem pertinet, terminus autem ad iudicium . . . terminus cognitionis non semper est uniformiter: quandoque enim est in sensu, quandoque in imaginatione, quandoque autem in solo intellectu."

[79] For the modes of *explanation*, I have in mind the way in which a science asks "Why?" Teleological explanations, for example, should be pursued in some sciences but not others.

[80] And this is explicitly stated in the latter part of St. Thomas's *Super Boetium de Trinitate,* q. 6, a. 2, c.: "Quandoque enim proprietates et accidentia rei, quae sensu demonstrantur, sufficienter exprimunt naturam rei, et tunc oportet quod iudicium de rei natura quod facit intellectus conformetur his quae sensus de re demonstrat. Et huiusmodi sunt omnes res naturales, quae sunt determinatae ad materiam sensibilem, et ideo in scientia naturali terminari debet cognitio ad sensum, ut scilicet hoc modo iudicemus de rebus naturalibus, secundum quod sensus eas demonstrat, ut patet in III caeli et mundi; et qui sensum neglegit in naturalibus, incidit in errorem. Et haec sunt naturalia quae sunt concreta cum materia sensibili et motu et secundum esse et secundum considerationem. Quaedam vero sunt, quorum iudicium non dependet ex his quae sensu percipiuntur, quia quamvis secundum esse sint in materia sensibili, tamen secundum rationem diffinitivam sunt a materia sensibili abstracta. Iudicium autem de unaquaque re potissime fit secundum eius diffinitivam rationem."

Now, I think all this is true and something Aristotle would agree with; but I also think that it does not threaten the reading of induction I am here proposing. And this is for two reasons. First, I might suggest that these domain specific norms of judgment—any detailed account of which would go far beyond the scope of this essay—will themselves be derived from our basic understanding of the *subject matter* or genus of the science. Geometry, for example, is about "magnitude" and arithmetic is about "number."[82] It is from my understanding of concepts like "magnitude" and "number" that I know to turn to the imagination to judge that "Every number is either even or odd." I know, for example, that I do not need to go out into the world and catalogue every number to see whether it is in fact true that they are all either "odd" and "even."

But if this is true, then when I induce to concepts, like "magnitude" and "number" I induce to the *indirect* principles of judging the proper principles. For, as pointed out, it is by knowing the subject genus of each science that I derive the norms of judgment. And so "by induction" is a good, though incomplete answer to the question "How do we come to know the proper principles in each science?" The account in II.19 is then incomplete, since although induction explains how we arrive at a knowledge of the subject genus, it does not explain how we

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[81] I am not saying that one needs an explicit formulation of the norms to do a science; but it behoves a scientist, at some point, to set out his "μέθοδος" in a distinct manner. These μέθοδοι are described by Lennox as "domain-specific norms," distinct formulations of the norms which a science follows. See James G. Lennox, *Aristotle on Inquiry: Erotetic Frameworks and Domain-Specific Norms* (Cambridge: Cambridge University Press, 2021).

[82] For Aristotle's discussion of subject-genus, see *APo* I.7, 75a42–b7, I.10 76a40–b16. In these passages, Aristotle explicitly associates geometry with magnitude and arithmetic with number.

derive the norms of judgment, by which we will come to know the proper principles of the science.

But this part of the explanation, I suggest, is not proper to logic, the domain of the *Posterior Analytics*. Rather each of the sciences must do this for themselves.[83] And perhaps a complete account of the proper modes of manifestation and judgment, of definition and explanation, will finally require a more general discussion about the division and method of each science—the type of account given in *Metaphysics* VI.1. Aristotle has indeed given an incomplete account of how we come to know *all* the principles of demonstration; but also this should not be viewed as an inconsistency or a failure, but rather a great restraint and respect for what should be treated in each science.

Conclusion

I have argued here that the "induction" which Aristotle discusses in *APo* II.19 refers to the process of abstracting concepts from our particular experience of them in sensation. This is to separate and consider material natures apart from their particular material conditions, like space and time. This knowledge of the universal is the immediate and direct principle of knowing the common first principle statements *as* necessary, and the indirect principle of knowing the proper principles of the science.

This interpretation of "induction" can address the two problems raised with *APo* II.19; and, indeed, it avoids both Honest Empiricism and Easy Rationalism. For first, Aristotle is an empiricist in the sense that all our knowledge is derived from our sense experiences: all concepts induced to must be taken from our initial experience of them in sensation. But he is not an

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[83] See, for example, *Metaphysics* II.3, 995a12-20 for a general account of this; and for more particular applications, see *Parts of Animals* I.1, *Nicomachean Ethics* I.3, and I.7, 1098a22–b8.

"honest" empiricist, since Aristotle is still able to maintain the certainty that we have in the science, since it is ultimately from our universal grasp of these concepts that we derive, whether directly or indirectly, the common and proper first principle statements used in the science.

Again, Aristotle is a rationalist in the sense that it is by the abstracting power of intellect that we arrive at the stable starting points of scientific knowledge. But this is not an "easy" rationalism, since Aristotle does not think the intellect alone judges certain statements to be necessarily true, but it does so only *through* the concepts which it abstracts from sensation. And this goes for both the common and the proper principles, as described above. The critical move is to arrive at the universal concepts by induction; and for this the power of intellect is needed. But he is not an "easy" rationalist. There is still much work to be done before we can arrive at the proper principles of each science. What II.19 does show us is that all this hard intellectual work of arriving at the proper principles of the science is based upon the fundamental reliance of a knowledge of concepts, which themselves ultimately rely on sensation as their source. *Nihil est in intellectu quod non sit prius in sensu.*[84] And in this way, Aristotle is an empiricist.

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[84] *De Veritate*, q. 2, a. 3, arg. 19.

THE SOUL AS SUBJECT OF METAPHYSICS: THE ROLE OF THE SOUL IN THE ARGUMENT OF ARISTOTLE'S *METAPHYSICS*, BOOK 7

Joseph Hattrup

In multiple texts, Aristotle argues that the study of the soul belongs to natural science. For example, in the first chapter of the *De Anima*, while speaking of the passions of the soul, he says:

> If this is so, however, it is clear that the affections of the soul are enmattered accounts. So their definitions will be of this sort, for example: "Being angry is a sort of movement of such-and-such a sort of body, or of a part or a capacity, as a result of this for the sake of that." And this is why it already belongs to the natural scientist to get a theoretical grasp on the soul, either all soul, or this sort of soul.[1]

Again, in the *Parts of Animals*, he says:

> It is clear, therefore, that the physicists do not speak correctly, and that one must state that the animal is of *this* sort, and where each of its parts are concerned, say what it is and what sort of thing it is, just as where the form (*eidos*) of the bed is concerned. If, then, this thing is soul,

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[1] Aristotle, *De Anima* 1.1, 403a24–28. All translations of Aristotle are taken from C. D. C. Reeve's translations published by Hackett, unless otherwise indicated.

> a part of soul, or not without soul (when the soul has departed, at least, there is no longer an animal, nor do any of the parts remain the same, except in configuration, like the mythological ones that are turned to stone)—if these things are so, then it will belong to the natural scientist to speak and know [1] about the soul (and if not about all of it, about this part by itself in virtue of which the animal is the sort of thing it is), that is, what the soul (or this part by itself) is, and [2] about the coincidental attributes it has in virtue of the sort of substance it has, especially as a thing's nature is said of it in two ways and *is* in two ways, one as matter, the other as substance. And nature as substance is nature both as the mover and as the end. And this sort of thing in the case of the animal is the soul, either all of it or some part of it.[2]

In each of these texts, Aristotle indicates that, because the soul is the form of a body, it must be defined, in part, through the matter it actualizes. Because the soul is defined through matter, it belongs to the natural scientist both to define it and to show off its proper accidents. However, again, in each text Aristotle qualifies this claim by saying, in a hinting sort of way, that this is true of the soul, at least insofar as it is like this, but perhaps there is a soul, or a part of a soul, that is not the act of matter, and so not defined through matter. This observation, of course, implies that the study of the soul does not end in natural science. Perhaps there are ways in which its study belongs more properly to a higher science, namely, what Aristotle calls "theology."

In this paper, I want to focus on one book of Aristotle's *Metaphysics*, namely, Book 7, or *Z*. I want to show that one of Aristotle's chief concerns in this book, if not the central concern, is the human soul, both as a natural form and as something immortal and eternal. I will do this in three steps. First, I will suggest a division of Book 7, so we can think about it in bite-sized pieces. Second, I will show various marks of form, or species, corresponding to these divisions, that Aristotle is carefully drawing to our attention. Finally, I will show, in as concrete a manner as I can manage, how the order of the book is directed to the soul as to a crowning concept, a *cosmos*.

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[2] Aristotle, *Parts of Animals* 1.1, 641a14–28.

I. Division of Book 7

Aristotle opens Book 7 with an argument that substance is the primary mode of being, and, for that reason, it should be the principal object of our study. His argument is essentially as follows: 1) That which exists through itself is prior to that which exists in another. 2) Substance exists through itself, while the other modes of being exist in and through it. 3) Consequently, substance is primary being.

But there are multiple ways of dividing substance, and early in Book 7 Aristotle divides it in at least three ways. One way he divides it is into the things that are thought to be substances. In chapter 2, he distinguishes between those things that are obviously substances to everyone and those things that are thought to be substances by different parties. Bodies are obviously substances to everyone, and these include wholes, like animals and plants, the parts of these wholes, like heads and hands, and the elements of these wholes, like fire and water. Particular parties hold, on the one hand, that quantitative limits, like surfaces, lines, points, and units, are also substances. On the other hand, Plato held that the Forms, or Ideas, are substances, for the reason that there must exist prior to sensible, destructible realities something indestructible and eternal. Aristotle goes on to say in this chapter that he intends to examine, in the remainder of Book 7, what has been said well or badly in the expression of these opinions. So, this is one way in which substance might be divided.

In chapter 3, he goes on to give two more divisions of substance. The first of these divisions is into four different definitions of substance. Arguably, these four are reducible to two. Aristotle says:

> Something is said to be substance, if not in more ways, at any rate most of all in four. For the essence, the universal, and the genus seem to be the substance of each thing, and fourth of these, the underlying subject.[3]

These definitions of substance divide up Book 7. In chapter 3, Aristotle considers substance as underlying subject. In chapters 4–12, he considers substance as essence, or "what it was to be." In chapters 13–16, he considers substance as universal and as genus. However, he considers these last two conceptions in order to show that it is impossible for them to be substances. So, it is really substance as essence and substance as subject that stand. It is interesting to note that these two meanings of substance are indicated in the opening of chapter 1, where Aristotle says,

> Something is said to be in many ways, which we distinguished earlier in our discussion of the many ways. For on the one hand "being" signifies the what-it-is and a this something, and on the other quality, quantity, or one of the other things predicated as these are.[4]

Finally, Aristotle gives a third division of substance in chapter 3, with reference to the individual substance, or the underlying subject. He says:

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[3] Aristotle, *Metaphysics* 7.3, 1028b33–36.

[4] Ibid., 7.1, 1028a10–13.

> Well, in one way the matter is said to be a thing of this sort, in another way the shape, and in a third what is composed of these. (By the matter I mean, for example, the bronze; by the shape, the configuration of the form as it is presented to sight; and by what is composed of these, the statue—the compound.) And so if the form is prior to the matter and more of a being, it will also be prior to what is composed of both of them, for the same reason.[5]

This is the familiar division of substance into matter, form, and compound. Here again, we have a division of substance into meanings of the name, but with reference to the principles of the individual.

These divisions of substance into different conceptions are important because they introduce the conception of substance as form, or species. When, in chapter 1, Aristotle claims that to study being is principally to study substance, he has not yet fully identified the principal subject of our study. He will go on, at the end of chapter 3, to show that this principal subject ought to be form (*eidos*). He says,

> Well then, for those who try to get a theoretical grasp on things in this way, the matter turns out to be substance. But this is impossible. In fact both separability and being a this something seem to belong most of all to substance, and, because of this, the form and the thing composed of both would seem to be substance more than the matter is. But the substance that is composed of both (I mean of both the matter and the shape) should be set aside. For it is posterior, and evident. And the matter too is in a way evident. But the third must be investigated. For it is the most puzzling. It is agreed, though, that some

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[5] Ibid., 7.3, 1029a2–7.

> perceptibles are substances, and so it is among these that it should first be looked for.[6]

To summarize: Aristotle so far has given us three divisions of substance: first, into the bodily and the unbodily; second, into the essence and the subject; third, into matter, form, and composite. With regard to these divisions, he has indicated that we should begin the study of substance with bodily substances, since they are admitted by all to be substances and are best known to us. With regard to bodies, he has indicated that we should study form, rather than matter or the composite, since (1) matter lacks necessary features of substance, (2) the composite is posterior and evident, and (3) the impasses (*aporiai*) concern the form. Finally, again with regard to bodies, he has indicated that we should focus on substance as essence, since attending to substance as subject highlights the material principle, rather than the formal one.

And so, as he moves into chapter 4, he is prepared to begin what turns out to be a lengthy treatment of the essences of material substances. Consequently, we can divide up Book 7 easily along these lines: In chapter 3, he has considered substance as underlying subject. In chapters 4–12, Aristotle will consider the properties of essence that are manifested by definitions. In chapters 13–16 he will consider substance as universal and genus. This completes the division of substance given at the beginning of chapter 3. Significantly, this division leaves out chapter 17, the last chapter of Book 7. We will come back to this important omission at the end of the paper, in Section 3.

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[6] Ibid., 7.3, 1029a26–34.

II. The Marks of Form According to This Division

In this section I will point out five “marks” of form, or species, to which Aristotle carefully draws our attention over the course of chapters 4–16. This course ends with conclusions in chapter 16 about what has been well and badly said about form, especially by the Platonic school, thus bringing to completion the argument-arc begun in chapter 2. Indeed, as we will see, a close consideration of Plato’s propositions about form is a significant aspect of Book 7. Once we have drawn out these five marks, we will apply them to the soul. The five marks are: 1) Essence belongs only to a species; 2) Essence is the same as the species; 3) Species is *per se* indestructible; 4) Species in a composite has reference to matter in its definition; 5) Species as universal cannot be substance.

A. First mark – Essence belongs only to a *species*.

In chapter 4, Aristotle proves that an essence (*to ti ēn einai*) only belongs to a *species* (*eidos*). He proceeds as follows:

1) The essence of something is what is said of it *per se*.[7]

2) Therefore, the essence of something is the same as *what it is*.[8]

3) But *what it is* can only be said of *this something*.[9]

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[7] See Aristotle, *Metaphysics* 7.4, 1029b13–22. The remainder of the argument is taken from 7.4, 1030a2–17.

[8] This is because the sense of *per se* to which Aristotle refers is the first sense of *per se* encountered in *Posterior Analytics* 1.4, which applies only to the elements of the definition of the subject.

[9] This, as St. Thomas explains, is because only *this something* is complete in both its being and its species, since nothing outside its own essence needs to be added to its definition. See St. Thomas Aquinas, *Commentary on De Anima*, bk. 2, lec. 1, n. 215. Aristotle also points out here that definitions are of things that are *primary*. He then says, “primary things are those that are said *not* by way

4) However, only a substance is *this something*.[10]

5) Therefore, *what it is* can only be said of a substance.

6) Therefore, since *what it is* respects the universal, the *what it is*, and, therefore, the essence, belongs only to a species.

Now, there are a few important points we need to take from this argument. First, only substances have definitions, and so only substances can have essences. (Aristotle will go on in the rest of the chapter to show how, in an imperfect way, accidents and accidental composites can have essences and definitions.) Second, because definitions respect the universal (that is, definitions abstract from particular matter), they are of the species of individual substances, rather than of the individuals primarily. I define what *man* is, not what *Socrates* is, primarily. However, the species we are considering here is the species of that which is *this something*.[11] That is, it is of substances, or, better, it *is* substance. Consequently, we can conclude that only *this something* is able to have an essence. This conclusion will be important as we proceed.

B. Second mark – Essence is the same as the species.

Aristotle opens chapter 6 with the following question:

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of saying one thing of another" (1030a10–11). This suggests that by *primary* he means something with a complete nature of its own. The reason one thing is said of another is because it needs another to complete its definition. ("This something" translates either *tode ti* in Greek or *hoc aliquid* in Latin throughout the paper.)

[10] See Aristotle, *Categories* 5, 3b10–23.

[11] It is interesting in this connection that Aristotle treats of genus and species principally in chapter 5 of the *Categories*, when he is treating substance. What Aristotle is arguing in *Metaphysics* 7.4 is that species are found in the other categories only in an imperfect way, again, because those species must always have reference to something outside their own genus, namely to substance, and so they are imperfect.

> But whether each thing and its essence are the same or distinct must be investigated. For this will advance the work relating to the investigation concerning substance. For each thing seems to be nothing other than its own substance, and the essence is said to be the substance of each thing.[12]

Aristotle first addresses this question with reference to accidental composites, and then he turns to *per se* predications, which is basically the opposite of the order he had taken in chapter 4. But it is an interesting feature of chapter 6 that as soon as he turns to *per se* predications he abandons material composites and considers pure Forms. He says,

> In the case of things that are said to be intrinsically, however, is it necessary that the thing be the same [as its being or essence]? For example, if there are some substances to which no substances or any other natures are prior, of the sort that some people say the Ideas are? For if the good-itself and the being for a good are distinct, also animal[-itself] and the being for an animal, also the being for a being and being, then there will be other substances and natures and Ideas beyond those that were mentioned, and these other substances will be prior, if the essence is substance.[13]

Aristotle argues in this passage that if there is a first substance, caused by no other, such that no other substance is prior to it, then it must be the same as its essence. Otherwise, since the essence is the substance of a thing, there would be some other substance prior to the first, against the supposition. He imagines this first substance as though it were a Platonic Form, indeed, the Good-itself, which features in so many of the loveliest dialogues of Plato, such as the *Republic*, *Theaetetus*, and *Phaedrus*. He then gives a second argument that Forms are the same as their essence. If you had a Form like the Good-itself it would have to be the same as its essence, since, if the two were distinct, you would not be able to have scientific knowledge of the Good, and the essence of Good would not exist, and each of these conclusions is absurd. So, the Good must be the same as its essence.

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[12] Aristotle, *Metaphysics* 7.6, 1031a15–18.

[13] Ibid., 1031a28–b3.

Now, given that Forms are the same as their essences, it is natural to wonder whether material composites are also the same as their essences? Aristotle addresses this question next. He says:

> The good, then, is necessarily one with being for a good, and similarly beauty and being for a beauty, and so with all things that are not said to be with reference to something else but are intrinsic and primary. For it is in fact enough if this feature belongs to them, even if they are not Forms, but more so, presumably, if they are Forms. At the same time, however, it is also clear that if indeed the Forms are as some people say they are, the underlying subject will not be substance. For the Forms are necessarily substances, but not by being [predicated of] an underlying subject. For then they will be by being participated in.[14]

The reference to primacy in this passage could be taken in two different ways. It could refer to the first being, as in the previous passage, or it could refer to that aspect of substances that we touched on in chapter 4, namely, that a substance is something complete in its own being and species. I take primacy in the present passage in this second way. Aristotle is saying that whenever you have something complete in its own being and species, that is, whenever you have *this something*, that thing is the same as its essence. However, he immediately qualifies this claim by saying

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[14] Ibid., 1031b11–18.

that it is true of things even if they are not Forms, but more so if they are. What is the difference? Because a material composite, though it is *this something*, is composed of essence and particular matter, this matter will, in fact, as Aristotle will argue in chapter 10, fall outside of the essence of the thing. Therefore, the material composite is not perfectly the same as its essence. A separated Form, however, will not suffer from this handicap, and so it will be entirely the same as its essence.

Crucially, however, Aristotle raises a difficulty with the Platonic conception of separated Forms. Since they are conceived of as universals, they cannot be substances at the same time as material composites are. This is because, if the material composite is a substance, then the species or genus predicated of it is only a substance insofar as it is so predicable. The individual is substance first, in this order, as is shown in *Categories* 5. But the Forms, since they are conceived of as separate, must be prior to material composites. And so they are prior and posterior at the same time, and in the same respect. It is impossible for the Forms to be universals and to be separate at the same time. Aristotle will come back to this difficulty more formally in chapters 13 and 14.

C. Third mark – Species is *per se* indestructible.

In chapter 8, Aristotle argues two theses: first, that form, or species, is neither generable nor destructible *per se*; second, that separated universal Forms are not necessary to account for generation. The first he argues as follows:

1) Everything that comes to be comes to be *from* something (matter) and comes to *be* something (species).
2) If, therefore, the species were generable, it would have to be composed of matter and form, which is absurd.

3) Therefore, the species is not generable, nor is it corruptible, except *per accidens*.

This conclusion suggests that a kind of immortality belongs to species as such, though certainly of a qualified kind. Natural species are not immortal as separated substances, but they are immortal insofar as they constitute a species, which continues to exist in offspring.[15] They are only destructible insofar as a particular individual is destructible. Is it necessary, therefore, that the species exist immortally as a separate substance to account for the continuous coming to be and passing away of individuals? Aristotle has two answers: first, it is impossible for a separated species, if it is a universal, to be a cause of generation, since any universal signifies not *this something*, but a *quality*.[16] But no *quality* can be prior to *this something*. Second, it is not necessary to posit a separated species, since the preexistence of the species in the generating agent, or parent, is sufficient. So, although there are no separated natural species, of the sort the Platonists envisioned, natural forms are nevertheless, at least *per se*, ungenerable and indestructible.

D. Fourth mark – Species in a composite has reference to matter in its definition.

In chapter 11, Aristotle argues that, although the particular matter of a material substance is not contained in the definition of the substance, some kind of matter must be understood to

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[15] It is exceedingly noteworthy in this connection that Aristotle associates the nutritive, or reproductive, soul with the appetite for eternity: "For it is the most natural function in those living things that are complete, and not disabled or spontaneously generated, to produce another like itself—an animal producing an animal, a plant a plant—in order that they may partake in the eternal and divine insofar as they can" (*De Anima* 2.4, 415a26–29).

[16] See *Categories* 5, 3b15–16.

be present in the essence, and therefore in the definition of the substance. He expresses the difference between these two conceptions of matter as follows: particular matter is that into which the composite is dissolved, and so this matter is posterior to the substance of the composite. On the other hand, common or universal matter is involved in the substance itself, and so it is prior. He says,

> And so those things that are parts as matter, into which a thing divides as into matter, are posterior, whereas those that are parts as parts of the account and of the substance, namely, the one that is in accord with the account, are prior—either all or some.[17]

Aristotle argues that the particular matter of the compound is posterior to the substance of the thing for two reasons. First, the substance is in the definition of this matter, and so the matter is posterior in account:

> The circle and the semicircle behave in the same way. For the semicircle is defined by the circle and so is the finger by the whole, since a finger is such-and-such sort of part of a human.[18]

Second, the part cannot exist in separation from the substance, and so it is posterior in being:

> These bodily parts, then, are in a way prior to the compound, but in a way not, since they cannot even exist when they are separated. For it is not a finger in any and every state that is the finger of an animal, rather a dead finger is only homonymously a finger.[19]

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[17] Aristotle, *Metaphysics* 7.10, 1035b11–14.

[18] Ibid., 1035b9–11.

[19] Ibid., 1035b22–25.

On the other hand, of the matter involved in the substance of the composite, he adds,

> It has been stated, then, that there is a puzzle where definitions are concerned, and what its cause is. And that is why to lead all things back to Forms in this way and to subtract the matter is beside the point. For some things presumably are this in this, or these things in this state.[20]

Since the essence of a substance can be described as "this matter in this state," or "this matter with this form," the matter in this sense is part of the substance itself, and so prior to it. As Aristotle goes on to say,

> The animal is presumably something capable of perception, and it is not possible to define it without movement, nor, therefore, without the parts being in a certain state. For a hand in any and every state is not a part of the human, but one that is capable of fulfilling its function, and so is animate, and if not animate, is not a part.[21]

Consequently, we can say, having distinguished matter by these two aspects, that matter is involved in the essence, and therefore in the definition, of substance, when we are treating of material things. Aristotle makes clear that the difference between these two aspects of matter is between the particular and the common.[22]

Now, having distinguished between these two aspects of matter, Aristotle does two noteworthy things. He again shows a misstep taken by those who defend the Ideas, namely, that they want immediately to make all substance free of matter. This is just a mistake, and it would end, he argues, in all things being

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[20] Ibid., 7.11, 1036b21–24.
[21] Ibid., 1036b28–32.
[22] See 1035b–2; 1035b31–1036a7.

one.[23] However, Aristotle also points out that it is necessary to appreciate form as it exists in matter in order to know separated substances, of the sort for which the Platonists are striving:

> Whether there is, beyond the matter of these sorts of substances, another sort of matter, and whether we should look for another sort of substance, such as numbers or something of this sort, must be investigated later. For it is for the sake of this that we are trying to make some determinations about the perceptible substances, since in a certain way it is the function of natural science and secondary philosophy to have theoretical knowledge of perceptible substances. For it is not only about the matter that the natural scientist must know but also about the substance that is in accord with the account—in fact more so.[24]

I will explain in Section 3 why I think Aristotle has the soul in mind in this passage.

E. Fifth mark – Species as universal cannot be substance.

In chapter 13, Aristotle gives several reasons why a universal cannot be a substance. I will briefly review three of them. Before we do this, however, it is important that we recognize what the universal is, strictly speaking. Aristotle defines it as the one over many.[25] It is this unity possessed by the universal that distinguishes it from what St. Thomas will call the nature as absolutely considered.[26] Now, the first reason[27] the universal cannot be a substance is because the substance of each thing is special to it. If this were not the case, all substances would be one. The second reason[28] is that if universals were the causes of substances, which are *this somethings*, the universals would also have to be *this somethings*. But they are not. They are, rather, *qualities*, and no quality can be the cause of *this something*. The third reason[29] is that if universals were substances, their parts would have to be substances for the same reason. For example, if the species man were a substance, then animal and rational would also have to be substances. If, however, man were a substance, it would have to be *this something*. Consequently, animal and rational would also be *this somethings*, and so one *this* would be composed of two *thises*. But this is impossible, since anything composed of two actual parts would be two rather than one. So, the universal cannot be a substance.

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[23] Ibid., 1036b19.
[24] Ibid., 1037a10–17.
[25] Aristotle, *Metaphysics* 7.13, 1038b11–12.
[26] Ibid., 7.10, 1035b27–30; St. Thomas Aquinas, *De Ente et Essentia* 3.4.
[27] Aristotle, *Metaphysics* 7.13, 1038b8–15.

These arguments constitute, perhaps, the most formal rebuttal of the Platonic Ideas that exists in Book 7. However, Aristotle has been anticipating it ever since chapter 6. Two things are crucial for our purpose: first, that the universal is formally understood as the "one over many"; second, that something of this sort cannot be *this something* but must be a *quality*.[30]

III. The Soul as the Crowning Concept of Book 7

Let us state again the five marks we have just reviewed. The five marks are: 1) Essence belongs only to a species; 2) Essence is the same as the species; 3) Species is *per se* indestructible; 4) Species in a composite has reference to matter in its definition; 5) Species as universal cannot be substance. From our consideration of these marks, we can draw some conclusions about what Aristotle calls, at the end of chapter 11, *primary substance*, or, that substance in

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[28] Ibid., 1038b23–29.

[29] Ibid., 1039a3–14.

[30] See Aristotle, *Categories* 5, 3b10–23.

virtue of which all substance exists.[31] As we have gone over the five marks, I think we have gathered the following: first, whatever substance is, it must be both *this something* and separate from matter. This is because species is substance, and a compound individual is only substance through its species. Consequently, primary substance will be species, especially if separated from matter.[32] Second, it is natural, but laden with impasses, to assume that this primary substance is in some sense univocal with the substances with which we are familiar, but existing in a separated state. As Aristotle says in Book 3, chapter 6,

> Thus if there are not, beyond perceptibles and the objects of mathematics, other things such as some people say the Forms are, there will not be substance that is one in number, but in form, nor will the starting-points of beings be so-and-so many in number, but in form. Accordingly, if this is necessary, it is also necessary because of it to posit that the Forms exist. For even if those who say this do not articulate it well, still this is what they mean at least, and it is necessary for them to say these things, because each of the Forms is a sort of substance and none exists coincidentally.[33]

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[31] The end of chapter 11 is a crucial moment in the development of Book 7. We could say that by this time we have seen what Aristotle wants to show us about the nature of essence, insofar as we know it through definition. In chapters 13–16, he will be chiefly showing that universals as such depart from this core conception of essence.

[32] "It has also been stated that the essence [of a thing] and the thing [itself] are in some cases the same—for example, in the case of the primary substances. By a primary substance I mean what is not said to be by being one thing in another, that is, in an underlying subject as matter. But things that are [said to be] as matter or as combinations with matter are not the same [as their essence], nor are those that are one coincidentally, such as Socrates and the musical (for these are coincidentally the same)." Aristotle, *Metaphysics* 7.11, 1037b1–6.

[33] Aristotle, *Metaphysics* 3.6, 1002b22–30.

So, we have to say that those who posit the Forms are on the right track, and, indeed, have seen into the principal truth of theology. However, although it is clear that separated substances must exist, it is equally clear that we have not yet hit upon the right method for understanding them. In Book 7, chapter 16, Aristotle says,

> On the other hand, those who accept the Forms speak correctly in one way, namely, in separating them (if indeed the Forms are substances), but in another way not correctly, because they say that the one over many is a Form. And the cause of this is that they do not have [an account] to give of the substances that are of this sort—the imperishable ones that are beyond the particular perceptible ones. So they make them the same in kind (*eidos*) as perishable things (for these are the ones we do know), man-itself and horse-itself, adding to the perceptible ones the word "itself." Yet even if we had never seen the stars they would nonetheless, I take it, have been eternal substances beyond the ones we knew, so that even as things stand, if we do not grasp which ones they are, it is at any rate presumably just as necessary that there be some.[34]

It is necessary that we see that the separated substances are as unknown to us as the stars would be if we had never seen them. Suppose you lived on the cloud-covered surface of Venus, for example! But, if this is the case, how can we approach a science of such beings? The answer is, through the human soul.

I think Aristotle makes this clear in chapter 17 of Book 7. He begins the chapter thus:

> Let us make, as it were, a fresh start and say again what, and what sort of thing, substance should be said to be.

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[34] Ibid., 7.16, 1040b27–1041a3.

> For perhaps from this we may also make clear that substance, whatever it is, that is separated from the perceptible substances. Since, then, the substance is some sort of starting-point and cause, let us pursue it from there.[35]

What should we say about this cause? Whatever it is, it is the reason why some matter is something. Why is there noise in the clouds? Why are these bricks and stones a house? Why is this body a man? This cause is the substance of the thing, and it is the intrinsic principle of the material composite that makes the matter what it is.

Aristotle gives three examples in the chapter: thunder (a portent), a house (an artifact), and a man (a natural substance). Which of these is most pertinent to our study? The portent? Certainly not. They exist by chance, and Aristotle points out elsewhere that they do not have final causes. The artifact? No, we are the cause of artifacts. The man? Most certainly. But what is the substance of the man? The soul. He says,

> For example, why are these things a house? Because the being for house belongs to them. Why is this—or rather this body in this state—a human? So what is being looked for is the cause in virtue of which the matter is something—and this is the substance.[36]

This is an indication that the soul, and the rational soul in particular, is the substance that Aristotle thinks we ought to examine in order to learn about the divine substances that are the first causes of all being. Another indication is in Book 5, chapter 8, of the *Metaphysics*, where Aristotle gives four meanings of the name "substance," one of which corresponds to the sense of substance considered in Book 7, chapter 17, namely, the intrinsic cause of the being of individuals. There, Aristotle says,

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[35] Ibid., 7.17, 1041a6–10.

[36] Ibid., 1041b5–9.

> And in another way [is called substance], any component that is the cause of being in such things as are not said of an underlying subject—for example, the soul in the case of an animal.[37]

That the soul should be our focus is further shown by two texts in the *De Anima*, the principal purpose of which, so far as I can see, is to anticipate this very treatment in the *Metaphysics*. They are signposts pointing the way ahead. The first is at the end of Book 3, chapter 5. Aristotle says, speaking of the human intellect,[38]

> When separated, this alone is that which truly is, and this alone is immortal and eternal. But we do not remember because, while this is impassible, mind which is able to suffer is destructible. And without this it understands nothing.[39]

This passage shows that we have found a form with three features: 1) it is the same as its essence; it is immortal; it is eternal. These are features that were sought for in the separated Platonic forms. We have shown that, because the Platonic forms are universals, they cannot be separate; but the human soul is separate, it is *this something* to the degree that it is separate, and it is indestructible. This substance, rather than the universals, ought therefore to claim our attention. The second text is in Book 3, chapter 6:

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[37] Ibid., 5.8, 1017b14–16.

[38] There are, of course, many disputes about this passage: in particular, whether Aristotle is talking about only the agent intellect, or the whole intellectual soul, both possible and agent intellect. I hold the latter position; however, for my purposes here it is only necessary to grant that Aristotle is talking about the human soul in this passage, in some aspect.

[39] Aristotle, *De Anima* 3.5, 430a22–25; see *De Anima or About the Soul*, trans. Glen Coughlin (South Bend, IN: St. Augustine's Press, 2022), 51.

> However, the point, and every division, and what is indivisible in this way, are made manifest in the way privation is. And the account is similar for other things, e.g., how one knows evil or black. For one somehow knows [it] by its contrary. But what knows must be in potency, and one [of the contraries] must be in it. If, however, in some one of the causes there is no contrary [when it knows a contrary], this knows itself and is in act and separate.[40]

This text is interesting because Aristotle is directly comparing the mode in which the human intellect knows, that is, by being in potency, with the mode in which a higher intellect would know, that is, that of one of the causes, the separated intelligences. Since the latter does not know in potency, that is, by receiving intelligible species, it knows itself first, and it is essentially in act and completely separate from matter. Aristotle is beginning with what he knows about the human intellect and concluding to truths about a higher form of intellect by drawing a comparison. This is precisely what he will do later in the *Metaphysics*.

To see this, let us anticipate a few points from Book 9 in order to show how formally the soul will be involved in developing the concepts central to metaphysics. We have just seen in Book 7 that the soul is taken to be substance in a primary sense. In Book 9, it will be central to the development of the concepts of potency and act. I will take four representative points from Book 9. First, in chapter 2, Aristotle shows that the soul has greater power than natural forms, because it is capable of producing either of two contraries and is not limited to one, as fire, for example, is. This is because science is knowledge of both of the contraries pertinent to any genus.[41] Whereas fire can only produce heat, the doctor can produce either heat or cold.

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[40] Ibid., 3.6, 430b20–26.

[41] Aristotle concentrates on science here, but the claim is also true, in a way, of the vegetative soul, as Aristotle shows in *De Anima* 2.2, 413a25–31.

Second, in chapter 5, he shows that the soul is more powerful than natural forms, because it acts in freedom and not merely from necessity.[42] This is because, again, science is of both contraries, and so if it acted immediately out of necessity, it would have to produce both contraries at once in the same matter, which is impossible. There must, then, be another cause that determines which contrary will be produced, and this is choice. Third, in chapter 6, Aristotle shows that the soul is nobler than natural forms because the activities of the soul are true activities, and not merely motions; that is, they are desirable for their own sake. This is principally true of sensation and understanding. This truth about sensation and understanding is already on display in the *De Anima*, beginning with Book 2, chapter 5. Finally, in chapter 8, Aristotle shows that the soul is nobler than natural forms, because the activity of the soul is capable of remaining entirely within the soul, and so the soul, being self-subsistent, is a more perfect agent. The activities of natural forms, by contrast, either involve the reception of action from another, or the going out of action into another, as in hot and cold, wet and dry.

And so, we can conclude that a consideration of the soul, and especially the rational soul, is a necessary method for the metaphysician in approaching the nature of the divine being. In Book 7 of the *Metaphysics*, Aristotle is largely doing the work of laying the ground for the implementation of this method.

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[42] See Aristotle, *De Anima* 2.5, 417a26–28.

THE SOUL AS *IMAGO DEI*: ST. THOMAS ON THE IMAGE OF THE TRINITY ACCORDING TO NATURE AND GRACE

John J. Goyette

The aim of this paper is to present St. Thomas's teaching on the soul as *imago Dei*, and more specifically on the soul as an image of the Trinity. The scriptural basis for the notion of man as *imago Dei* is found in Genesis 1:26-7:

> "Let us make man to our image and likeness." . . . And God created man to his own image: to the image of God he created him.[1]

St. Thomas interprets this text to refer to man's rational nature not only as an image of the divine essence, but also as an image of the distinction of the three persons. He asserts that the soul is an image of the Trinity of persons insofar as the interior processions of word and love in the human soul are made to be a likeness of the procession of the eternal Word and the procession of Love (Holy Spirit).[2] That the soul images the Trinity of persons

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[1] Translations of the Bible are from the Douay-Rheims version (Rockford, IL: TAN Books, 1989), which is translated into English from the Vulgate, the biblical text that St. Thomas Aquinas used.

[2] *Summa Theologiae* (henceforth *STh*) I, q. 93, as. 6–7; *Quaestiones Disputatae De Potentia* (henceforth *De Pot.*), q. 9, a. 9; *Quaestiones Disputatae De Veritate*

finds some support from the use of the plural pronouns in the biblical text ("Let *us* make man to *our* image"), which suggests that an image of the Trinity of persons, not just the divine nature, is found in man.

Sorting out exactly how the soul is an image of the Trinity, according to St. Thomas, is a complicated matter. Besides the inherent difficulty in understanding the interior processions in the human soul and seeing how these processions manifest procession in God himself, there is an added complexity in the account. St. Thomas talks about two distinct ways in which the soul functions as an image of the Trinity. First, the procession of word and love in the human soul (especially when the soul knows and loves itself) is an analogy for the procession of the divine Word (the Son) and divine Love (the Holy Spirit). St. Thomas calls this the "likeness of the natural image"[3] or the "image of creation"[4] (referencing the Genesis text quoted above). Second, the soul is an image of the Trinity insofar as it is assimilated to, or conformed to, the persons of the Trinity by being objectively united to them by graced acts of knowledge and love. This is called the "image of re-creation."[5] The scriptural basis for this notion of image is found in the New Testament, notably 2 Cor 3:18:

> But we all, beholding the glory of the Lord with open face, are transformed into the same image from glory to glory.[6]

The aim of this paper is to explain and clarify how St. Thomas understands these two ways the soul functions as an

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(henceforth *De Ver.*), q. 10, a. 7; *Summa Contra Gentiles* (henceforth *SCG*) IV, c. 26, ns. 6–7.

[3] *De Pot.*, q. 9, a. 9, c.

[4] Ibid.

[5] Ibid.

[6] The scriptural passage is cited in *De Pot.*, q. 9, a. 9, c. See also *Super II Cor.* 3, lec. 3, n. 114.

imago Dei, and to show how the soul's objective union with the divine persons is a more perfect image of God, one that builds on the less perfect image—that is, the procession of the word and love in the soul as an analogy for divine procession and the distinction of persons in God. The paper has three parts. In Part I, I will sketch St. Thomas's basic understanding of what is meant by the soul as an image of God, and of the Trinity specifically. In Part II, I will also discuss a couple of preliminary texts where St. Thomas describes different levels of the soul as an image of the Trinity according to nature and grace: one text from the *De Potentia*, question 9, article 9 and one from *De Veritate*, question 10, article 7. This will enable us to raise a question about the relation between the image according to nature and the image according to grace. Part III will focus on that relation as found in the *Summa theologiae,* drawing upon some of the features of the image that are illuminated by Thomas's Trinitarian theology.

Part I – An Outline of the Imago

What exactly do we mean by the term "image," and how is man made "to the image"[7] of God? According to St. Thomas, an image is a certain kind of likeness, but not every likeness is an image. There are two features that especially characterize an image: 1) it is a likeness that is copied from the thing of which it is an image, and 2) it is a likeness that "represents the species" of a thing. First, an image is a likeness that is copied from, or derived from, something else and is therefore made to "imitate" the thing of which it is an image.[8] An egg is not said to be an image of another egg.[9] And one man is not said to be an image of another man simply because he looks similar. Of course, a man is sometimes said to be the spitting "image" of his father, but that is because the son is in some sense made to be like his father. It is also worth noting that an image does not need to be equal to the original of which it is a copy.[10] We say that a person's reflection in a mirror is an "image," even though it falls short of the original.

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[7] The English phrase "to the image" in Gn 1:26 mirrors the Latin "ad imaginem" in the Vulgate, the text used by St. Thomas. He takes the phrase "ad imaginem" as signifying that man is an imperfect image of God because he is made in such a way that he approaches the image, but still retains a certain distance from it; by contrast, the Son of God is the perfect image of the Father (*STh* I, q. 93, a. 1, c., ad 2). St. Augustine also takes the phrase "ad imaginem" to indicate that man is an imperfect image (*De Trinitate* VII, c. 6, n. 12). The imperfection of man as an image of God is less clear in most English translations from the Hebrew Bible which typically render Gn 1:26 as "in the image." The Greek Septuagint, which has "κατ᾽ εἰκόνα" ("according to the image"), also suggests the imperfection of man as an image of God.

The second feature of an image is that it is more than simply a generic likeness: it is a likeness that represents the species of something.[11] Although animals, plants, and non-living substances bear some likeness to God as their creator, they are not said to be images of God, but only "vestiges" of God (his tracks or footprints).[12] As creatures, they manifest the presence of God the creator in a general way, but they do not rise to the level of representing the species. St. Thomas argues that because of man's rational nature—possessing an intellect and a will—he is able to represent the species.[13] To say that an image represents the species obviously does not mean that the image is of the very same species as the thing it images, but it does mean that an image captures or represents the specific shape or form of something. He gives the example of a coin or statue which can be

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[8] See *STh* I, q. 93, a. 1.

[9] The example of the egg is mentioned by St. Thomas in *STh* I, q. 93, a. 1. It is taken from St. Augustine, as noted in *STh* I, q. 35, a. 1.

[10] Ibid.

[11] See *STh* I, q. 93, a. 2 and a. 6.; *De Pot.*, q. 9, a. 9; *De Ver.*, q. 10, a. 7.

[12] See *STh* I, q. 93, a. 6.

[13] See *STh* I, q. 93, a. 2 and a. 6.

said to be an image because it has the same outward shape or form as the original.[14] Of course, man is said to be in the image of God not in an outward and material way—since God is altogether spiritual—but he does bear the image of God because his intellectual nature sufficiently represents or imitates the same form or species as the divine nature—like a coin that bears the image of a king. Since man is distinguished from the beasts by his rational soul, it is within the soul that one finds the image of the Trinity, and St. Thomas says that "God himself put in man a spiritual image of himself."[15] Indeed, St. Thomas says that the image of God is in man according to his mind (*mens*)—a term that includes the powers of intellect and will.[16]

But how is the soul said to be an image of the Trinity? St. Thomas identifies the image of the Trinity with the interior processions of word and love in the soul:

> Since the uncreated Trinity is distinguished according to the procession of Word from the Speaker, and of Love

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[14] See *STh* I, q. 93, a. 1, ad 2; q. 35, a. 2, ad 3; *SCG* IV, c. 26, n. 7.

[15] *STh* I, q. 93, a. 1, ad 1: "Deus ipse sibi in homine posuit spiritualem imaginem." The translations of the *Summa Theologiae* are my own, but I have consulted the translation by the Fathers of the English Dominican Province (Westminster, MD: Christian Classics, 1981).

[16] See *STh* I, q. 93, a. 6, where St. Thomas claims that the image of God is found in man only according to the mind (*secundum mentem*). "Mind" is usually used as another name for the power of the intellect, but in this article mind (*mens*) seems to signify the intellectual soul, which contains, and is distinguished by, both intellect and will. This is clear from his claim that that the image of the Trinity is found in a procession of word according to the intellect and a procession of love according to the will. That "mind" and "intellect" are sometimes used to name the intellectual soul—because something can be named from its highest power—is explained in *STh* I, q. 79, a. 1, ad 1. For a discussion of St. Thomas's use of the word mind (*mens*) in his account of the *imago Dei*, see John O'Callaghan "*Imago Dei*: A Test Case for St. Thomas's Augustinianism," in *Aquinas the Augustinian*, ed. by Michael Dauphinais, Barry David, and Matthew Levering (Washington, D.C.: The Catholic University of America Press, 2007), 100–144.

> from both of these, as said above [in the treatment of the Trinity], so in the rational creature, in which is found a procession of the word according to the intellect, and a procession of love according to the will, there may be said to be an image of the uncreated Trinity through a certain representation of the species.[17]

The interior processions of word and love bear a formal likeness to the procession of Word and Love in God—Word being another name for the Son and Love another name for the Holy Spirit. St. Thomas argues, moreover, that the image of the Trinity is found principally in the acts of the soul, and only secondarily in its powers and habits. This is because it is only by actual thinking that a word is produced within the soul, and it is only through the word that proceeds from the intellect that there is a procession of love in the will:

> The divine persons are distinguished according to the procession of the Word from the Speaker, and the procession of Love connecting both. But the word in our soul "cannot exist without actual thought," as Augustine says (*De Trinitate* XIV, c. 7). Therefore, primarily and principally, the image of the Trinity is to be found in the mind according to its acts, insofar as from the knowledge which we have, by thinking we form an interior word; and from this break forth into love.[18]

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[17] *STh* I, q. 93, a. 6, c.: "cum increata Trinitas distinguatur secundum processionem verbi a dicente, et amoris ab utroque, ut supra habitum est; in creatura rationali, in qua invenitur processio verbi secundum intellectum, et processio amoris secundum voluntatem, potest dici imago Trinitatis increatae per quandam repraesentationem speciei."

[18] *STh* I, q. 93, a. 7, c.: "Divinae autem personae distinguuntur secundum processionem verbi a dicente, et amoris connectentis utrumque. Verbum autem in anima nostra *sine actuali cogitatione esse non potest*, ut Augustinus dicit XIV *de Trin*. Et ideo primo et principaliter attenditur imago Trinitatis in mente secundum actus, prout scilicet ex notitia quam habemus, cogitando interius verbum formamus, et ex hoc in amorem prorumpimus." Emphasis has been added.

So, man is made in the image of the Trinity in his soul, and more specifically in the intellect and will, and principally in the acts of the intellect and will rather than in its habits and powers.

Part II – A Preliminary Look at the Levels of the Imago

St. Thomas's teaching on the *imago* also includes a clear sense that the *imago* admits of different degrees: nature, grace, and glory (although the image according to grace and the image according to glory are presented together). St. Thomas's lengthiest treatment of the *imago* is found in *Summa Theologiae* I, q. 93.[19] This account is difficult and complex, so I will begin by looking at two simpler texts mentioned earlier, *De Potentia*, q. 9, a. 9 and *De Veritate*, q. 10, a. 7.

In the *De Potentia* text, St. Thomas presents the image according to nature and the image according to grace in a simple and straightforward way. The image according to nature is based on a likeness, or similarity, of interior operations: because the rational creature alone can understand and love himself, and consequently produces his own interior word and love, man represents the Trinity by a likeness that rises to the level of an image because it represents the "species" of the Trinity. It represents the form or species of the Trinity in the sense that the formal structure of the interior processions of word and love in the soul is similar to the formal structure of the order of the processions of Word and Love in God. Since every man is capable of knowing and loving himself, and produces his own interior word and love, this likeness of the Trinity is called the "likeness of the natural image." It is also called the "image of creation," because it is meant to explain the line from Genesis: "Let us make man to our image and likeness."

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[19] For a helpful discussion of the *imago* in *STh* I, q. 96, see Michael Dauphinais, "Loving the Lord Your God: The *Imago Dei* in St. Thomas Aquinas," *The Thomist* 63 (1999): 241–67.

The image according to grace, as described in this text, does not focus on a likeness of interior operations, but on what he calls a unity of the object. Since the saints understand and love God, there is what St. Thomas calls a "conformity of union," because they know and love the same thing that God knows and loves. This likeness of the Trinity is called the "image of re-creation." As previously noted, the scriptural basis for this notion of image is found in the New Testament, notably 2 Cor 3:18: "But we all, beholding the glory of the Lord with open face, are transformed into the same image from glory to glory."

A few simple observations. First, St. Thomas sees the basis for asserting two distinct ways that man is made in the image of Trinity as coming from Scripture (one from the Old Testament and one from the New Testament). Second, these two images seem to be distinct and unrelated to one another: one account focuses on a similarity of operation and the other on sameness of object. The aim of this paper is to show how these two images are related to one another, and that the image according to grace presupposes and perfects the image according to nature. There is perhaps already some hint of this insofar as the names of these two images (the "image of creation" and the "image of re-creation") suggest some sort of relation between them.

Let us turn briefly to *De Veritate*, q. 10, a.7 where St. Thomas presents a similar account of the two ways in which man is made in the image of God. This article raises the question of whether the image of the Trinity is found in the mind insofar as it knows temporal things, or only insofar as it knows eternal things. This is a question that arises from St. Augustine's treatment of the *imago* in his *De Trinitate*.[20] Thomas approaches this question by asking whether an image of God is found in the soul according

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[20] See *De Trinitate* XIV, c. 4, n. 15.

to three different objects of the mind. Is the image of God found in the mind when it knows material things? Is the image of God found in the mind insofar as it knows itself? And is the image of God found in the mind insofar as it knows God? In answering these questions, St. Thomas uses slightly different terminology to refer to the image of nature and grace that we found in *De Potentia*: he calls the image of nature a likeness according to analogy and the image of grace a likeness according to conformation. Apart from terminology, this distinction between the two ways the *imago* is found in the mind is essentially the same as the distinction made in the *De Potentia*. The image according to analogy is based on a similarity between the operations in the human mind and the operations in God. The image according to conformation is based on the unity of object: since the mind becomes assimilated to the object known, when the mind knows and loves God as an object it is conformed to the divine persons.

In answering this question, St. Thomas argues that there is no image of the Trinity found in the mind when it knows material things. But there is an image of the Trinity according to analogy when the mind knows itself and an image according to conformation when it knows God:

> In the knowledge by which our mind knows itself, there is a representation of the uncreated Trinity according to analogy insofar as the mind knowing itself in this way brings forth a word of itself, and love proceeds from both of these, just as the Father, speaking Himself, has begotten his Word from eternity, and the Holy Spirit proceeds from both. But in that knowledge by which the mind knows God himself, the mind itself is conformed to God, just as every knower, as such, is assimilated to the thing known.[21]

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[21] *De Ver.*, q. 10, a. 7, c.: "Sed in cognitione qua mens nostra cognoscit seipsam, est repraesentatio Trinitatis increatae secundum analogiam, inquantum hoc

This text, like the one in the *De Potentia*, seems largely to contrast two distinct ways in which the soul is an image of the Trinity. Are these two images related in some way? If so, how are they related?

In the remainder of the *De Veritate* article, St. Thomas gives some indication of how these two are related by arguing that the image according to conformity is greater than the image according to analogy. Here is what he says:

> Now, the likeness which is by conformity [to its object], as sight to color, is greater than that which is by analogy, as sight to the understanding, which is similarly compared to its objects. Consequently, the likeness of the Trinity is more expressive [clearer] in the mind insofar as it knows God, than insofar as it knows itself. Therefore, properly speaking, the image of the Trinity is in the mind primarily and principally insofar as the mind knows God; but it is there in a certain way and secondarily insofar as the mind knows itself, and chiefly when it considers itself as the image of God, and thus its consideration does not stop with itself but proceeds to God.[22]

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modo mens cognoscens seipsam verbum sui gignit, et ex utroque procedit amor. Sicut pater seipsum dicens, verbum suum genuit ab aeterno, et ex utroque spiritus sanctus procedit. Sed in cognitione illa qua mens ipsum Deum cognoscit mens ipsa Deo conformatur, sicut omne cognoscens, inquantum huiusmodi, assimilatur cognito." The translations from *De Veritate* are my own, but I have consulted the translation by James V. McGlynn (Chicago: Henry Regnery Company, 1953).

[22] Ibid.: "Maior est autem similitudo quae est per conformitatem, ut visus ad colorem, quam quae est per analogiam, ut visus ad intellectum, qui similiter ad sua obiecta comparatur. Unde expressior similitudo Trinitatis est in mente secundum quod cognoscit Deum, quam secundum quod cognoscit seipsam. Et ideo proprie imago Trinitatis in mente est secundum quod cognoscit Deum primo et principaliter: sed quodam modo et secundario etiam secundum quod cognoscit seipsam et praecipue prout seipsam considerat ut est imago Dei; ut sic eius consideratio non sistat in se, sed procedat usque ad Deum."

What is interesting to see here is that St. Thomas is not only arguing that the image according to conformity is superior to the image according to analogy, but that the latter is in some way ordered toward the former. The soul's knowledge and love of itself bears a formal likeness to the Trinitarian processions, but this formal likeness has the character of an image chiefly insofar as it leads one to a knowledge of the Trinity as an object. That is a key insight, one that will feature prominently in the *Summa Theologiae,* where we find St. Thomas's most developed treatment of the levels of the *imago*. Let us turn to that now, to look more closely at the relation between the image according to analogy and the image according to conformation.

Part III – The Image according to Nature and Grace in the Summa Theologiae

Let us turn first to *Summa Theologiae* I, q. 93, a. 4, where St. Thomas asks whether the image of God is found in all men. This question serves as the occasion to describe the different levels of the *imago*:

> Since man is said to be [made] to the image of God by reason of his intellectual nature, he is [made] to the image of God in the highest degree insofar the intellectual nature can imitate God to the highest degree. Now, the intellectual nature imitates God to the highest degree according to this, that God understands and loves Himself. Whence the image of God can be considered in man in three ways. First, insofar as man has a natural aptitude for understanding and loving God; and this aptitude consists in the very nature of the mind, which is common to all men. Secondly, insofar as man actually and habitually knows and loves God, though imperfectly; and this image is through the conformity of grace. Thirdly, insofar

> as man actually knows and loves God perfectly; and thus is the image according to the likeness of glory. Whence the gloss on Psalm 4:7 ("The light of Thy countenance, O Lord, is signed upon us") distinguishes a threefold image of "creation," of "re-creation," and of "likeness." The first is found in all men, the second only in the just, the third only in the blessed.[23]

This is a complicated text. For the moment, I would like to focus on a shift in how St. Thomas describes the image according to nature. As we have seen, the *De Potentia* and *De Veritate* describe the image according to nature as an analogy of proportion: the interior processions of word and love in the human soul knowing and loving itself (as object) is analogous to the processions of Word and Love in God knowing and loving himself (as object). Here in the *Summa Theologiae* he defines the image according to nature as a *natural aptitude* to know and love God as an object, an aptitude that consists in "the very nature of the mind," which is intrinsically oriented toward God as an object. Consequently, his account of the soul as the image according to nature is now

explicitly seen as ordered toward the image according to grace as potency to act.

Do we see the same emphasis on the object when St. Thomas applies the notion of the *imago* to the distinction of persons in the Trinity? Yes, we do. To see this, we should turn to q. 93, a. 8, where Thomas asks whether the image of the Trinity is in the soul only by comparison to God as object. In that article St. Thomas reiterates that the divine persons are distinguished from each other according to the procession of the divine Word from the divine Speaker and the procession of divine Love from both. St. Thomas then points out that the divine processions come forth from God insofar as God knows and loves himself as object:

> The Word of God is born of God according to the knowledge of himself; and Love proceeds from God insofar as he loves himself.[24]

He gives a reason for prioritizing the object of knowledge and love. "It is manifest," he says, "that the diversity of objects diversifies the species of word and love."[25] The interior word conceived from the knowledge of a stone is not the same species as a word conceived of a horse or a man; likewise, the love brought forth from each of these is specifically different. Having pointed out that the object diversifies the procession of word and love, St. Thomas concludes that the image of the Trinity in the soul must have God as its object:

> Therefore the Divine image is found in man according to the word conceived from the knowledge of God, and according to the love derived from it. Thus, the image of

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[23] *STh* I, q. 93, a. 4, c.: "cum homo secundum intellectualem naturam ad imaginem Dei esse dicatur, secundum hoc est maxime ad imaginem Dei, secundum quod intellectualis natura Deum maxime imitari potest. Imitatur autem intellectualis natura maxime Deum quantum ad hoc, quod Deus seipsum intelligit et amat. Unde imago Dei tripliciter potest considerari in homine. Uno quidem modo, secundum quod homo habet aptitudinem naturalem ad intelligendum et amandum Deum, et haec aptitudo consistit in ipsa natura mentis, quae est communis omnibus hominibus. Alio modo, secundum quod homo actu vel habitu Deum cognoscit et amat, sed tamen imperfecte, et haec est imago per conformitatem gratiae. Tertio modo, secundum quod homo Deum actu cognoscit et amat perfecte, et sic attenditur imago secundum similitudinem gloriae. Unde super illud Psalmi IV, *signatum est super nos lumen vultus tui, domine*, Glossa distinguit triplicem imaginem, scilicet creationis, recreationis et similitudinis. Prima ergo imago invenitur in omnibus hominibus; secunda in iustis tantum; tertia vero solum in beatis."

[24] *STh* I, q. 93, a. 8, c.: "Verbum autem Dei nascitur de Deo secundum notitiam sui ipsius, et amor procedit a Deo secundum quod seipsum amat."

[25] Ibid.: "Manifestum est autem quod diversitas obiectorum diversificat speciem verbi et amoris."

> God is found in the soul insofar as the soul turns toward God, or was born to turn toward God.[26]

So, the image of God in the soul has God as its object, or is naturally oriented toward God. This fits with St. Thomas's earlier claim in a. 4, that the natural image of the Trinity consists in a natural aptitude to know and love God—a kind of directional potency toward the image of grace.

But what has become of St. Thomas's initial description of the image according to nature by way of analogy—the soul's knowledge and love of self (and its corresponding procession of word and love)? Has St. Thomas abandoned self-knowledge and self-love as a natural image of the Trinity? We get an answer to this question in the final part of a. 8, where St. Thomas distinguishes between two ways in which the mind can be said to turn toward God:

> Now, the mind may turn toward something in two ways: directly and immediately, or indirectly and mediately, as when someone seeing the image of a man in a mirror is said to be turned toward that man. And thus Augustine says in *De Trinitate* XIV, "the mind remembers itself, understands itself, and loves itself. If we perceive this, we perceive a trinity, not yet God, but already the image of God." But this is not because the mind turns toward itself absolutely, but insofar as through this it can further turn toward God.[27]

We see, then, that for St. Thomas the soul's knowledge and love of itself is said to be an image of God, but only insofar as it in some way points toward God or makes it possible for the mind to turn to God. St. Thomas is indicating that it belongs to an image as image to point the way to the original of which it is the image. Of course, the example of the reflection in a mirror is a conspicuous case of an image that is recognized immediately as an image. The same is true of the image of the king on a coin, or the image of Hercules in bronze or marble. All images point toward the things they imitate in some way, although in varying degrees. So, the likeness according to analogy found in the very nature of the mind (and its corresponding operations and interior processions) is naturally apt to lead the mind toward a knowledge of the Trinity of persons.

At this point, one might wonder whether we have overstated the case for the natural image. If the procession of word and love in the human soul is an image of the Trinity precisely because it naturally leads the mind to see the procession of Word and Love in God himself, this suggests that the mind can arrive at a knowledge of the Trinity by natural reason alone. But according to St. Thomas, natural reason is unable to demonstrate the distinction of persons in the Trinity—that presupposes faith.[28] St. Thomas anticipates this difficulty. In fact, it is one of the objections that he raises (in *Summa Theologiae* I, q. 93, a. 4) against the idea that there is an image of the Trinity in man.[29] Here is the objection:

> An image leads to the knowledge of that thing of which it is the image. If, therefore, there is in man the image of God according to the Trinity of persons, since man

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[26] Ibid.: "Attenditur igitur divina imago in homine secundum verbum conceptum de Dei notitia, et amorem exinde derivatum. Et sic imago Dei attenditur in anima secundum quod fertur, vel nata est ferri in Deum."

[27] Ibid.: "Fertur autem in aliquid mens dupliciter, uno modo, directe et immediate; alio modo, indirecte et mediate, sicut cum aliquis, videndo imaginem hominis in speculo, dicitur ferri in ipsum hominem. Et ideo Augustinus dicit, in XIV *De Trin*., quod mens meminit sui, intelligit se, et diligit se, hoc si cernimus, cernimus Trinitatem; nondum quidem Deum, sed iam imaginem Dei. Sed hoc est, non quia fertur mens in seipsam absolute, sed prout per hoc ulterius potest ferri in Deum."

[28] See *STh* I, q. 32, a. 1.

[29] See *STh* I, q. 93, a. 5.

> can know himself through natural reason, it follows that by natural knowledge man could know the Trinity of the divine persons, which is false, as shown above.[30]

The reference is to q. 32, a. 1, in St. Thomas's treatise on the Trinity, where he argues that natural reason is incapable of demonstrating the Trinity. In any case, St. Thomas answers the objection in q. 93, a. 5, by granting that the image of God in man would lead to the knowledge of the Trinity *if the image of God in man were perfect*. So, the general principle, that an image, as image, naturally leads to a knowledge of the thing it imitates is sound, but if the image is an imperfect image, it does not lead the mind to the thing it imitates with necessity.[31] As it is, the mind is unable to arrive at a knowledge of the Trinity apart from supernatural faith.

What, then, can it mean to speak of a natural aptitude to know the Trinity, one which can help lead to a knowledge of the Trinity, but only if the mind is elevated by supernatural faith? One way to see the suitability of calling the image according to nature a natural aptitude to know the persons of the Trinity is to see how St. Thomas uses the interior processions within the soul in his treatment of the Trinity. Although the existence of interior processions within God is itself a matter of faith, the interior processions of word and love in the human soul play an essential role in manifesting the interior processions in God, which gives a greater appreciation of why the image according to nature is described as a natural aptitude to know the persons of the Trinity.

The treatment of the Trinity in the *Summa Theologiae* begins with procession because the divine persons are distinguished by relations of origin, and relations of origin presuppose procession in God.[32] Scripture and the creed use names that signify procession in God,[33] but the point is to attempt to *understand* what faith reveals. But we are faced almost immediately with various ways that procession can be *misunderstood*—notably the Arian and Sabellian heresies. Both of these heresies mistakenly take procession to refer to an outward act, a procession *ad extra*. As a consequence, both deny a distinction of persons *within* God. Since procession necessarily presupposes action, the only remaining alternative is to admit that there is an internal procession, an internal act that remains within the agent. Here is where the soul as an image of the Trinity comes into play, helping us to see the processions in God through a likeness in the rational creature. The interior processions of word and love provide an entry point, indeed, *the* entry point enabling us to see how there can be procession within God, and how the divine persons can be distinguished. So, the image according to nature—the analogy of interior processions in the soul—provides the most apt or suitable likeness by which we can understand the divine processions.

There is another text in *De Potentia* that makes the point even more forcefully. He says there that it is only through the interior processions of word and love in the human soul that one can discover (or establish) a personal distinction in God:

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[30] *STh* I, q. 93, a. 5, obj. 3: "imago ducit in cognitionem eius cuius est imago. Si igitur in homine est imago Dei secundum Trinitatem personarum, cum homo per naturalem rationem seipsum cognoscere possit, sequeretur quod per naturalem cognitionem posset homo cognoscere Trinitatem divinarum personarum. Quod est falsum, ut supra ostensum est."

[31] One might wonder whether there is such a thing as a perfect image, one which would necessarily lead the mind to a knowledge of the thing it imitates. St. Thomas does say that the Son of God is the perfect image of the Father (*STh* I, q. 35, a. 2, ad 3; q. 93, a. 1, ad 2) which would suggest that by knowing the Son one would necessarily come to know the Father, and this idea is a recurring theme in the Gospel of John (e.g., Jn 1:18, 8:19, 14:7).

[32] See *STh* I, preface to q. 27; q. 28, a. 1, sed contra. See also *Super Ioan*. 15, lec. 5, n. 2063.

[33] For examples of scriptural texts signifying procession in God, see Jn 8:42, 15:26.

> No other origin can be in God except one that is immaterial, and which is consistent with an intellectual nature, of which sort is the origin of word and love. Whence if the procession of word and love is not enough to introduce [*insinuandam*] a personal distinction, no personal distinction will be possible in God. Whence John both in the beginning of his gospel and in his first canonical letter uses the name "Word" for the Son, nor ought one to speak otherwise about God than as holy scripture speaks.[34]

As this text makes clear, for St. Thomas the procession of word and love is the only way to understand the distinction of persons in God.

Space does not permit a detailed treatment of the interior word in the soul or of the love brought forth from the will. Suffice it to say that St. Thomas relies on the soul's interior processions of word and love as the only suitable image of divine procession. Indeed, without this image the science of sacred theology has no

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[34] *De Pot*., q. 9, a. 9, ad 7: "Nulla enim alia origo in divinis esse potest nisi immaterialis, et quae sit conveniens intellectuali naturae, qualis est origo Verbi et Amoris; unde si processio Verbi et Amoris non sufficit ad distinctionem personalem insinuandam, nulla poterit esse personalis distinctio in divinis. Unde et Ioannes tam in principio sui Evangelii quam in prima canonica sua, nomine Verbi pro Filio utitur, nec est aliter loquendum de divinis quam sacra Scriptura loquatur." I have translated *insinuandam* as "introduce" because the Latin word *insinuare*, and the context of St. Thomas's text, demands a word meaning both "to make known" and "to insert." In other words, we need an English word that suggests that the procession of word and love is both how we come to know of the personal distinction in God as well how a personal distinction is founded or established—so to speak—in God himself. This fits with the English word "introduce" which can mean to make known ("let me introduce you to…"), but also to insert or establish ("the poison was introduced into the bloodstream by the needle" or "income taxes were first introduced in 1913").

clear way of moving forward, and the Arian and Sabellian heresies would always be lurking at the door. St. Thomas's account of the processions in God show how the image according to nature is oriented toward the image according to grace because it is an indispensable aid to understanding the object of our faith—the most holy Trinity. And insofar as supernatural faith relies on this image, we see how the image according to grace presupposes, and builds on, the image according to nature.

Let me conclude with a brief account of the image according to grace. St. Thomas indicates that the image of God according to grace entails actually (and habitually) knowing and loving God—as opposed to the mere aptitude to know and love God, or the ability to turn toward God. In this sense, the knowledge of the Trinity obtained by a simple faith in the creed, and in the science of sacred doctrine acquired by study, is surely included in the image according to grace insofar as faith is a supernatural elevation of man's nature. Nonetheless, what St. Thomas principally has in mind by the "image of re-creation" is a knowledge and a love of God that presupposes sanctifying grace, namely, the very indwelling of the persons of the Trinity, which he explains in his treatment of the divine missions in *Summa Theologiae* I, q. 43.[35] His account of the indwelling focuses on the presence of the divine persons in a manner that is more intimate and more immediate than what is attainable by faith alone (absent sanctifying grace and charity).

The indwelling of the divine persons is a complicated subject that could easily merit a separate paper, so I will limit myself to a few key points. To see that St. Thomas has the divine indwelling in mind when talking about the image of grace, we need to look at a couple of passages earlier in the *Summa Theologiae*. The first is from the prima pars, q. 8, a. 3 where Thomas outlines the way that God is present in the world:

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[35] On the relation between the indwelling of the divine persons and the soul as an image of the Trinity, and the role played by the divine missions, see Gilles Emery, *The Trinitarian Theology of St. Thomas Aquinas* (New York: Oxford University Press, 2007), 395–404; Emery, *Trinity, Church, and the Human Person* (Washington, DC: The Catholic University of America Press, 2007), 66–70. See also Reginald Garrigou-Lagrange, *The Prelude: Three Ages of the Eternal Interior Life*, Vol 1 (Rockford, IL: TAN Books, 1989), 97–108.

> God is said to be in a thing in two ways: in one way through the mode of an efficient cause; and thus he is in all things created by him; in another way as the object of operation is in the operator, which is proper to the operations of the soul, insofar as the thing known is in the knower, and the thing desired is in the one desiring. In this second way God is especially in the rational creature that knows and loves him actually or habitually. And because the rational creature has this by grace, as will be shown below, in this way he is said to be in the saints by grace.[36]

Notice, here the emphasis on God's presence in the soul as an object, but only in the saints, who know him actually or habitually. This language fits with St. Thomas's description of the image according to grace in q. 93, a. 4. St. Thomas promises to take this up again later in the *Summa Theologiae*. The editors of the standard English edition of the *Summa*[37] insert a reference to q. 12 (which focuses mainly on the beatific vision), but I think what Thomas has in mind is found in q. 43 on the divine missions.

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[36] *STh* I, q. 8, a. 3, c.: "Deus dicitur esse in re aliqua dupliciter. Uno modo, per modum causae agentis, et sic est in omnibus rebus creatis ab ipso. Alio modo, sicut obiectum operationis est in operante, quod proprium est in operationibus animae, secundum quod cognitum est in cognoscente, et desideratum in desiderante. Hoc igitur secundo modo, Deus specialiter est in rationali creatura, quae cognoscit et diligit illum actu vel habitu. Et quia hoc habet rationalis creatura per gratiam, ut infra patebit, dicitur esse hoc modo in sanctis per gratiam."

[37] *Summa Theologica*, translated by the Fathers of the English Dominican Province (Westminster, MD: Christian Classics, 1981).

The key text is q. 43, a. 3, which is on the invisible missions of the divine persons as an effect of sanctifying grace. Here is the text:

> There is one common mode by which God is in all things by his essence, power, and presence, as the cause existing in the effects participating in his goodness. Above this common mode, however, there is one special mode that belongs to the rational creature in which God is said to be present as the thing known is in the knower, and the thing loved in the lover. And because, by knowing and loving, the rational creature by his operation attains to God himself, according to this special mode God not only is said to be in the rational creature but also to dwell in him as in his own temple. Thus, therefore, no other effect can be the reason why the divine person is in the rational creature in a new way, except sanctifying grace [*gratia gratum faciens*]. Whence, it is only according to sanctifying grace that the divine person is sent and proceeds temporally.[38]

I think we can clearly recognize that St. Thomas is describing what he will later call the image of God according to grace, which is found in the saints who are united to God as an object, but not an object that is known and loved in the ordinary way. This special mode of the divine presence exceeds the way in which God is an object known by natural theology, or even the way in which

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[38] *STh* I, q. 43, a. 3, c.: "Est enim unus communis modus quo Deus est in omnibus rebus per essentiam, potentiam et praesentiam, sicut causa in effectibus participantibus bonitatem ipsius. Super istum modum autem communem, est unus specialis, qui convenit creaturae rationali, in qua Deus dicitur esse sicut cognitum in cognoscente et amatum in amante. Et quia, cognoscendo et amando, creatura rationalis sua operatione attingit ad ipsum Deum, secundum istum specialem modum Deus non solum dicitur esse in creatura rationali, sed etiam habitare in ea sicut in templo suo. Sic igitur nullus alius effectus potest esse ratio quod divina persona sit novo modo in rationali creatura, nisi gratia gratum faciens. Unde secundum solam gratiam gratum facientem, mittitur et procedit temporaliter persona divina."

God is known by faith (when we recite the creed), or even in the science of sacred theology acquired by study. This is because it is possible to have dead faith, that is, a faith that is not animated by love (for example, a soul existing in a state of mortal sin). If we have faith without love, the divine persons are not said to dwell in us, and we do not fully participate in, or imitate, the divine life. Indeed, St. Thomas goes on in this article to say that sanctifying grace enables us to freely enjoy the divine persons—which is to say that we participate in the fellowship of the Trinity.

There is one other point that is worth noting about the relation between sanctifying grace and the divine indwelling that will help us to see how the image of God according to grace not only has the divine persons as objects dwelling in the soul, but also entails the soul being conformed or assimilated to the divine persons through the gifts that accompany sanctifying grace, namely, wisdom and charity. Here is how St. Thomas puts it:

> The soul is conformed to God by grace. Hence for a divine person to be sent to someone by grace, there must be an assimilation of that person to the divine person who is sent, by some gift of grace. And because the Holy Spirit is Love, the soul is assimilated to the Holy Spirit by the gift of charity: hence the mission of the Holy Ghost is according to the mode of charity. The Son, however, is the Word, not any sort of word, but one who breathes forth Love. Hence Augustine says (*De Trinitate* IX, c. 10): "The Word we intend to introduce [*insinuare*] is knowledge with love." The Son is not sent, therefore, according to any intellectual perfection, but according to the formation of the intellect by which it breaks forth into the affection of love, as is said Jn 6:45: "Everyone that hath heard from the Father and hath learned, cometh to me," and in Ps. 38:4: "In my meditation a fire shall flame forth." Thus, Augustine plainly says (*De Trinitate*

> IV, c. 20): "The Son is sent whenever he is known and perceived by anyone." Now, "perception" signifies a certain experimental knowledge; and this is properly called wisdom [*sapientia*], as it were, a savory knowledge [*sapida scientia*], according to Ecclus. 6:23: "The wisdom of doctrine is according to her name."[39]

So, we see here that the divine indwelling presupposes an assimilation to the divine processions of Word and Love. It should be noted that this assimilation is not by way of efficient causality, but by way of exemplar causality. While the love shed abroad in our hearts is *appropriated* to the Holy Spirit in the line of efficient causality, it is *proper* to him in the line of exemplar causality.[40] All three persons of the Trinity together function as the efficient cause of charity in the soul, but this operation is appropriated to the Holy Spirit because the gift of charity imitates the procession of divine Love. This is what St. Thomas means by the "conformation of grace" in his discussion of the image of God. This helps manifest that the image according to grace builds on the image according to nature. The objective union, or indwelling, of the divine persons presupposes an analogy of operation.

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[39] *STh* I, q. 43, a. 5, ad 2: "anima per gratiam conformatur Deo. Unde ad hoc quod aliqua persona divina mittatur ad aliquem per gratiam, oportet quod fiat assimilatio illius ad divinam personam quae mittitur per aliquod gratiae donum. Et quia Spiritus Sanctus est amor, per donum caritatis anima spiritui sancto assimilatur, unde secundum donum caritatis attenditur missio spiritus sancti. Filius autem est verbum, non qualecumque, sed spirans amorem; unde Augustinus dicit, in IX libro de Trin., *verbum quod insinuare intendimus, cum amore notitia est*. Non igitur secundum quamlibet perfectionem intellectus mittitur filius, sed secundum talem instructionem intellectus, qua prorumpat in affectum amoris, ut dicitur Ioan. VI, *omnis qui audivit a patre, et didicit, venit ad me*; et in Psalm., *in meditatione mea exardescet ignis*. Et ideo signanter dicit Augustinus quod *filius mittitur, cum a quoquam cognoscitur atque percipitur*, perceptio enim experimentalem quandam notitiam significat. Et haec proprie dicitur sapientia, quasi sapida scientia, secundum illud Eccli. VI, *sapientia doctrinae secundum nomen eius est*."

[40] See *SCG* IV, c. 21, n. 2.

Let me conclude. St. Thomas's treatment of the soul as *imago Dei*, and especially as an image of the Trinity, is a complicated subject both exegetically and doctrinally. Exegetically because the various places where St. Thomas discusses the different levels of the *imago* have subtle differences. It is dogmatically complicated because it requires a familiarity with the key points of St. Thomas's Trinitarian theology. While the principal aim of his teaching on the *imago* is to instruct us about the dignity and perfection of man as made in the image of God, a better understanding of the Trinitarian theology that underlies his teaching on the *imago* can give us a greater appreciation of the Trinitarian aspects of the creation and sanctification of man.

HOW I READ PLATO

Richard Ferrier

I forgot my reading glasses, but I'm not going to be reading. This is called a tutor talk. I'm not sure that all the tutors who give them take that as literally as I do, but it's going to be a talk —it's not a lecture. I haven't written a word of it.

The best public speaker I ever heard, and then came to know, in my life was Alan Keyes. If you've ever heard him give an oration, you will know what I mean. I travelled with him, and I did introductions for him. He ran for president in the primaries in 1996 in the Republican Party, and after one of his speeches someone asked him—I guess they had a question period—someone asked him, "How long did it take you to prepare that speech, Mr. Keyes?" and he said, "Oh . . . about forty years." He was not reading it either; he spoke without notes. As did, by the way, Amy Coney Barrett in the hearings for her confirmation; she had a little notepad, and one of the senators asked her to show it so that they could see what kind of preparation she had, and it looked like this [*holding up blank paper*]. She grinned in a very charming way when she did that.

Richard Ferrier has been a tutor at Thomas Aquinas College (California) since 1978, after receiving his BA at St. John's College (Annapolis) and his MA and PhD in the History of Science from Indiana University. Some of his more recent lectures include: "Socrates in Peoria: Lincoln's Rhetoric and Plato's *Gorgias*," "Born on the Fourth of July," "Viète's Construction of the Regular Heptagon," and "Music in Plato's *Republic*." In 2022, St. Augustine's Press published his monograph, *The Declaration of America: Our Principles in Thought and Action*, reviewed in this issue. This essay is the lightly edited transcription of a "Tutor Talk" that Dr. Ferrier presented to the students at the California campus in September of 2022. Italicized phrases presented in square brackets indicate significant gestures or movements Dr. Ferrier employed in making certain points.

I am going to dwell a little longer on introductory matters before I come to the substance of this talk. I would like to dedicate this talk to two people. The ninety-year-old Ms. Eva T. H. Brann, who is in my opinion the best living reader of Plato, and whom I was privileged to have as a tutor, and then friend, at St. John's College. And the other is Ron McArthur. Of our founding tutors, I think he loved Plato the most of the group, and read it the best of the group, and without him I wouldn't be here. So this is for you, Ron.

Alright, so you know what a triptych is, right? It's a central picture and two wings. So the wings are going to be the *Meno* and the *Ion*, and the central picture is going to be the *Republic*. But it's going to be a lopsided triptych. I'll start with and say more about the *Meno*. Part of the reason for that is, I don't recognize freshmen yet by faces, but if there are freshmen here, I don't want to interfere with their seminar coming up. It's the next seminar and I don't want them to fall under a spell of some kind and decide that what I'm saying about the *Ion* is the only way to read it and that that is the way that they are going to read it and so on, and by the way probably do it badly, imitating what they maybe don't quite understand. So the order will be *Meno*, *Ion*, *Republic*. Now, how to read Plato.

Well, this is how I read Plato. I have a kind of Davy Crockett streak in me that doesn't like authority, in me or in others, so I do not propose to demand that you read Plato this way. I propose to *exhibit* the way I read Plato, and if you find it helpful, well then take what help you can get.

In the *Poetics* there's just a brief mention, early in the book, of the "Socratic dialogue"—that's the expression that's used for it in the *Poetics*. And the generally accepted interpretation of that little passage is that Aristotle understood and is telling the readers of the *Poetics* that the Socratic dialogue is not a treatise, it's not a series of sometimes well and sometimes badly constructed

arguments; it often does not prove anything in particular, at least on the surface. It's a drama, in which what happens and how things look and how things that are quoted would look in their original context (I'm thinking chiefly of Homer) are part of the manner of exposition and are meant to be food for thought for the reader of the dialogue.

Eva's teacher, Jacob Klein, wrote a book, a commentary on Plato's *Meno*, in which he quotes Chaucer, in Middle English, translating Boethius for a fourteenth-century audience. I think it's in the *Consolation of Philosophy* that Boethius says this, and I actually can kind of do middle English, so I'll try it:

> Eek Plato seith, who-so that can him rede,
> The wordes mote be cosin to the dede.[2]

"And so says Plato, for those who can read him, that the word is cousin to the deed"—or, if we're thinking of a drama, the action. That's the defense of a certain mythical and playful character of the sketch of the cosmos, what might be called "a likely story," in the *Timaeus*. That's what Boethius is referring to and that's what Jacob Klein put at the beginning of his book. So, let's think about the *Meno*.

I notice this when I begin it. Meno is aggressive. The first thing he says is [*sneering voice*], "Can you tell me, O Socrates, whether virtue can be taught? Huh?" And the Greek word for "can" is an idiom in Greek; it's from the word for "to have." (I love going back to the roots and trying to feel the vigor of language.) So the *Meno* begins with, "Do you have it?" Kind of like, "Do you have it in you to tell me, Socrates, whether virtue can be taught?" and he goes on to say, "Or is it acquired by practice or habituation, or in some other way?" So in the *Meno*, Socrates is Mr. Mild Mannered, "Someone ran into me on the street and started challenging me, I didn't even know the guy, you know?" Something like that is kind of the way it feels at the beginning.

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[2] Jacob Klein, *A Commentary on Plato's* Meno (Chapel Hill: University of North Carolina Press, 1965), 2.

Now you all know, part of the reason I started with the *Meno* is—and that's where we all start with Plato—is that Meno gets himself into, or Socrates gets him into, quite a tangle, and he says he's been "buzzed by a stingray," because he's so confused and puzzled and so on. It turns out that Socrates wants him to do something he does not want to do. Meno, as you recall, says, "Oh, there's this virtue and that virtue, of a child, a woman, a slave, a whatever." ("Virtue," by the way, is an unhappy translation. I like "excellence," myself.) There's an excellent slave, there's an excellent woman, or wife maybe, and so on. And Socrates, the first thing he says is, "I just wanted one thing and you gave me a swarm!" He compares it to a swarm of bees, and Meno sort of seems puzzled, and Socrates says, "Well, look, I want the one thing looking aside to which [*turns head ninety degrees to the left*] is the same in all." Now, that "looking aside to which," which I just did for you dramatically, suggests that it isn't any one of them. It might not be all of them taken as a collective. There's something. . . Do you do this when you think? I do this when I think sometimes, I'll sort of go. . . [*tilts head upwards and looks up and to the right*], I'll lift my head a tiny bit as though the answer were written sort of back over there somewhere, you know?

So that's supposed to be a second kind of looking. Not looking at the things right in front of you, but a kind of looking off and back, maybe, where you might find the deeper thing, the higher thing, the thing that gives unity. And of course it's commonly held that that is supposed to be the "form." The Greek word there comes from the verb "to see," and it means something like the "looks." But it's not a visible "looks"; that's what you see when you look at the particulars, or the surface things. It's the look behind the looks. And we speak of something having the look of something, "that's the look of a coyote." And it's not too

far from that saying in biology that there's a "species" called coyote. It has a look. But which coyote? It's not that one's look or this one's look or the other one's look, it's. . . Well, it's hard to say. And yet you know a coyote when you see one because of that look. That's the origin of form philosophy in the west. It's that simple observation about that strange apprehension you have which is not unrelated to sensation but isn't quite the same thing.

So he's supposed to look for that and the dialogue takes various turns, and Socrates gives Meno an example to help him see what he means, and it's this: figure. "You want to know the look of figure? It's that which always accompanies color." That's what he says. That's the first definition of figure. And Meno is troublesome. I think he wants to show off. By the way, he's the guest-friend; you know what that means? It's like the consul—not legal counsel, but the representative. Athens has friends in the Persian court and the Spartan. . . whatever they call their arrangement, and so on. And when you visit, it's like a Motel 6; they'll have the lights on for you. You will be treated with respect as the guest-friend of the Great King. And you usually get presents and things. Now, the Great King is the king of Persia, and the splendor and ostentation of the Persians is. . . well, I think of it this way. My neighborhood is overrun with peacocks and I call a peacock a Persian chicken. [*laughter in the audience*] So Meno is Mr. High and Mighty and you are to imagine him wearing fine clothes, I think, when he encounters Socrates, and you are to imagine your usual, rather shabby looking, bug-eyed, flat nosed, short Socrates. That's the encounter. If it's drama, you should imagine it, right? So that's what you should see.

Meno says, "Well, what if somebody said he didn't know what color was?" Socrates says, "Look, everyone knows what color is, but alright, we can get this straight here. You don't like that definition, so how about this? You know what a boundary or limit or term or container—you know, don't be fancy—you know what that is, right?" He says, "Yeah." "Well, then, I say that 'figure' is that which is that thing for solid." Well, he's obviously pointing to surface; it's also a kind of genus-specific difference definition. There are other boundaries, perhaps, but he's dealing with this one and so he specifies it for the solid or body. So the limit of a solid is the second definition of figure. Then Meno says, "Now, Socrates, I want a definition of color." "Alright, it's an effusion from the surface of bodies commensurate with sight and perceptible to the same," is what Socrates says. And Meno says, "Now that's more like it!" [*audience laughs*] (That's Persian, I guess. Now give me the peacock's tail, I want you to describe that.) So Socrates says, "Yeah, I thought you'd like it." At this point I think he's getting a little fed up with Meno. I think it's important to watch these things as they develop in the dialogue. He says, "I thought you'd like it"—because it's tragic and highfalutin—"but that other one I gave you was better." That other. . . one. But he gave him two.

I've been watching a film noir series on Amazon. I don't recommend it to the sensitive. You know what film noir is? It's sort of. . . cops, detectives, criminals, in a grimy world. Phillip Marlowe, that kind of thing. The French do it, we do it—gangster movies. This one's called "Bosch." Harry Bosch is the cop, and his real name is Hieronymus Bosch no less, the same as the painter who does those monstrous, dizzying paintings. Anyway, Harry Bosch tells his daughter, who is on her way to being a cop, he tells her, "Always notice what's missing." Happens to pay off in a case she's investigating. She's working for a lawyer, and there's something that should be in the documents that isn't.

So, I say, following, ah. . . St. Hieronymus Bosch, I say, "Look for what's missing." One of the definitions is missing. And Meno misses it. He doesn't say, "Wait a minute, Socrates, which of the two?" No, he just misses it. That's a tip off that you are supposed to ask yourself, "Well, which one is better?" Is it the one

that has previously defined terms and specifies? Or is it the one, "that which always accompanies color"? This is a sort of internal phenomenological experience. You are supposed to reproduce it either by looking at various colored objects around you, or maybe use your visual imagination or something, saying, "Look at that, always one color ends and the other begins." Now, one might begin to wonder, what if you had an infinite field of blue or red or something like that? But the first thing that that's supposed to do for you is, it's supposed to make you, well, [*looks slowly to the side*] look over there. Look off to the side and say, "Oh, that thing." It's not a very good definition for logical deduction or propositional progress, but it's very good to see that there is such a thing and you are aware of it in a kind of—well, I was going to say "primitive," but I want to say more: a fundamental and deeply reliable way. You don't doubt that there is such a thing as that, if you perform the little experiment on yourself that Socrates asks Meno and us to do.

Now, brief scholium: Immediately the second definition that's being missed, and therefore is important, asks us to think about our manner of knowing. Simply that. And in particular, "What is this excellence thing I'm after?" Am I going to say, "Well, there's a genus called psychic properties, and in that genus, the ones that pertain to production, those aren't it, but those that pertain to, I don't know, what? Good life? Or being a real man, you know what I mean?" That's where the Latin works, from vir, (Latin for "man"), virtus (Latin for "virtue" or "power"), power and all that. Is that what we want? What kind of knowing *do* we want here? And excellence is a deep thing, it's not like, you know, a coyote. If for the moment you will indulge the assumption that the Platonic forms are in some way real—it may not be Kronos, or the Olympian Twelve, but it's at least a demigod among the forms. It isn't like "shrub" or "mud" or "finger." It has a certain dignity to it. It's fine, noble, it's beautiful. It's one of the ones that you want to get acquainted with.

So Meno flubs that test. I hope the readers don't, and ask themselves about their own manner of knowing. Is it all Euclidean? Is it poetic? What is it? And in particular with one of those higher gods, among the forms, one of the ones that shines more, how do we know those? Can we capture them in the net of speech? Can we say them? Can we tell each other what they are? Socrates may be a stingray or a flatfish, an electric eel, something that stuns you, well. . . Meno is a squid. He escapes in a cloud of darkness when he's threatened. So Meno basically says, "Wait a minute, maybe the whole project is hopeless, because if I don't know it, and I come across it, how will I recognize it? And if I do know it, what am I looking for?" It's called the "Zetetic paradox."

So Socrates sees now that the very activity of trying to see the shining looks is under attack, and thereby the whole possibility of learning, that Meno in fact is insincere and doesn't want to learn. So Plato teaches us a little lesson about how we *can* learn, and he does it in the following way. Socrates calls a slave boy over. It's a boy—I don't know how old he is, I'm guessing about ten, maybe twelve. And you know what happens, right? The question is, "How do I double a square?" Actually the first question is, "Do you know that this is a square?" . . . By the way, what's the "this"? Where is it? Have you thought about that? . . .

He isn't holding a blackboard. He doesn't have an IPad. He could trace it in the air, but that's not good enough because they are going to draw some more lines. It's here [*crouches to the floor next to the podium and traces a square on the floor*]. In the dirt. Then the boy comes over. He's just ten maybe. Well, Socrates is short, but the boy may or may not have to kneel down, but Socrates probably does, just in order to do the drawing unless he came equipped with a three to five foot stick. Probably it's his finger. A finger drawing in the sand. Does that remind you of anything?

Meno, on the other hand, I imagine, is over here, with his embroidered robe [*walks off to the side, stands in a very dignified way, crosses his arms and glances disdainfully at the spot where he had drawn the square*]. Socrates mostly speaks to the boy, but sometimes he looks up to Meno, "Did you observe that?" and they do the argument. Now, the argument is characterized, strikingly, by the repeated use of the word "tell." Socrates numbers the sides of the square and they do some counting and he keeps asking the boy, "Can you tell me how long the side is that will make a double square?" Now, since we know about irrational magnitudes, we know that he can't tell him. That word "tell," you get things like it in "give an account of." He can't count it up. It's incommensurable, right? There's no common unit. So Socrates is putting the boy in a quandary, when he keeps saying to him, "Can you tell? Can you tell?' And he can't. It's not that the boy is stupid; nobody can tell, Socrates or anyone else. It's untellable. It's irrational. You can't do it. (You will notice I'm not emphasizing the recollection part of this.) But anyway, Socrates then says to him, "Well . . . could you point to it?" I won't kneel down again (my knees are hurting), but the boy points to it and says, "That one right there, Socrates, that's it."

Now, if the dialogue is implicitly about knowledge—and this is long before the question of the moral character of the life of inquiry comes up in the dialogue—if it's about knowledge, is it not possible that Socrates is suggesting, not to the boy, but to you and me, that the kind of knowledge we want when looking for human excellence is not altogether tellable? That it might need to be shown or seen?

I'll leave *Meno* now, just after one last word about it, and that is that Socrates is passionate about how we will be better human beings if we continue to look for those "looks." We will be better and wiser, and we will live better, if we are like that, and if we have that kind of thing in our soul. So the lesson from

Meno is strongly corrective, and it's this. Whatever human excellence is, it has a lot to do with knowledge. But it's hard to get knowledge and therefore for us it has a lot to do with seeking knowledge. And the way to seek knowledge. . . I will do it again. It's attention [*looks to the side again*] and humility [*kneels on the ground once more*]. Humility. And Meno doesn't have either. So he can't learn. Or maybe he can. He's made in the image and likeness—not that Plato thought that, but maybe anyone can learn. But there's some things that sure do stand in the way.

Alright, now I'll be much briefer on the *Ion*, for the reason I gave. Don't tell the freshmen what I said, if you are worried. Or if you are a freshman, don't pay attention. No, that's not right, pay attention! But don't let it completely shape your reading of the dialogue, okay? Alright, now let's look at the start of *Ion*.

Ion is also a man in fancy clothes, or at least he is when he's performing professionally. I imagine he might have them on now. Or, if not, Socrates can remember what he looks like when he's on stage. That's his shtick—he's an actor, right? That's what he does. This time, *Socrates* is the quarrelsome fellow. There's no preface—no "I went into the marketplace and ran into Ion," or "my friend Aristodemus took me to Philodoxus's house and there was Ion the Rhapsode. . ."—nothing like that. It's just Socrates, the annoying gadfly who gets himself executed, who sees Ion and says, "Hey there, Ion! Good to see you! By the way, what's your art?" He says a little bit of stuff about, "I hope you win first prize for us again in the Rhapsode contest," but basically, it's like, "So, there you are, Mr. Celebrity. What do you know?" It's kind of rude, I guess. Now, Ion seems to be a good-natured fellow. Some, not all—there's actors or celebrities who are impossible—but mostly, a kind amiability goes with the ability to imitate and project. Anthony Hopkins, Sir Anthony Hopkins, came here, and he was immediately telling me to call him "Tony"! He's one of the most likeable men I've ever met! It was just great! And

I think that's really more common than the prima donna. So Ion is amiable, and he's like, "I want to give you a performance! What do ya want? I'll do anything for you Socrates. Let's go!" And Socrates kind of badgers him and gets him into a corner about various things. Let's see what these things are, at least in general.

Aren't they about what he knows, about "What is your art?" "What do you know how to do?" "Well," he responds, "I can recite Homer—Oh by the way, I can explain it too!" [Socrates:] "Ooo, that's good, that sounds mental and not just like some knack, or bodily thing or something. . . You can explain it—that's great!" Well, you know how that goes. Socrates looks to be really unfair to him. A lot of the conversation is about [Socrates:] "Well, let's see, Homer talks about a chariot race!" [Ion:] "Ooo, I know that one Socrates—Want me to recite it for you?" [Socrates:] "So when you do this, you can explain Homer, and you know how to do it [i.e., chariot racing], right? What do you know about chariot racing? Do you know better than a charioteer?" [Ion:] "I guess not." I won't repeat the others, but there's about ten of them like that, one way or another. [Socrates:] "Well, then, what is it you know?" Now—I'm not worrying about the order of the dialogue right now, by the way, even though I should, but I'm not—he also says [Ion:], "And not only that, explain this Socrates: For me it's all about Homer. I can't do Hesiod, or Aristolocus—I can't do that stuff; I can only do Homer." And Socrates says, "What?! What does Homer talk about?" I think he actually volunteers it: "Doesn't Homer talk about gods and men and their dealings with one another and war?" and so on. And Ion (Ion's such a dunderhead, he's such an innocent) says, "Yeah, that's right!" So then Socrates says, "Well doesn't Hesiod talk about the same things? How come you can do one and not the other?"

Now, that's going to lead to the magnetic rings and the rest of the dialogue, right? But Socrates doesn't develop it any further. If Socrates really wanted to *help* Ion, what would he have said? Or as Harry Bosch says, "Look for what's missing." What's missing is a line of questioning like this, "Hmm. . . Men. Gods. Their dealings with each other, which involves such things as piety between men and gods, or justice between man and man. Battles, which involve courage and maybe also justice. Human excellence."

Every first reader of Plato says to himself something like this: "That idiot he's talking to! He should have said. . . !" You may have notes in your copy of Plato. I did. My kids did, everybody does. "You dope, you shouldn't have done that!" And Socrates actually offers it to Ion, but he won't take it. It's the missing document, it's the dog that didn't bark, it's the hole. And what is that hole? Isn't that hole whether there is an art of poetry that manages to produce faithful imitations of those things in such a way that they are beautiful and true? Isn't that what's in the hole? Instead, poor Ion is badgered until he takes one position after another and finally, as the text says, he "escapes in the guise of a general." That's how he escapes.

And Socrates remarks innocently (this you can tell the freshmen), "You're a Proteus! You're a shape changer!" Now, how good is your memory of the *Odyssey*? Proteus? The old man of the sea? Menelaus goes to Egypt to meet him; actually, he ambushes him, he has to hide in a stinking seal skin, I think, which means he has to suffer some, and he has to lay hold of him and he will change shapes. . . And they are terrible; at one point he changed into fire, and Menelaus just holds on (is that Socrates?), holds on to that metamorphic madman Proteus, the old man of the sea, and in the end he will turn into a human shape and he will tell you the truth. That's Homer, that's not Plato. So when Plato says, "Oh you're a Proteus," the readers (for the Attic Greeks, Homer is like Scripture; when Socrates mentions Proteus in that dialogue it would be like Lincoln mentioning the house divided

in one of his speeches, or the sin against the Holy Ghost, or the one needful thing, or something like that to nineteenth-century Americans—particularly, I think, Protestant Americans, since the revived interest in lay acquaintance with Scripture is a kind of modern development. It was taught somewhat archetypally through art, but the profound acquaintance with Scripture tended to be, in the nineteenth century, a more Protestant thing.) Anyway, think of it that way, whenever Socrates cites Homer. Look it up! I do! And it gives me suggestions as to how to read the whole dialogue.

Now, I won't say anything more about *Ion*. I think the clue in the *Ion* is Proteus and the question of art, and that's what the dialogue is really about. Now, since he has a Dumbo as his interlocutor, it has to be done in this somewhat extrinsic way; Ion is not going to reveal very much about the truth of the matter. And that, by the way, is why I think also that the divine inspiration thing in the *Ion* is not really what Plato thinks. It may be that kind of inspiration you get when you are writing a paper and suddenly it's going smoothly. That happens, I think, but that's a disputed question and I don't really want to go there. Alright. So. The *Republic*.

Now, the *Republic* is much too big for this—that's my third panel on the tryptic—it's much too big to fit on that panel. It should be, like, all 12 Stations of the Cross around a church: It's big. Now, I want to talk about Thrasymachus in the *Republic*. Thrasymachus is in the first book, though not exclusively. It's not just holes that are noticeable, but flashes that come back and then don't get developed. I'd say there are two Thrasymachus "flashes" and one major "wrestling match." Thrasymachus is the first political scientist, or at least he thinks he is. He listens to the people talk about justice and says: "You. . . babies! What are you talking about? Everyone knows that justice is what the powerful do. That's where the laws come from.

And in fact, the powerful would get away with anything if they could. This other stuff is just like having a wet nurse. You're just a bunch of sniveling babies to talk about some justice that measures you." And he thinks like, "That's not the way it is in the cities, in actual human communities."

That's why I wanted to say, in part, that he is the first political scientist—he's going to tell you how things are *empirically*. "Just look at it, that's what happens." But he's also kind of proud, so he ends up saying, almost, "And that's the way it ought to be." Or, "I'm for it! Let the strong rule!" You get a stronger version of that position in the *Gorgias* in Callicles: "That's what real men do! Real men ride off on their horses," or "prune the hedges of many small villages!" (You know that line from, what? "Three Amigos"? Anyways it's a comic line, shortened to make it more seemly.) He violently seizes the argument from other people, Thrasymachus does, and tries to teach Socrates a lesson or two. And in the course of the lesson, one interesting move that occurs is this: "You say justice is what the rulers ordain? What the strong ones ordain?" And Socrates makes this lovely move which is: "Well, how about what they actually want?" "That's what they want!" says Thrasymachus.

"Well, but don't they make mistakes?" Somebody could have all kinds of power and say, "I'm going to have it this way," and then stick his finger into the wall socket and electrocute himself. (I did that! "I had the pow-ahhh!"") That's not a very powerful action—it's a disaster. Someone suggests, "Well, define it as 'what seems right to them,'" and Thrasymachus makes an interesting move. He says, "Nope. I mean ruler in the precise sense." Precise. A term of science. "The one who *really* knows who he's doing—that's the one I'm talking about."

Now, that kind knocks into a cocked hat some of the descriptive political science about what's going on in the cities, where some of these tyrants do things that make people wind up cutting the tyrants' heads off. But letting that pass, Socrates seizes on that notion of precise and this whole idea of "the real ruler," which by the way is already kind of scientific in another way. Does that make sense to you? There are apparent rulers and there's the *real ruler*. The real ruler is really on top of his game. We ought to talk about the perfect case if we want to see justice and the ruler in the right relationship. And Socrates is not unhappy with that. He'll go with that.

Shortly after that point, Socrates starts introducing into the discussion the terms "science" and "wisdom" or their cognates "wise," "knowledgeable," that kind of thing. Those terms were hardly in the dialogue before, and I once counted them in the course of a controversy—I forget what the number was, maybe eight of one or seven or eight or nine of the other, in a fairly short part of the text. Now, they're used in conjunction with people in charge of other things, like a shepherd, or a herdsman more generally, or a doctor. The true doctor doesn't make mistakes, not the doctor in the precise sense. When he makes mistakes the doctor is failing, he's a failure! That's not doctoring, that's anti-doctoring, or non-doctoring, or something like that. There's another little wrinkle in the argument that has to do with the fact that if two doctors both know, one doesn't try to get the better of the other or put him down. They both know that that's the way to proceed. But these rulers in the precise sense are not only completely and totally effective, but they want to tyrannize over the other rulers. That looks like a contradiction, doesn't it? A little bit, anyway. (Again, I'm not going to give the details of the argument or remind you of them.) That begins to put the squeeze on Thrasymachus. And then we get the dog that didn't bark, or the Socrates that didn't keep good records in speech. That is—before, its "Callimachus said," "Glaucon said," "Adeimantus said"—it's Socrates narrating it so, "I said and he answered." It's like a script for a play. But when the question of science and wisdom comes up, it goes something like this: (Socrates speaking) “We went back and forth with arguments of this kind for a long time, and Thrasymachus was balky and made many objections and seemed discomfited and broke out into a sweat, for it was a hot day.” Something like that. You can look it up. It’s better than I reinvented, but it’s like that.

So here’s a Platonic dialogue—a dialogue, not a narrative—that suddenly goes into narrative form. In a drama you act it out; Orsino comes on stage and says, “If music be the fruit of love, play on!” The narrative would be: “There was a Duke in Illyria who was looking for a wife, loved music, and he told his musicians to play and that would be helpful to him, he thought.” That’s the other way of doing the story. Well, at this point we change from dialogue to narrative. And that narrative (I hope I did that vividly enough for you so that you can get the feeling of it): “And he dragged his heels, and he raised every objection he possibly could, got all balky. . . He got all red in the face and started to sweat!” (Sorry, I shouldn’t have said red in the face because that’s the climax.) The climax is, “And then”—this is Socrates now, and this I’m quoting correctly—Socrates says, “Then I saw what I had never seen before—Thrasymachus blushing.” Now, there’s another great Plato scholar, friends with Eva Brann, who’s at Boston College, Christopher Bruell, who (someone told me once) said, “If you didn’t notice Thrasymachus blush, you have misread the *Republic*.” And I agree with that. Why?

Well, first of all, let’s ask ourselves about blushing. When do you blush? When you’re ashamed, right? There’s that standard kindergarten dream of, well, in sixth grade looking back at kindergarten, “I’m in kindergarten, I went to school, and I didn’t have my pants on, oh God!” You know? “Shameful!” You’re caught not being what you’re supposed to be, or not looking like what you’re supposed to look like. That’s why you blush. “I was carrying on and on and trying to be persuasive and

then . . . I just put my foot in it and said something really stupid and completely lost the audience.” When I see that, I color up a little bit. So when you are caught out, but not just caught out, but when you are caught out with respect to something you are putting on, or, perhaps, actually care about, and you’re getting it wrong. That’s when you blush. From this I conclude that no matter how angry he is *after* that blush, what that blush showed you is that Thrasymachus is ashamed not to have precise and scientific knowledge.

In other words, even though he’s a Sophist, he really wants to know! And thinks he does! It’s like wanting to be smooth and debonair and being a klutz! You are priding yourself on being smooth and debonair and then being shown to be a klutz. You could say, “Forget it, I won’t be smooth and debonair, I’ll just spend the rest of my life as a clown!” You could do that, but that’s not what Thrasymachus does—he *stays*. Now, he is pretty rude after the blush. He says things like, “I’ll just say yes to please you and get out of this mess,” and “I’m just flattering you,” and so on. Socrates tries to get him not to do that, but he can’t.

But that’s book one! The *Republic* takes an entire evening and night. And by the way, they’re there for a festival of Bendis, an exotic foreign goddess, and there’s probably going to be maximum partying till dawn with flute girls and num-nums, hors d’oeuvres—and the whole company (except for Cephalus) is entranced and stays in the house and converses till dawn. *Including Thrasymachus*. He appears two more times. In one of them, they are going to force Socrates to get into the really deep matters that involve the philosophers ruling finally, but also the family structure and things like that. And they take a vote about whether Socrates should do that, and Thrasymachus presents the verdict, “We want you to go on.” That’s kind of interesting. Seems like he’s behaving as the just spokesman of an assembly of human beings. Maybe the lion has been tamed.

In Thrasymachus's second appearance, somebody else says about a particular proposition, "Yeah, that seems right to me, Socrates. Our Thrasymachus here, he would never agree to that." And then we have, once again, silence. That is, Thrasymachus is silent. Socrates doesn't let him speak. He turns to the other person and says, "Now, now. Don't you bother Thrasymachus, the two of us have just become friends. I don't want that broken up, I don't want that disturbed."

So what does all this say about the *Republic*? Well, the *Republic*, as I say, is huge and I'm just giving a little panel of it. But doesn't it say this, that the talk about. . . well, the divided line, the talk about how we know what the forms are, what mathematics is, how the good relates to it all, in the middle of the dialogue, was prefigured at the start by the blush of a Sophist? The principal objector to Socrates in the first book actually wants to know. Now, it's all tied up with his pride; look back at the *Meno*. Isn't Plato sort of teaching the same thing again there? He who would learn must be humble. And Thrasymachus, who looks for all the world like a man who cannot be humble, I say, is at least being nurtured in humility by Socrates. So you might find it strange if someone said that a principal lesson of the *Republic*—a teaching, if you will, of the *Republic*—is the importance of humility, and its relation to knowing in the arts of ruling, and of all knowing to the good. It was there from the start. It was crucial in Thrasymachus's—what was it? conversion? correction? . . . blush! Let's just say, his blush. That was crucial.

One last thing about the *Republic*. It's not right to talk about "Socrates's city." He doesn't have just one city. He starts out with a city of pigs. Then it gets warriors added to it. Then the warriors turn out to be, well, they are the guardians; that's the second city. Guardians of what? The city and its . . . laws. So you need people who will stick to the laws! Well, not all the warriors are very good at that, so you have to test them. So now you bring

about another class, superguardians, or something. Golden souls over the silver souls over the iron souls . . . and now you have the third city, *or do you*? When you reach that point they go look for justice and they think they are satisfied, but then Socrates looks back at the education and says, "That was nothing but training in habits. How are they really going to be stable unless they *know*?" And so is there a fourth city? I think the hint that there is, is the opening of the dialogue, namely, this. This little simple thing:

Socrates was going *up* to the city, *away* from the Piraeus, which is where the party was going to be and where the house where the dialogue takes place is, Cephalus's house down in Piraeus, which is kinda like saying in the bowery, or down by the docks. You can buy a lot of things down there, and there are a lot of immigrants. Chinatown, you know? We have things like it, all port cities do. Girls are cheap there. Cheapside, in *Henry IV, part 1*, the areas with Falstaff and company, Mistress Quickly and the whole crew. Good place to commit petty theft.

And they drag him back down. They make him go back down and join the company. Allan Bloom has some nice things in his comments on that about its being a kind of arrest, and raises the question of force in political order, but what I want to notice is this: Socrates was with Glaucon, alone. In the middle of the dialogue, when they start down into the divided line and the cave and the powers of the soul and the possibility of a life of philosophy in which one might actually be able to look over to the good itself, I think Glaucon says something like, "What a daemonic, what an amazing thing you are talking about there." And Socrates says, "I can't really explain it all to you, and certainly not now."

After that, the conversation is almost entirely between Glaucon and Socrates. *Friendship* has replaced the city. Its members are two in the dialogue, only two. Although maybe Adeimantus, Polemarchus, Thrasymachus might be able to enter into it, the community that is most just is the community of common conversation and thought. And at the start Socrates was taking Glaucon up, presumably towards the Acropolis, up to the heights, probably as part of that friendship. Now it's a superior/inferior friendship, I think. It's a teaching friendship. So the whole question of human communion in relation to friendship as being perhaps the highest thing in human political life is at the center of the *Republic* and might be its teaching, and *not* wives and children in common, one man one job, and all the other things that look like they are part of political "theory." The true republic is the community of learning. I think that is what Plato is actually teaching. And it takes a lot of work. You have to do some arithmetic and geometry first [*chuckles*] and you have to love each other. You have to be friends. Did you know that Glaucon is Plato's brother? As is Adeimantus? Nobody knows what happened to Glaucon. The conversation takes place just before the disasters at the end of the Peloponnesian War. Polymarchus is executed. Cephalus is probably dead already. His name means "head." There is a talking head in the *Republic* [*laughs*]. I make a reference to it (my references are all getting out of date). Oh, what's it called? . . . "Futurama." You know that cartoon? Nixon's head is in a preservation jar and can talk, right? Eva Brann, who was a great scholar as well as a great teacher . . . (to be a great teacher is better) . . . and is a dear friend—Eva does some of the scholarship on it: who he is, what the family is, what the likely date of the dialogue is. She comes to the conclusion that he's dead. We are talking to the dead when we are talking to Cephalus. And you go into the darkness to meet him. They ask him, "How is it with you, man? Can you get it on with a woman anymore?" He says, "Oh, God, I'm so glad that's over" [*laughter*]. "It was like having Malaria! It kept coming back, and back!" I shouldn't tell you young people that! It has a time and place—it has a long time. But Cephalus is beyond his sell date, and he's

glad of it. He's just now trying to make it up with the gods and end his life well. Or, that's what it is in the dialogue, and I think maybe what he is, is a soul that is beyond the body, if Eva's right.

So:

> The word is cousin to the deed.
> Always read the references.
> Enter into the dialogue.
> The missing evidence is often the most important.
> And never think you have got it all figured out.

And that is how I read Plato, which I offer to you.

BOOK REVIEWS

The Declaration of America: Our Principles in Thought and Action. By RICHARD FERRIER. South Bend, IN: St. Augustine's Press, 2022. Pp. 220. $22.00 (paper). ISBN: 978-1587312038.

A deliberate recurrence to the principles contained in the Declaration of Independence is as needed today as it has been since the Civil War. It is also an appropriate time for such recurrence from a mathematical point of view, as we approach the Declaration's 250th Anniversary. Richard Ferrier's *The Declaration of America: Our Principles in Thought and Action* admirably meets this timely need. It is, indeed, the most accessible and concise source of insight and information relating to the Declaration in American history of which this reviewer is aware.

It is clear in reading Ferrier's book that it is the product of decades of teaching and reflection. The writing is at once familiar in tone and elegant in style. There are no wasted words or rambling; one gets the sense that Ferrier knows precisely what he wants to convey and how to express it most clearly. One beautiful example of this is in the opening lines of Chapter 8, on Abraham Lincoln: "Those who know principles are philosophers; those who know particulars are experts; those who bring them together are statesmen" (100). These qualities of Ferrier's writing allow the book to accomplish that rarity in historical scholarship of being a true page-turner.

Another virtue of the book's style is its inclusion of substantial, well-chosen quotations and excerpts from primary sources throughout. Unlike the way in which students tend to use quotations as a crutch to hide lack of understanding, and academics as a way of showing off their research or simply making their books longer, *The Declaration of America* creates a wonderfully-woven tapestry of primary source selections that complements Ferrier's own writing and reads like a genuine conversation between the two. In this way, the book is simultaneously a primary source reader and a scholarly commentary.

The book's organization similarly reflects the depth of Ferrier's familiarity with and knowledge of the Declaration's role in American history. He begins with an excellent summary of the American colonial experience and the relevant pre-Revolutionary history that set the stage for the Declaration of Independence. One highlight of this section is the inclusion of the illuminating statements of Captain Levi Preston, the 91-year-old veteran of the battle of Concord who so perfectly summed up Revolutionary Americans' spirit of self-government (14). Ferrier then devotes the next three chapters to an analysis of the Declaration itself—the text itself, its context and meaning, and relevant information about and reflections on its framers. In this section, he emphasizes the twofold roots of the Declaration's self-evident truths as "both Biblical and rational" (27), as well as the fundamental role of the "laws of Nature and of Nature's God" in grounding the Declaration's arguments. In the course of this account, Ferrier includes an excellent explanation of Jefferson's citation of "Aristotle, Cicero, Locke, Sidney, &c." as authorities for the Declaration's principles (37). Of particular note is his concise and insightful statement of the relationship between Cicero and Aristotle as forerunners of the Declaration: "Cicero takes the Aristotelian discovery of the common human nature, ascribed to our being rational, and draws from it the Declaration principle of human equality" (40).

Ferrier then connects the Declaration's principles to the Constitution-making of the Revolutionary and Founding eras, highlighting the way in which "the Constitution doesn't stand by itself; it comes after and presupposes the Declaration" (66). Ferrier's discussion of the Constitutional Preamble's reference to "the blessings of liberty" is particularly illuminating here, showing how the Declaration's seemingly individualistic principles of

natural rights can be connected to the proper direction and fulfillment of freedom in the enjoyment of common goods (72).

The next three chapters provide an extended engagement with the issues of slavery and racism in American history, beginning with Jefferson's original rough draft of the Declaration and concluding with the Civil Rights Movement. In these chapters Ferrier provides a concise but thorough account of difficult historical questions surrounding the Founders and Lincoln on slavery and union, and highlights Martin Luther King Jr.'s return to Declaration principles in his leadership of the Civil Rights Movement. He also provides an important, and often overlooked or underemphasized, explanation for the long slumber of the Declaration's principles of natural rights and the natural law in the period between the Civil War and the Civil Rights Movement, tracing it back to "pseudo-scientific racism, drawing its origins from Darwin's work" (151).

Ferrier then includes an important chapter focusing on Alexis de Tocqueville's *Democracy in America*, and the way in which Tocqueville's work describes the necessary cultural prerequisites for sustaining a political society built upon the Declaration's principles and responsive to Declaration statesmanship. The final chapter describes certain "Dangers to Freedom in Our Time" and explains how a return to the Declaration's principles can assist us in maintaining a proper understanding of freedom in the United States.

The way in which Ferrier shows the compatibility and mutually supportive relationship between the Christian faith and the Declaration's principles is valuable to all Christians hoping to achieve a greater understanding of how their religious beliefs relate to their political opinions. Given Ferrier's emphasis on this relationship throughout, though, this reviewer is left with two unanswered questions: (1) Can a non-Christian or even completely secular understanding of the Declaration's principles remain coherent and persuasive? And (2) what should we make of the pervasive anti-Catholicism in American history, and what effect does or should this have on a Catholic's attachment to Declaration principles?

Although Ferrier gives due weight to the gravity of the issue of slavery in American history, he also presents African American history as something separate from American history simply, the latter being a grand edifice made by great men like Jefferson and Lincoln, and the former being a kind of apartment housing welcome guests. This presentation seems to be the unconscious product of longstanding trends in historiographical work (what one might call the "Mount Rushmore" version of American history) and recent political controversies; it also seems actually to contradict the main thrust of Ferrier's approach, which has to do with eternal truths known through both faith and reason. Truths such as those in the Declaration do not, as I think Ferrier would readily admit, actually belong to men like Jefferson, Madison, Washington, Lincoln, or anyone else. Error belongs to the individual, but truth is a common good belonging to no one. There's nothing wrong with praising individuals like Jefferson or Lincoln for the discovery or elucidation of the truth, but we should be careful to avoid confusing our devotion to the political truths of the Declaration with devotion to individual men, however impressive they may be.

Once this confusion is dispelled, one might see the contributions of African Americans to our understanding and appreciation of the Declaration's eternal truths as equaling, if not surpassing, those of the more famous European Americans who have traditionally received the lion's share of the credit for discovering and expounding these truths. One might see Phyllis Wheatley, Prince Hall, Benjamin Banneker, Frederick Douglass, Ida Wells, and others, in addition to Martin Luther King Jr., as contributing to the career of Declaration principles in central and essential, and not merely supporting or peripheral, ways. African Americans have been as much the champions and expounders as the addressees of the Declaration's self-evident truths in American history. And slavery and racism have not so much been the exceptions to the rule, or problems to be overcome in time by the Declaration's principles, as they have been the occasions for all Americans, black and white, to better understand what it means to live out the Declaration's truths in practice.

With *The Declaration of America*, Ferrier has given us the powerful reminder of these truths that we need in our troubled times. It is to be hoped that many Americans, young and old, will pick up Ferrier's book and be inspired to uphold and defend the Declaration's truths in the face of the prodigious challenges that lay ahead.

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Saintly Habits: Aquinas' 7 Simple Strategies You Can Use to Grow in Virtue. By ANDREW WHITMORE. West Chester, PA: Ascension Press, 2022. Pp. 129. $15.95 (paper). ISBN: 978-1954881679.

Christendom College Associate Professor of Theology Andrew Whitmore has published a useful little book on Aquinas's theory of the virtues. Building on the foundation of his dissertation, "Dispositions and Habits in the Work of Saint Thomas Aquinas,"[1] Whitmore has written an introduction to Thomistic virtue ethics, entitled *Saintly Habits: Aquinas' 7 Simple Strategies You Can Use to Grow in Virtue.* Whitmore brings to a popular audience the essential features of Aquinas's thought in a manner that is thoroughly accessible and practical, while also grounded in Thomistic scholarship.

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[1] Andrew Whitmore, "Dispositions and Habits in the Work of Saint Thomas Aquinas" (PhD diss., The Catholic University of America, 2018).

Each chapter of *Saintly Habits* provides a clear, memorable strategy for growing in virtue, combined with a lucid explanation of the concepts undergirding the strategy. The first chapter, entitled "Fake it Till You Make It," compares training in virtue to weight training. The only way to make progress is to increase the intensity of one's exercise. In virtue, this means, "the only way to become virtuous is to act virtuous even though you are not yet virtuous, and the only way to grow further in virtue is to act more virtuous than you already are" (5). This strategy is based on the idea that a virtue is a habit, that is, a character trait developed through frequent repetition of an action. Whitmore distinguishes habits from dispositions. While both are formed by the actions someone repeats, a disposition is weaker and only inclines one to perform the same action again. A habit, resulting from more consistent repetition, is difficult to change, and performing a habitual action is "second nature" (8).

The second chapter, which presents virtue as the mean between opposite vices, uses Whitmore's experience learning to play cornhole to illustrate how we can overcome the misperceptions caused by our vices. Just as he had to learn to throw harder than seemed necessary to hit the target, so a cowardly person, for instance, would need to act in a way he feels is foolhardy, in order to hit the mean virtue of courage in between the vices of cowardice and foolhardiness. Here Whitmore discusses the cardinal virtues of prudence, justice, fortitude, and temperance. Chapter three offers an alternative strategy, which both Aquinas and Aristotle recommend as easier, if slower, than the somewhat radical option in chapter two. This strategy is to withdraw slowly

from one's vice by making small behavioral changes that move one closer to the virtuous mean. Accordingly, this chapter discusses the stages of growth from vice to incontinence to continence to virtue.

The fourth chapter argues for the connectivity of the virtues and uses this connectivity to suggest a particularly interesting strategy: "focusing on virtues that we already possess in order to strengthen our weaker virtues . . . ." (62). If the virtues are connected such that they all grow or decrease in a person together, growth in any virtue will produce growth in all. Thus, it is wise to work on improving what one already does well, since that may feel easier than pursuing growth in an area of weakness. Suppose a virtuous man, due to his natural disposition, is more temperate than he is just. He could work on becoming still more temperate in order to increase his justice. Chapter five explains how to evaluate moral actions in terms of object, intention, and circumstances and recommends that one find an accountability partner to assist in evaluating one's actions.

The final two chapters apply the theology of grace to the philosophical understanding of virtue developed in the first five. Chapter six explains infused virtue, grace, and the theological virtues of faith, hope, and charity. Since the Christian receives virtues as qualities infused into the soul through God's grace, the best strategy for growth in virtue is prayer and participation in the sacraments. The final chapter presents teaching on the moral conscience and the importance of forming it correctly. Following an insight from Aristotle on how the young can become prudent by imitating those with more experience, Whitmore suggests imitation of the saints and ultimately of Christ as a strategy for forming the conscience well.

The prospective reader should understand that this is truly a book for a popular audience. As such, it does not provide many references to primary or secondary sources, nor does it answer every possible question that may come to one's mind. For example, after one has read in chapter four that anyone who has one virtue has them all and in chapter six that Christians have infused virtue, one would conclude that Christians have all the cardinal and theological virtues already. One may wonder, then, why Whitmore teaches a Christian audience how to identify whether they have advanced all the way to virtue in chapter three. Presumably he does this because chapter three is about acquired virtue, not infused virtue, but then one wonders how acquired virtue and infused virtue are related. Whitmore understandably does not address this controversial question. Still, one instructed in Thomistic virtue ethics will for the most part recognize clearly what positions Whitmore has taken and how he sees the positions forming a systematic account of the virtues.[2] The reader with no background in moral theology, the intended audience of the book, should be able to understand it with simply a thoughtful reading. In doing so, one will receive a solid grounding in the fundamental features of Aquinas's theory of the virtues, along with the practical strategies the title promises.

In summary, this book provides an accessible and reliable way into understanding and practicing Thomistic virtue ethics. Whitmore's personal, relatable examples bring the Church's teaching on virtue to life in a way that any thoughtful Christian will appreciate. In addition to serving individuals, this book is excellent for high school and adult formation classes or small group discussions.

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[2] Since Whitmore's dissertation is readily accessible through ProQuest, the reader in search of deeper or more scholarly explanations and textual expositions can consult that study, mentioned above.

The Dialogue Between Tradition and History: Essays on the Foundations of Catholic Moral Theology. By BENEDICT ASHLEY, O.P. Edited by Matthew R. McWhorter. Broomall, PA: National Catholic Bioethics Center, 2022. Pp. 333. $19.99 (paper). ISBN: 978-0935372731.

The late Fr. Benedict Ashley (1915–2013) was arguably one of the most influential and prolific Catholic bioethicists of the twentieth century, and as a result there remain in print more than a few of his writings. Yet this collection of eighteen of Ashley's essays, the majority of which were written in a single decade (the mid-1980s to the mid-1990s), is a welcome addition, especially on account of its emphasis (as the title implies) on first principles in moral theology. Yet it is also noteworthy for its deeper dives into particular theological and philosophical matters—topics spanning what we now call "beginning- and end-of-life issues," pornography, and the philosophically more subtle debates about the time of the soul's infusion and the nature of cloning.

Ashley was one of the few Catholic bioethicists who insist that natural science not only has an important role to play in answering bioethical questions but is even as an integral part of natural philosophy, albeit one informed by the principles of the latter. As a result, natural philosophy and its concretization in experimental science should be understood as part of the foundation of bioethics. According to the perennial philosophy of Aristotle and St. Thomas Aquinas, "right" and "wrong" implicitly mean what naturally fulfills or corrupts the rational animal; thus, the empirical study of that animal, along with the possibilities of medical interventions to support or damage it, must ever occupy the attention of the bioethicist. This was true even in the fourth century BC when Aristotle both made the first discoveries in embryology and composed his *Nicomachean Ethics*. Conversely, this also means that "the philosophy of nature is of fundamental educational importance" (156), and a poor formation in it, even when one is up to speed on contemporary science, will often lead to mistaken conclusions in bioethics, even among well-meaning Catholic thinkers. As Fr. Ashley shows by example in several of these essays, ill-founded or incomplete articulations of the nature of the human person, conscience, the common good, and the natural law, combined with the allure of the power offered by modern medicine, have tempted many a Catholic theologian into heterodoxy and even open defiance of the teaching authority of the Church. This integration of science and philosophy—and therefore with moral theology as well—is the underlying theme of the first and largest section of the book, entitled "Foundations in the Philosophy of Nature," and helpfully elaborated upon in two commentary essays by Matthew McWhorter and Fr. Cajetan Cuddy, O.P., the former essay being an intellectual biography of Fr. Ashley and the latter fittingly entitled "Natural Philosophy and Moral Theology."

The second section, "The Magisterium and Method," naturally builds on the previous, presenting four somewhat brief essays published in the wake of the release of the *Catechism of the Catholic Church* and *Veritatis Splendor*. Of these the most penetrating and certainly most relevant today is "The Development of Moral Doctrine," wherein Ashley contemplates the reality of human "historicity" in the face of the "unity of humanity in its nature and predestination . . . transcending time and place" (179); here he persuasively argues that alongside a "deepening or purification of insight" that doctrine undergoes over the centuries, there can also be an "obscuration, distortion, or adulteration" that would have to be called a "negative development or regression" (180). Like a twentieth century Cardinal Newman, Ashley helpfully proposes both principles for discriminating positive from negative development and examples as test cases drawn from the Catholic understanding of sexuality. This

section concludes with an essay by Matthew Minerd entitled, "The Church, Teacher of Conscience," wherein he presents Fr. Ashley's work in moral theology, which stresses one's "flourishing in the divine life," as a response to an overemphasis on obedience to law and a "dialectical litigation between the 'rights' of [one's own] freedom and those of law" (205)—this overemphasis itself being a result of late medieval nominalism and voluntarism that had slowly morphed into a sort of moral subjectivism.

The final section of essays, "Moral Theology and Life Issues," approaches the frontlines of disputed questions in bioethics, matters of disagreement even among Catholic thinkers. Of these, the most substantial and thought provoking were written about an decade apart: "Abortion and Delayed Hominization" (1992) and "Cloning, Aquinas, and the Embryonic Person" (2001), the latter co-authored with Fr. Albert Moraczewski, O.P., and the most recently published essay in the collection. Recall that these two essays were written during the early days of the arguments about legalization of the "morning-after" pill (then called "RU 486"), the time of the cloning of Dolly the sheep, and the widespread but misguided rush to harvest embryonic stem cells; although this last push seems to have died of natural causes, and the cloning issue has surprisingly disappeared from the limelight even in bioethics discussions, the former battle has been largely lost in the United States, as nowadays the only live question seems to be whether abortifacient pills should be available without a prescription.

In the former essay, Ashley reports the newfound respect being given by non-Thomistic theologians, in the late 1970s and 80s, to St. Thomas's view that the rational soul is not infused immediately at conception; these theologians were making the claim that "delayed hominization" is demanded by contemporary science and has received implicit approval by the Church, given its Thomistic pedigree, and drew the conclusion that it implies the moral defensibility of abortion and embryo experimentation in the early stages of pregnancy. Ashley argues that Aristotle and St. Thomas's own views were based primarily on the limited ability, in their day, to witness the elaborate microscopic organization of the embryo in its early stages. (I note, however, that Ashley does not make any claim that Aristotle and St. Thomas would, when confronted with what we know now, insist on the contrary conclusion.) More importantly, however, Ashley manifests the weakness and inconsistency in the modern arguments that the zygote is not distinctively a unified organism at the time of its first cell divisions. Modern defenders of delayed hominization point to the possibility of twinning due to the loose union between the totipotential cells during the first cellular divisions, and to the fact that most of the zygote will become parts of the placenta rather than of the embryo, as both being signs that the zygote is not yet an individual. Yet Ashley responds that, although there is no denying that during the early stages the parts of the embryo have the potential to become independent wholes, this happens "only if [parts] are *separated* from the cell mass," whereas "when part of the cell mass, they are differentiated by their relative position within the organism" (232, emphasis in original). In other words, a *potential* for lacking unity is not an *actual* multiplicity that's merely hidden from view, and before twinning the zygote's parts do have an internal orientation and impulse toward becoming specific organs, despite the fact that this impulse can be frustrated. Likewise, there's nothing conceptually bizarre in the fact that much of the zygote will not become the final organism—this only means that "the trophoblast and placenta which develops from it are [external] organs, although temporary ones, of the conceptus" (233). Regardless, the view that the embryo in the early stage is neither a human person nor even a unified whole cannot explain what within the embryo "guides this entire developmental process

through these precisely sequenced phases of organization" (231); indeed, "the very notion of biological *development* implies that from the beginning, an organism has the actual capacity" (235, emphasis in original) to mold itself into its mature form. I will note that, as a piece of scholarship and a resource for further study, the ten pages of endnotes for this essay are quite valuable.

"Cloning, Aquinas, and the Embryonic Person" continues the argument of the previous essay—although one might find the title misleading insofar as the only discussion of cloning is in the service of reflecting on twinning. Ashley and Moraczewski here engage the polemical work of several influential thinkers, giving special attention first to James Trefil and Harold Morowitz, two secular physicists (wrongly identified as "biologists" (256)), and then those of quasi-Thomistic Catholic thinkers Fr. Norman Ford and Jason Eberl. Trefil and Morowitz take the theory of evolution to its most extreme conclusion, arguing that there is such "continuity between it [i.e., the human species] and other animal species that . . . any definition of 'humanness' [is] problematic," so conception "does not have the great significance given it by those who believe this is when human life begins" (257); they likewise point to the "potential life" in the gametes themselves and the complete DNA of a cancer cell to show that there's no reason to grant any special status to the newly fertilized egg, and try to reduce this view to absurdity by considering parthenogenesis, which is possible in some amphibians, saying that if the zygote is a person, so is every human ovum before fertilization. Ford and Eberl, apparently unaware of Fr. Ashley's response in the abovementioned essay, follow the more straightforward view that twinning implies that the zygote is not a unified human organism and possesses merely a "passive potentiality" to become a person (261).

Although not directly engaging Trefil and Morowitz's monism—itself a Parmenidean "all is one" theory that goes beyond what evolution legitimately implies—Ashley and Moraczewski shed light on the logical errors in their particular lines of thought. They note that, unlike the potential of the gametes, that of the newly fertilized egg to produce a mature human being is in fact actual, "because it immediately starts self-construction into a mature human body through a series of phases determined by its genome"; Trefil and Morowitz, however, "strangely neglect to note that the zygote itself . . . is both the builder and the building" (259), unlike the gametes, which are merely raw materials. Likewise, Ashley and Moraczewski note that parthenogenesis is theoretically possible only with an anomalous diploid ovum (an ovum with two sets of chromosomes, unlike a typical ovum), and in this case it would indeed be the equivalent of a naturally fertilized ovum; the puzzle evaporates. In response to Ford and Eberl, Ashley and Moraczewski develop the argument from the 1992 paper in favor of the unity of the newly fertilized egg despite the possibility of twinning, now pointing to the cytoplasmic and positional differentiation within the zygote even after the first cell divisions, in addition to the clear evidence of a "lively exchange of molecular signals" (266) occurring between these allegedly unconnected cells. Moreover, Ashley and Moraczewski make a new argument via a comparison with cloning, with which twinning is genetically and functionally equivalent. In short, just as a "clone presupposes the existence of a previous unified living organism of the same species and not a mere collection of cells" (261), so does twinning; thus, the latter indicates the prior presence of an individual organism, from which a new one apparently "buds," not the total destruction of the zygote. This view, however, does imply that one twin is always older than the other, so the reader would I think naturally wonder whether there is any biological evidence for such priority, given that one tends to imagine twinning as no different from typical mitosis, where the results are simultaneous

"daughter cells." Unfortunately, Ashley and Moraczewski do not pursue this matter further. Fr. Nicanor Austriaco, O.P., concludes this section with an essay entitled "Faith and Reason at the Beginning and End of Life," where he not only appreciates Ashley's work but also presents his own reflections on how these arguments have been elaborated since Fr. Ashley's day.

If one could make any complaint about this collection, it would be that several of the essays selected for it are too brief, some no more than a few pages, and on those occasions Ashley does not get beyond the articulation of principles, leaving their dialectical defense to be filled in by the reader. I found myself hungry for a deeper consideration of the treatment of end-of-life care, especially given its naturally converse connection to the delayed hominization beginning-of-life debate. A more advanced reader would also be keen for a closer study of the citations from St. Thomas. Indeed, for someone whose ideas are so deeply Thomistic, Ashley seems reticent about actually quoting the Angelic Doctor—perhaps out of a desire to focus the reader on the truths in question rather than on the teacher's precise words, or perhaps out of a fear of alienating those skeptical about the relevance of medieval texts to contemporary "hot button" issues.

That said, the essays in this collection are of great value, sometimes even prescient, as is perhaps especially clear in the 1992 essay on the deep moral toxicity of pornography, written a few years before the internet porn explosion that even now shows no sign of dissipating. The collected writings of Fr. Ashley are spread over dozens of books and journals, and an adequate synthesis of them has yet to be made. But this book takes a respectable step in that direction.

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Is St. Thomas's Aristotelian Philosophy of Nature Obsolete? By ROBERT C. KOONS. South Bend, IN: St. Augustine's Press, 2022. Pp. 315. $25.00 (paper). ISBN: 978-1587314322.

Hylomorphism, the Aristotelian doctrine that physical beings are composites of matter and form, is apparently out of favor among some Thomists, or at least open to question. Robert Koons believes that this principle is in need of defense, and that is what he proposes to provide in his book, *Is St. Thomas's Aristotelian Philosophy of Nature Obsolete?* Whether or not one thinks that a new defense of hylomorphism is needed, Koons's book will provide the reader with some interesting and important thoughts about the way the doctrine can be applied in light of recent developments in fundamental physics.

Koons's project is actually more ambitious than a mere defense of Thomistic natural philosophy as respectable in light of the most current theories and discoveries in physics. He tries to show its superior ability to make sense of physics as it stands today. Because of the nature of his project, he must place considerable demands on his readers, both with regard to certain technicalities in physics and to the arguments of other interpreters of quantum physics. The book will be most useful to readers with some prior knowledge of modern physics and at least a nodding acquaintance with scholastic natural philosophy.

There is much to like in this book and some things to dislike. It is flawed in its composition and style. It is not always clear why he moves from one topic to another.[3] In one case at least he refers back to some non-existent content.[4] His use of language is sometimes precise and accurate but at other times sloppy or even confusing.[5] The use of jargon sometimes obscures the weakness of his thought.[6] In short, the book seems to be hastily put together and poorly edited. I suspect that it does not have a clearly defined readership in mind, which inevitably leads to an unevenness of tone and language.

Despite these difficulties, the book is worth reading by anyone who is interested in the status of Aristotelian and Thomistic natural philosophy in the era of quantum mechanics, relativity, and evolution. Einstein's theory is not addressed at all, and his treatment of biological evolution is brief, so the main interest will be to those who desire to think more deeply about a Thomistic approach to chemistry and fundamental physics. This focus explains, I think, why after having much to say about matter and substance and causality, he has little interest in discussing substantial change. One should not look to Koons for a comprehensive account of Thomistic metaphysics or natural philosophy. The reader may also discover that he has some disagreements on some of the finer points of Aristotelian metaphysics.

The title of this work naturally leads us to ask, what would constitute obsolescence for Thomistic natural philosophy? According to Koons, obsolescence would come above all from a failure to account for quantum mechanics. He argues briefly that the inability of the old reductionist philosophy to do the job shows it to be an utter failure as a philosophy of nature. This philosophy, which Koons calls "Physicalism," has a long history, reaching back into antiquity and persisting through the early modern era. Newtonian mechanics[7] lent support to the doctrine that everything in nature can be accounted for by matter moving under the influence of mechanical forces. Koons argues that a hylomorphic account of nature succeeds exactly where materialistic reductionism fails when put to the quantum test. Now, one might think that there is no accounting for quantum mechanics, that it has an irrational element that is so resistant to explanation that the only refuge for its apologists is in the dualism of the Copenhagen interpretation or some other version of positivism. Rejecting such despair of a rational account, Koons addresses those who want to be realists in physics. This is fair enough. Arguments against positivism would require a different kind of book.

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[3] To give one example, it is not clear why he ends his introduction with a brief discussion of Charles De Koninck's claim that there are four "philosophical species" (9–10). Although this discussion is not irrelevant to some later considerations in the book, it is puzzling to me why he puts it here.

[4] He says that the Copenhagen interpretation of quantum mechanics "gives us reason to doubt all three of these premises" (49) without giving any account of what these premises are.

[5] For example, he divides a "natural class of phenomena" into three subclasses, none of which could reasonably be considered phenomena (61). The purported phenomena are subjunctive and counterfactual conditionals; dispositions and causal powers; and causal laws of nature.

[6] For example, he says that "free will is just one more kind of spontaneous symmetry breaking, of much the same sort as we saw in the context of thermodynamics, with the difference that the symmetry that is broken is psycho-physiological rather than chemical" (236).

In the introduction, Koons distinguishes Aristotelian metaphysics, Aristotelian natural philosophy, and Aristotelian natural science. One might think that he means by the last of these the theory of the four elements, geocentrism, the incorruptible celestial spheres, and so on. Although he does not explicitly state what he means by Aristotelian science, it seems likely that he means a realist account of nature as measured and subjected to mathematics. Given the present state of our knowledge, this means at a minimum quantum mechanics.[8] One sees that, according to Koons, the whole edifice of Thomistic metaphysics rests on its ability to account for mathematical physics, whatever that turns out to be.

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[7] I do not attribute this idea to Newton himself.

[8] He does not address the theory of relativity, but he does give some attention to the biological sciences.

> So, we must ask two questions: can we have an Aristotelian metaphysics without an Aristotelian philosophy of nature? And can we have an Aristotelian philosophy of nature without Aristotelian natural science? Many Thomists in the twentieth and twenty-first centuries have answered Yes to one or both of these questions, but I believe that the right answer to both is No. (3)

He is surely right about the first question. Without the notions of matter and form, as Aristotle understands them, his metaphysics would be unintelligible. As to the second, if the truth about nature in its quantitative aspects were to be incompatible with an analysis in terms of matter and form, Aristotle's philosophy of nature could not stand. But in order to apply this rule, one must know what the correct quantitative account of nature is, and beyond that, how to interpret this account in terms of prior principles. Now, Koons thinks that the Aristotelian and Thomistic account of nature in terms of matter and form is the best way to make sense of quantum physics, as well as of thermodynamics and chemistry. This is good as far as it goes. The always provisional nature of such theories perhaps explains the modesty of his title. We may think there is no reason to be modest, since the reasons for accepting hylomorphism are stronger than the reasons for accepting the latest version of physics.[9] It is worthwhile, however, to say whether the perennial philosophy can make sense of contemporary science, and if so, how well. Koons proposes that a hylomorphic account, inspired by Aristotle and St. Thomas, can accomplish this task very well.

Hylomorphism here means the thesis that every natural being is composed of matter and substantial form. The principal error about matter coming under Koons's scrutiny is that matter as such is substance. With Aristotle and St. Thomas, Koons proposes that matter must be understood in relation to form and form in relation to its appropriate matter. The matter appropriate to substantial form is called primary (or prime) matter. This matter cannot exist on its own; it is the substantial form that gives it existence. Matter in itself is only potency.[10] The matter appropriate to substantial form must be pure potency if it is to explain why something persists in substantial change.[11]

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[9] Indeed, in his introduction (4) he correctly points out that rejecting hylomorphism has devastating consequences for both philosophy and theology.

If (physical) substance is not to be identified with matter, one must be clear about what it is. The substances in question here are what Aristotle called "primary substances," individuals sharing a common nature and grasped by the mind under universal concepts. There may be a question about what kinds of beings are substances, but any being that is not a substance will be a property or accident of substance.[12] Every substance

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[10] A being may be a substance in its own right, but it is only matter insofar as it is in potency to a higher substantial form. Consider a steak in the refrigerator and that same flesh in the living cow.

[11] This is how Aristotle argues to primary matter as a principle of being in natural bodies, although not itself a being. Koons, however, modifies Aristotle's understanding of primary matter, holding that there is a matter that exists relative to substantial form, only it is not pure potentiality. What he really thinks about this is not clear. Early in the book he describes primary matter as "a kind of useful fiction or limiting case idealization" (21). Later he states that the primary role played by prime matter is individuation (79). In this respect Koons's prime matter resembles St. Thomas's signate matter, that is, matter under determinate dimensions. It is hard to see, therefore, how it could play an explanatory role with regard to substantial change. He does not explain why he looks at prime matter this way and what the implications might be for his natural philosophy. He says in a footnote (80) that his views on the subject have changed significantly since 2014, when he argued for the Aristotelian position in a paper in *Res Philosophica*. He does not deny that matter persists through substantial change, but his all too brief account in the footnote does not clarify what he means by persistence.

[12] Koons discusses the question of what counts as a substance on pp. 85–100. He makes the important claim that elementary particles are not substances.

has a substantial form. At the outset Koons assumes that the reader knows what is meant by substantial form, for he refers to it more than once without defining or describing it. Eventually he gets around to characterizing it in a way Aristotelians would recognize: it is "this something" that unifies the parts of a substance (and only its parts) "both at a time and through time" and "makes it what it is" (78).[13]

The Aristotelian distinction between substance and matter was abandoned as atomism became the prevailing opinion among scientists. Substance and matter were conflated. At the same time, the explicit use of Aristotle's four causes (form, matter, moving or efficient cause, and final cause) was abandoned. Of course, there is a sense in which they are latent in explanatory principles science cannot in practice do without. But in scientific discourse, laws replaced natural powers as explanatory principles, and the only causes that counted were the material and efficient, unless one ought to consider the quantitative properties of bodies as formal causes. Although some philosophers of science would prefer to abandon the notion of causality altogether and understand science as purely descriptive, this is not the view of the great scientists themselves, nor of the philosophers Koons is addressing.

There is much talk and debate among philosophers of science today about "bottom-up" and "top-down" causality. According to Koons, we should think of formal causality as top-down and material causality as bottom-up (38). According to the physicalists, all causality is bottom-up. In its original form, this meant that atoms and the forces between them cause all that exists and happens at the macroscopic level. Along with this idea came the optimistic hope that physics was essentially finished and all that remained was to fill in the details. The more modern version of this idea, which Koons calls "microphysicalism" (15), reduces to elementary particles and fields all that we can observe and measure.[14]

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[13] It is indicative of the weakness of composition in this book that one has to wait so long to see how he understands such a fundamental concept.

More recently, in light of various newly discovered phenomena, as well as difficulties in dealing with some others that have long been familiar, many have come to believe that some kind of top-down causality may also be operative in nature. In other words, it has become respectable to at least entertain the idea that wholes are in some respects causes of certain behaviors of their parts. Many seriously doubt that the materialistic reductionism assumed by previous generations of scientists can still be accepted as an adequate account of the world.

"Emergence" is a term that is popular both in biology and in physics, but which can have several inconsistent meanings. The notion arose in the sciences because it was becoming more and more evident that there are properties of macroscopic objects for which there is no simple way to deduce them from the laws describing the world on the microscopic level. This problem reaches down into the deepest layer of physics, where one finds elementary particles and fields. This impacts the optimistic assumption so common in the past that chemistry and thermodynamics are really nothing but complicated physics, or that the properties and behaviors of higher life forms can be reduced to the laws of chemistry and physics. One way to look at emergence is as an evident fact, in that as we move to higher levels of organization new laws must be introduced that have no counterpart at a lower level. The laws describing changes of phase, for example, have no counterpart at the molecular or atomic level. Thus, it looks to many as if some kind of top-down causality must be involved here.[15]

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[14] Koons introduces the term "microphysicalism" (36) as a description of the ultimate version of reductionism and discusses its implications at some length. This ultimate version of reductionism goes down to a level below atoms to the ultimate quantum entities.

Koons introduces the phrase "ontological escalation" to describe his version of emergence with top-down causality. His thesis of ontological escalation rests on three claims. The first is that there are a number of levels of composition in the world. This is an obvious fact. Second, the entities in the next higher level are composed entirely of entities from the lower levels (which are therefore material causes) and whose powers are partly grounded in facts about the smaller scale entities. Third, some causal relations between the entities on the smaller scale are partially grounded in facts about larger-scale entities. In short, "larger-scale entities *both condition and are conditioned by* smaller-scale entities, in relations of mutual metaphysical co-determination" (73, emphasis in original). On the highest level, the entities in question are substances.

To make good on his claim, Koons goes on to describe how ontological escalation, from the lowest level of material cause to the level of substances, accounts for much that is known and accepted in physics and in fact does a better job of this than alternative views. He attacks the microphysicalism of his opponents on two fronts. First, he shows how a rejection of hylomorphism renders us incapable of accounting for the chemical and thermal properties of macroscopic inorganic objects, which he calls "thermal substances"—that is, for chemistry and thermodynamics. [16] After this, he argues that hylomorphism provides the best solution to the measurement problem that any interpretation of quantum mechanics must face up to.

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[15] Some hold that the emergence of such phenomena at the macroscopic scale is consistent with materialist reductionism, though they cannot give an argument for this belief, other than that the alternative is inconceivable to them.

[16] He does not want to argue for hylomorphism on the basis of organisms, where it is more obviously a good account of the phenomena. He wants to convince the physicist, not the biologist. If he can make the harder case, the easier will follow.

At the beginning of chapter three, Koons draws an epistemological conclusion from the thesis of ontological escalation:

> The perennial philosophy depends on denying that sciences like chemistry, thermodynamics, and biology are reducible to particle or field physics, since entities that are reduced to other entities cannot be metaphysically fundamental, and it is chemical and biological substances and not particles or fields that are fundamental. (101)

To understand how Koons supports the minor premise, which rests on the third claim defining ontological escalation, it is necessary to understand that the purported reduction of the laws of the higher-level science to the laws of the fundamental science is not a sufficient ground for the claim that the higher science is reducible to the more fundamental. The fact, for example, that the laws of chemistry are all reducible to the laws of physics is not a sufficient reason to say that chemistry itself reduces to physics. As Koons points out, this move might have passed muster at the dawn of the twentieth century, when Newtonian physics was thought to be, at least in principle, the final theory of matter in motion. After the quantum revolution, the situation has become more complicated.

Newtonian dynamics, as applied to the simplest scenarios, is expressed by ordinary differential equations in which time serves as an independent variable. In more complex scenarios, where three dimensional problems are formulated using partial differential equations, position also becomes an independent variable. Eventually Newtonian dynamics was brought to greater formal simplicity and elegance through the introduction of a six-dimensional coordinate space, comprising the three dimensions of space and the three dimensions of momentum. Such

a coordinate space can be expanded to include however many variables are needed for a given problem.

The formal spaces of quantum mechanics are more complicated still, since they involve complex variables. Such variables may be used for convenience in classical physics, but in quantum physics they are necessary and unavoidable. Without going into detail, it may be enough to say that these are connected with the expression of probabilities for the outcome of measurements before such measurements are made. In quantum theory, deterministic laws govern the evolution of these probabilities in accordance with the constraints present in the given system, but the outcomes of the measurements are not deterministic: they cannot be predicted with certainty in advance, even in principle.[17]

Since the reduction of sciences such as chemistry and thermodynamics now means a reduction to quantum mechanics, such a move will have to take into account both the laws and the phase space in which the laws are defined. As Koons says, “the structure of this space implicitly encodes crucial nomological conditions” (102). The reductionist will have to prove

> that the structure of the phase space and of the manifold of possible initial conditions of the supposedly reducing theory is not itself grounded in the structure or laws of the reduced theory. (102)

In other words, the very structure and laws of the posterior science may in some cases determine the phase space and the initial conditions required by the more fundamental science. According to Koons, the burden of proof is on one who would deny this. If something about the posterior science determines something in the supposedly more fundamental science, the classical program of reduction has failed.

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[17] This is what brought about Einstein’s famous objection that God does not play dice with the universe. And it must be noted that there are attempts to eliminate all indeterminacy from quantum mechanics, but that there is a need to do so is a minority position. The most interesting of these is the “Many Worlds” hypothesis, where every possible outcome of a measurement is actual in a new universe. Indeterminacy of any kind strikes at the root of the reductionist philosophy of the materialists.

Koons argues that there must be ontological escalation in going from the scale of so-called elementary particles to the scale of thermal substances. The basic argument is this: a heap of fundamental particles has only a finite number of degrees of freedom (for each particle there are six degrees of freedom corresponding to the six dimensions mentioned earlier). But a thermodynamic system has an infinite number of degrees of freedom. Therefore the thermodynamic system cannot be a heap of fundamental particles.[18] Lest the Aristotelian be troubled by the idea of an infinite degrees of freedom in a system, Koons points out that these describe the system's potentialities, and so do not constitute an actual infinity. The actual condition of a thermal substance will be describable by a finite amount of information.

Now, Koons is not claiming that the particles are simply unreal, but only that they are not substances. What physicists call an elementary particle is really an attribute of a substance, and such particles owe the kind of being they have to the being of the substance in which they are present. This explains why they do not have determinate properties of their own. Yet, like the elements in Aristotle's natural science, they must exist virtually and not in mere potency, in that they convey with them certain properties (for example, charge) that manifest themselves in

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[18] See pp. 106–108. He goes on to say that even if one rejects the idea that thermal substances have infinite degrees of freedom, they can only be modeled in quantum mechanics by introducing an infinity of such degrees, so there still is something in them not able to be reduced to the particles.

the substance in which they inhere, and which are recoverable upon substantial change.

Having rejected the thesis of the physicalists that thermal substances are merely heaps of fundamental particles, it remains for Koons to argue that hylomorphism gives the best account of nature at the quantum level. First, he shows us that, at the very least, Aristotelian hylomorphism is in no worse position vis-à-vis interpreting quantum mechanics than other proposed interpretations, namely, Everett's "many worlds" interpretation, Bohm's pilot wave interpretation, or several bottom-up collapse theories. All these involve philosophical assumptions that are not grounded in the verifiable facts or the mathematical structure implied by these facts. More than this, Koons claims that "the hylomorphic rejection of microphysicalism preserves the simplest and most natural interpretation of the quantum formalism" (157).

The key development in physics that Koons appeals to in his defense of hylomorphism is the replacement of what he calls "Pioneer Quantum Mechanics," a physics of finite systems (a finite number of fundamental particles), with "Generalized Quantum Mechanics," in which infinite systems are introduced. These systems (which are of course mathematical constructs meant to represent physical reality) are those in which one takes the continuum limit. To give a simple example from pure mathematics, one takes the continuum limit in using integral calculus to find the volume of a solid. Similarly but in a much more complex manner, some physical systems can be modeled only in this fashion. Generalized quantum mechanics introduces this sort of model, not as a replacement for finite models, but as a necessary supplement. The implication is that the systems requiring such a model cannot be thought of as merely an aggregation of a finite number of fundamental particles. In such a system, individual particles lose their identity and meld together in something that has to be treated as a continuous whole. An example of this is the quantum vacuum, in which particles exist only virtually and not actually.

The basic argument for how hylomorphism, with its consequent ontological escalation, fits with quantum mechanics goes like this: In quantum mechanics there are commuting operators (corresponding to certain measurable properties of thermal substances, such as temperature, specific heat, optical density, and so on) and non-commuting operators (which correspond to measurables of quantum particles, such as position and momentum). These latter come in pairs in Heisenberg uncertainty relations. With respect to these measurables, a quantum particle exists in a state of superposition prior to a measurement being made. The important point is that commuting observables cannot be in states of superposition. (The Schrödinger's cat scenario cannot play out, since all the observables of the cat—a thermal substance—are commuting.) This is well known to physicists. What Koons draws from it is that there has to be ontological escalation from the level of reality where the quantum particles dwell to that of thermal substances.

Koons goes on to argue that his account of ontological escalation sheds light on various aspects of physics, chemistry, and even of biology. It would be an ambitious project to work out the implications of his account for all these sciences in detail, but he has provided us with a basis for a compelling modern Aristotelian science. At a minimum he makes a compelling argument that contemporary physics is incompatible with the physicalism that is so pervasive in popular accounts of the world and that is often assumed by philosophers whose naive world view is that of nineteenth century physics.

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