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THE AQUINAS REVIEW

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Editor's Statement

This coming February marks the 60th anniversary of the death of Charles De Koninck (1906–1965), professor of philosophy at the Université Laval in Quebec for more than three decades and one of the more influential Thomists of the mid-20th century. De Koninck was the philosophical mentor of several of the founders of Thomas Aquinas College, including Ron McArthur, the original editor of *The Aquinas Review.*

Although he died shortly before the publication of *A Proposal for the Fulfillment of Catholic Liberal Education,* the College's founding document, without the intellectual formation De Koninck had given TAC's founders, this college, arguably, would not exist. De Koninck's attention, even in light of the advances made by contemporary science, to St. Thomas's understanding of the proper division and order among the sciences—from theology to natural science—played a significant role in the structure of TAC's curriculum.

De Koninck was also the mentor of the late Ralph McInerny, who himself initiated in the early 2000s the still-ongoing project of translating and publishing in English De Koninck's oeuvres.[1] This issue of *The Aquinas Review* makes its own contribution to this project with the publication of five of De Koninck's previously unpublished writings taken from the Charles De Koninck Archive, along with two essays on some of his published work. The selections presented here range from lectures given at academic conferences to semi-popular addresses to the transcript of a course taught to an unfinished essay, with topics ranging from sacred theology to metaphysics to the intersection between these. We are publishing these essays out of piety toward De Koninck; out of respect and gratitude for his work; and out of a sense that this work is now beginning to receive the attention it has long deserved.

Christopher A. Decaen
Thomas Aquinas College
November 2024

1 Two volumes of this have been published so far: Charles De Koninck, *The Writings of Charles De Koninck*, ed. and trans. Ralph McInerny (Notre Dame, IN: University of Notre Dame, 2008 [vol. 1] and 2009 [vol. 2]).

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

Abbreviations of commonly cited works by St. Thomas Aquinas:

Comp. theol. = *Compendium theologiae*
De ente = *De ente et essentia*
De malo = *Quaestiones disputatae de malo*
De pot. = *Quaestiones disputatae de potentia*
De ver. = *Quaestiones disputatae de veritate*
In De anima = *Sententia libri De anima*
In De causis = *Super Liber De causis*
In De div. nom. = *In librum B. Dionysii De divinis nominibus expositio*
In De Trin. = *Super Boetium De Trinitate*
In Ethic. = *Sententia libri Ethicorum*
In Metaphys. = *Sententia libri Metaphysicae*
In Peri herm. = *Expositio libri Peri hermeneias* or *De interpretatione*
In Phys. = *In octo libros Physicorum Aristotelis expositio*
In Post. an. = *Expositio libri Posteriorum analyticorum*
In Sent. = *Scriptum super libros Sententiarum*
Q. D. de an. = *Quaestio disputata de anima*
Quodl. = *Quaestiones quodlibetales*
SCG = *Summa contra Gentiles*
ST = *Summa theologiae*

Contents

EXISTENTIALISM

Charles De Koninck

Reverend Fathers and Seminarians and Madam and Messrs.,

I would like to say a few words concerning existentialism—existentialism as it is understood today in non-scholastic philosophy. So, forget all about the distinction between essence and existence as it is usually understood in the discussion of the problem of the real distinction. Not that it is an unimportant problem, but that it is not the problem of existentialism as it is understood since Kierkegaard. The problem that is to be discussed in connection with existentialism is in an entirely different field. Let us consider one of the most fundamental propositions in modern existentialism, one that all existentialists hold in common, with the exception, perhaps, of a Catholic existentialist such as Gabriel Marcel. Although he has not discussed this problem very deeply, it is certainly common to the others; and we are more concerned with them than with him because in him we find very little orderly consideration of problems, whereas in the others, notwithstanding the fact that there seems to be a contradiction, we do find a certain order of ideas. In these philosophies the proposition "man has no nature, he has only a history" is fundamental.

[This talk was given April 13, 1950, and exists as a typed document with a few handwritten corrections. It appears to be an expansion of a shorter essay entitled, "The Nature of Man and His Historical Being," *Laval théologique et philosophique* 5.2 (1949): 271–77. The text is here presented as written, aside from correcting some unambiguous errors in punctuation, inserting a few paragraph breaks, supplying a translation when De Koninck provides only the Latin, and the Latin when he gives a translation.]

When we are faced with such a proposition, we may well wonder whether it is worth examining. Man has no nature; he has only history. Obviously, if we understand the proposition in the sense that it immediately conveys to us, we would say, "But if man had no nature, he could have no history." Surely it is some determinate, stable thing that must have a history; that is, if we are going to attribute this and that to this and that in history, this subject would remain permanent throughout. Thus, we would be speaking of the history of a certain thing. There must be something basic and stable in man so he can be the subject of a great variety in the course of what we call history. We say that if man had no nature, he could have no history, but that is not the end of it.

Surely if existentialism is to make some sense, there must be another meaning to this proposition, so that although we reject the proposition in one sense, there is another sense in which we may say that the true being of man (*la véritable être de l'homme*) is a strictly historical one. The being of man that for him is the most important is his strictly historical being. In fact, we distinguish in a man what he is by virtue of being a man from what he is in view of what he *should* be. For instance, in Socrates we consider that, as a man, he is a man with such a particular temperament that gives him a particular nature. This is all very well, but which is now more important for Socrates: to be a man or not to be a man? The most important thing is to be as he should be, and a man may be in many ways. A man may be and have existence purely and simply, and he may be purely a man without being a good man. To be a good man is the more important. We shall call it the "true being of man"; that is, the being that is most important—that being that he has in view of what he should be. It will be either good simply or it will not be good simply—it will be evil.

Hence, if by "true being" we mean what a man is in view of what he should be, we shall have to admit that it is a strictly historical being—seeing that it cannot be inferred either from the nature of man or from the nature of *this* particular man. What Socrates is going to be or going to be doing in the course of his life we cannot infer from the mere fact that he is a man, nor can we even see what Socrates's life is going to be and how he is going to turn out with such and such a characteristic, and so on. We cannot infer, for example, that Socrates is born with a prescription for every event of his whole life, that is, a prescription telling him exactly what he shall have to do in all circumstances. If the existence that he is going to have—the actual life that is going to be his—if that were not historical but strictly scientific, then from an inspection of Socrates and from a glance at the milieu we would be able to infer what will happen and what he will do. That, however, is not the case. That is why we call his actual life "historical."

By the term "history," we mean primarily history in the original sense, which is *narratio*, narration. Historical personages, actions, or events are first of all things that can be "reported" or "narrated." It is true that these things may also reveal more or less rational connections that exist between these personages or events, but insofar as these characteristics are rational, history approaches what is properly called science. It never becomes science, but it tends that way. History in this sense is a branch of learning where we seek rational connections between contingent existents. We do not reject history in this sense; an attempt should be made to attain this. We will, rather, reserve the term for what can only be narrated, what cannot be rationalized, for what is not communicable in a doctrinal way.

Events—such as Socrates took the streetcar today, and he had sausage for supper, and he got wet today because it was raining—all point out what Socrates did during the day or what happened to Socrates during the day. They are very true, but *note*, do

not despise these contingent events, because that is what you are most purely: contingency. If you do not realize this—if you think your life has a clear logical line, then you may be certain that you have a wholly disorderly being. You are unaware of the tremendous role of contingency and irrationality in your life. You are an abstract being? To nothing is being more abstract than to a cow, because it is all confusion. It is, indeed, in our contingent behavior, in the little things that make up our days and acts, that a man proves to be or not to be what he should be.

By "contingency" we do not mean here simply the fact that a man's action is free, and that such a particular action, for instance, might not have taken place or might have taken place had he done otherwise. *If it does take place, we call it contingent inasmuch as it might not have taken place. This is contingency in the extrinsic sense of the term*. In this sense, every creature is contingent no matter how necessary it may be in other respects. The immaterial beings are contingent in this sense—the God who created them might not have willed them. In that sense everything is contingent. This is not at all opposed to rationality. We, rather, are taking "contingent" in the sense of *intrinsic* contingency. We call *this* contingent more specifically by reason of the circumstances; we call man's life contingent, we call man's behavior contingent, because of the circumstances in which he acts and because his very person and very action is itself something contingent.

Take the following as an example of the contingency of our behavior due to the contingency of our life. Socrates is the son of Sophroniscus. He is waiting at this moment for a streetcar. There are children in the street, and they are exploding fire crackers. He is thirsty. It is the day after the banquet. Xanthippe is in good temper this morning because of a new hat, but he doesn't know this. While waiting for the streetcar, he notices that the sky is clear. He may be thinking of what he is doing or thinking of what

he should be doing. The streetcar finally arrives, but Socrates just in time slips by a truck rushing by, God knows why. What is it doing there while he is waiting? Well, anyhow there it is. There is no rational connection. This will have something to do with what he is about to do or not to do, and so on.

The circumstances of our actions are inexhaustible in wealth and complexity. Those in particular that a given person in a given situation must take into account so as to act well are, in a sense, inalienably his and incapable of being completely conveyed or communicated. The circumstances of every life are radically different even when they are apparently the same. They are inalienable. It is as if the universe for each individual were other. The circumstances that one individual must take into account are always different. Now, alighting from the streetcar, Socrates bumps into a woman loaded with parcels; eggs and cabbages are lying scattered about in the street. Ought he not to have watched his step better, the more so because the woman possessed very visible bulk? But Socrates, at the critical moment, was asking himself why Bergson saw in real movement an object of his "intuition of becoming." Which, now, were the relevant circumstances for Socrates, the ones he had to think of before all else? Was he right in this or wrong? Was he responsible for this or was he not? Should he account for what he has done? Is there some excuse for what he has done? What circumstances should he have taken into account? He is preoccupied. He is thinking about a certain problem. Did he have the right to be abstracted? And so on and so on. What is it, then? Who knows? Socrates should know somehow. But should he know completely, and can he be absolutely certain that he was quite right? *That* is contingency. Let us consider the circumstances.

Practical truth, as referred to action in an immediate situation, is not a matter of knowledge alone, as I hope has been taught to you. Practical knowledge—that is, fully practical knowledge,

the truth of prudence—consists not in the conformity of the mind with what is. If we had to have certitude about the circumstances in our act or know all the objective circumstances in our act, we could never act. If we had to know all or observe all the objective circumstances of our action, we would never be able to move or to refrain from moving, to think or not to think, because they are inexhaustible—quite inexhaustible. And accordingly, the truth of human behavior consists not in the mind's conformity to what is but in its conformity with the rectified appetite.

As St. Thomas says, and I quote:

> The true is received in a different way for the practical intellect than for the speculative intellect, as is said in *Ethics* VI. For the truth of the speculative intellect is received through the conformity of the intellect to the reality. And because the intellect cannot infallibly be conformed to the realities in contingent things, but only in necessary things, no speculative habit of contingent things is an intellectual virtue, but there is one only as regards necessary things. The truth of the practical intellect, however, is received through a conformity to the rectified appetite. In fact, this conformity has no place in necessary things, which do not come to pass by means of a human will, but only in the contingent things that can be accomplished by us, whether they are interior deeds or exterior things that can be made. And this is why virtue of the practical intellect is posited in reference only to contingent things—art for the things that can be made and prudence for things that can be done.[1]

1 *ST* I-II, q. 57, a. 5, ad 3: "[V]erum intellectus practici aliter accipitur quam verum intellectus speculativi, ut dicitur in VI *Ethic*. Nam verum intellectus speculativi accipitur per conformitatem intellectus ad rem. Et quia intellectus non potest infallibiliter conformari rebus in contingentibus, sed solum in necessariis; ideo nullus habitus speculativus contingentium est intellectualis virtus, sed solum est circa necessaria. Verum autem intellectus practici accipitur per conformitatem ad appetitum rectum. Quae quidem conformitas in

We cannot infer what a man ought to do *hinc et nunc* from our speculative knowledge of the facts or from moral science as such, however, elaborate. When a man acts, he does not infer what he has to do here and now (*hinc et nunc*) from the moral science he may possess. It may be perfect and yet he may act wrongly. The truth of an action resides in a type of judgment formed according to a mode of inclination and not merely according to a mode of cognition (*per modum cognitionis*), as St. Thomas says:

> It is possible for someone to make a judgment, in one way, through the mode of inclination, as one who has the habit of a virtue rightly makes a judgment about things that should be done according to the virtue, insofar as he is inclined to them. This is why, in *Ethics* X, it is said that the virtuous man is the measure and rule of human acts. But one can do it in another way through the mode of cognition, as someone instructed in moral science can make a judgment about the acts of a virtue even if he does not have the virtue.[2]

That is, a man may be a sound moralist without acting rightly himself; hence, knowledge alone does not tell us what is to be done here and now (*hinc et nunc*). Neither a just evaluation of the circumstances of an action nor even one's certitude as to what one ought to do here and now suffices to constitute prudential truth. Over and above these, it is requisite, for the

necessariis locum non habet, quae voluntate humana non fiunt, sed solum in contingentibus quae possunt a nobis fieri, sive sint agibilia interiora, sive factibilia exteriora. Et ideo circa sola contingentia ponitur virtus intellectus practici, circa factibilia quidem, ars; circa agibilia vero prudentia."

2 *ST* I, q. 1, a. 6, ad 3: "Contingit enim aliquem iudicare, uno modo per modum inclinationis, sicut qui habet habitum virtutis, recte iudicat de his quae sunt secundum virtutem agenda, inquantum ad illa inclinatur, unde et in X *Ethic.* dicitur quod virtuosus est mensura et regula actuum humanorum. Alio modo, per modum cognitionis, sicut aliquis instructus in scientia morali, posset iudicare de actibus virtutis, etiam si virtutem non haberet."

judgment to be true, that the agent should love the good as it is proper for *him* to love it and determine himself to do what he ought. If a man is not inclined toward the good, he may judge wrongly. It will all depend upon the kind of good that is concerned, but if, say, he is indifferent toward his neighbor, he will be unjust toward his neighbor in one way or another. He will judge this is what he ought to do, while actually he ought to do something else which is not a matter of knowledge alone. If he is wrongly disposed, he judges wrongly—his judgment will be practically false. In this respect, even moral science is of little use for virtue. It cannot provide the proximate and ultimate measure of conduct. Indeed, as St. Thomas says:

> Prudence implies more than practical science, for practical science embraces moral judgments only of a universal character, for example, that fornication is evil, that theft should be shunned, and other similar judgments. [They are judgments of practical science.] Even where this science is present, it may happen that reason, in regard to a particular act, is prevented from judging rightly; and this is why it has been said that practical science is of scant usefulness for virtue. Even though he happens to possess this science, man may sin against virtue. It is the office of prudence to judge rightly concerning the particular actions as they have to be performed in the present, and any sin cannot but falsify this judgment.[3]

3 *De virtutibus*, q. 1, a. 6, ad 1: "[P]rudentia plus importat quam scientia practica: nam ad scientiam practicam pertinet universale iudicium de agendis; sicut fornicationem esse malam, furtum non esse faciendum, et huiusmodi. Qua quidem scientia existente, in particulari actu contingit iudicium rationis intercipi, ut non recte diiudicet; et propter hoc dicitur parum valere ad virtutem, quia ea existente contingit hominem contra virtutem peccare. Sed ad prudentiam pertinet recte iudicare de singulis agibilibus, prout sint nunc agenda: quod quidem iudicium corrumpitur per quodlibet peccatum." See also *ST* I-II, q. 77, a. 2; *In VII Ethic.*, lec. 3.

When either speculative or moral science is alleged to be the proximate norm of conduct, it will degenerate into a system. By a "system" I mean a kind of universal file in which there would be a card for each situation in which a man may find himself and where he would find exactly what he would have to do. If he would carry it with him, he would always know what to do here and now. Such, however, is not the truth. From now on we will call "system" a conception of moral science according to the above description—a moral science that is the rectification of the practical mind of a man, his absolute guarantee of right conduct. We designate this moral science—a false conception of moral science—as a doctrine in which the prudent judgment is made according to a mode of cognition alone and does not depend upon the condition of the appetite. That is what we call a "system." Hence, in our opinion—that of Aristotle or St. Thomas—practical sciences are not systematic in that sense.

We may speak of a system in the speculative field but not in the practical order. The prudential act, then, is inalienable and incommunicable. Ultimately, every man has to judge his own act. Suppose, for instance, he is following advice—and every wise man will ask for advice. Very well, even then he must judge whether it is proper for him to follow it or not, and he must conform his conduct to his judgment, otherwise, he would not be performing a human act. No one else can act for us. Seen from this point of view, every man is alone in the midst of his fellow men. Here is the very center, the innermost core of our neighbor's behavior that is strictly beyond our power to judge in any absolute fashion. We have to judge our neighbor to some extent. We cannot prescind from differences between people nor from differences in conduct, but we must know that our judgment is never to be assumed to be identical with the judgment of the Supreme Judge. A man may be plainly criminal, fairly tried, and rightly judged and condemned to death. Yet this judgment

can never claim to finality or identity with that of the Supreme Judge. God alone sounds the hearts and plumbs the depths of the mind. The gulf between the Day of the Lord and the Day of man cannot be bridged from this side.

"Neque meipsum iudico," "I do not even judge myself" (1 Cor 4:3), says the Apostle. The human *narratio* of a person's actions can never transcend the field of appearances, no matter how much or how little foundation these may seem to have in reality. This holds true of our knowledge of other people, of our account of other people, but it also holds true of the personal or autobiographical diary. It is subject to the same limitation and is so, for the most part, to an even higher degree. Not only is it impossible for us to narrate our own life when we try to make our own history in a personal diary, but we also are making a selection. It is impossible to put there all that was there during our life. We will inevitably make a certain kind of selection and can never ultimately judge ourselves. What are we now in the face of what we should be? We should have reason to hope we are what we should be. But ultimately, we must say with the Apostle, "Neque meipsum iudico."

The aspect of inaccessibility of which we are speaking is not, therefore, a characteristic of the secrets of the heart as such, because anyone keeping a secret could communicate it if he chose. The *secretum cordis* must not be confused with the secret *intentio cordis*. Now, what I am referring to is the secret *intentio cordis*, and this is never plain to us. This is that about which St. Paul says, "Neque meipsum iudico." Some people think that we can be quite clear about our own present condition with respect to what we should be. This cannot be clear. We say that this is a secret that only I know. That is not the secret that we mean here. It is the one we do not know, even about ourselves. St. Thomas understands St. Paul's "neque meipsum iudico" this way:

> "I am conscious of nothing," that is, I have no awareness of any mortal sin. "My heart does not reproach me for any of my days" (Jb 27:6). But I am not thereby justified, that is, that does not suffice for pronouncing myself just, because certain sins can be hiding within me, sins I am not aware of, according to the psalm, "Who understands sins?" (Ps 19:12), and in Job, "If I am blameless, my soul will not be aware of this" (Jb 9:21) . . . . "He who judges me is the Lord," that is, it pertains to God alone to judge whether I am a faithful minister or not. For this pertains to the intention of the heart, which God alone can weigh, according to the proverb, "The Lord is the weigher of spirits" (Prv 16:2), and Jeremiah, "Base and inscrutable is the heart of man; who can grasp it? I the Lord, testing minds and scrutinizing hearts" (Jer 17:9).[4]

But it is precisely in this very attitude, so plainly expressed by St. Paul and explained here by St. Thomas, with its background of humility and hope, that the Christian sense of humor is ultimately rooted. We can never judge absolutely, not even ourselves.

Here arises a rather original existentialist meaning of the expression "objective" being, and of the other expression, "subjective" being. When an existentialist speaks of objective being, he means the kind of being we have in the mind, either in the

4 *In I ad Cor.*, c. 4, lec. 1, nn. 192–93: "[N]ihil mihi conscius sum, id est, non habeo alicuius peccati mortalis conscientiam, secundum illud *Iob* XXVII, 6: neque reprehendit me cor meum in omni vita mea. Sed non in hoc iustificatus sum, id est, non sufficit ad hoc, quod me iustum pronunciem, quia possunt aliqua peccata in me latere, quae ignoro, secundum illud Ps.: delicta quis intelligit? Et *Iob* IX, 21 dicitur: et si simplex fuero, hoc ipsum ignorabit anima mea. . . [Q]ui autem iudicat me Dominus est, id est, ad solum Deum pertinet iudicare utrum sim fidelis minister an non; hoc enim pertinet ad intentionem cordis, quam solus Deus ponderare potest, secundum illud *Prov*. XVI, 2: spirituum ponderator est Dominus. Et *Ier*. XVII, 9: pravum est cor hominis et inscrutabile, quis cognoscet illud? Ego Dominus probans renes et scrutans corda." See also *ST* I-II, q. 100, a. 9, c.

mind of our neighbor or in our own mind, and this objective being may differ widely from the true being, from that which really is. That is, the being that we attribute to ourselves may very well be only intentional being—*ens rationis*. When we think of someone as other than he is, then we are not in the truth. That being (subjective) exists only in our lives. If we would understand objective being in this sense, then only God's mind would correspond to what really is here. Our true objective being is that which we have in the mind of God, which alone adequately expresses the being that is truly ours. That is the point we must bear in mind if we are to understand in what sense a man's true being is radically historical and inaccessible to the Day of man. No one but the Maker of History could "narrate" the life of Peter. The "sufficient reason" of what happens in this world in this connection is not itself in this world; it is not "subjectified" in the things. As seen in the things of which it is composed, the world reveals itself full of irrationality and absurdity. And from this point of view, the "system" of human behavior and human action can be described as an attempt (or worse, a determination) to find a sufficient reason of the world within the world itself. This is why the "system" is bent on eliminating all objective irrationality as at least irrelevant. It tends to impose itself as a "sufficient reason." Hegel did give a sufficient reason for everything. He considers the real, for if it is real, then it shall be rational.

How superficial and how perverse such an outlook on the world is, together with the type of action it inspires, we shall best understand in considering that the absolutely universal causality of God, as well as his properly divine wisdom, appear most strikingly in the intrinsic contingency and inherent absurdity of the world. For only God is the determinate cause and only God is the *per se* cause of that which is in itself contingent. God is the cause of being simply speaking. Being is divided into *per se* and *per accidens*, but God is the cause of both and the determinate cause

of both. When we are the cause of something that is strictly accidental, it is fortuitous and accidental only. If we were the *per se* cause, it would cease to be fortuitous and cease to be contingent. But God can cause something to be contingent without taking away the contingency. For contingent events he arranges contingent causes. With respect to him this event is not contingent. It is in itself contingent. This is strictly irrational, for a contingent cause is *causa per accidens et causa indeterminata*, an accidental cause and an indeterminate cause. However, from such a cause we can infer nothing; it is irrational. As St. Thomas and Aristotle have already said, chance and fortune are *sine ratione*, they are irrational. You can make no syllogism with a contingent proposition except when a thing has already taken place. No creature—and in this I mean every creature literally—can be the *per se* cause of what is either casual or fortuitous.

To criticize contingency, to rebel against contingency in our life—the unexpected thing that may happen even during this talk, if it has not already happened—to rebel against such things is actually to rebel against divine wisdom, for no contingent thing happens without having been somehow arranged or permitted by the infinite wisdom of God. We forget this in our practical life. Ecclesiastes, in examining the practical order of our universe, tells us what the world looks like when viewed in its own light, if the world is to be a justification of itself. If we are to seek a sufficient reason for everything that happens in the world, here is how the world looks under the sun (and note the expression "under the sun," for there is also "above the sun"):

> Under the sun the race is not to the swift, nor the battle to the strong, nor bread to the wise, nor riches to the learned, nor favor to the skillful: but time and chance are in all. (Eccl 9:11)

> There are just men to whom evils happen as though they had done the works of the wicked, and there are wicked men who are as secure, as though they had done the deeds of the just. (Eccl 8:14)

This is disorderly for a reason to be found within the universe itself. Against such a universe we might well resolve exactly as does the existentialism of despair of Sartre or Camus. It is something absurd. For example, here is Professor Bummelklotz, of all people, who strikes oil in his backyard while digging for water. That is an example of absurdity. On the other hand, his neighbor, who is a most deserving man with eighteen children and no job, he digs all over his yard and finds only old shoes and broken milk bottles.

And it was Hegel—the way had been prepared by Spinoza and Leibniz—who discovered in the nineteenth century that the light of the Sixth Day[5] is actually "under the sun," whereas we hold that it is entirely "above the sun," that is, it is itself the work of God, complete with its beginning and end in time. He discovered that the Sixth Day is actually "under the sun," and here is how he explains or expresses this opinion, which is abominable: "What irks and infuriates us is not what is, but the fact that it is not as it should be." (This is a very fine remark.) "Once we know," he says, "that it is as it must be (even when apparently it is not as it should be)—that is to say, not arbitrary or contingent—we also recognize that it should be as it is." So everything is as it should be, ultimately. Actually, everything is as it is from God but not from ourselves.

Karl Marx is even more concrete in applying the idea of "sufficient reason," that is, the "system," in this matter. Here is how he interprets the following situation: Socrates—this is the

5 Gen 1:31: "Viditque Deus cuncta quae fecerat et erant valde bona. Et factum est vespere et mane, dies sextus." ["And God saw all that he had made and it was exceedingly good. And evening came to pass, and morning, the sixth day."]

"sufficient reason" that explains everything, no doubt—believes in immortality, and Xanthippe, his wife, drenches him with a pail of water "because the production relations are lagging behind the forces of production." This justifies all the injustices of the past and all the injustices of the future. This justifies all the misery that has existed. It is perfectly all right. The dialectics of reality and of society demand that at a certain time the production relations pass the forces of production. This man stole your watch, but how could you have a universe in which no watch is stolen? Where is the universe in which such a law must apply? It is terribly remote from our own conception. If a man could get away with the smallest lie, provided it is a true lie, the universe would be to us intolerably absurd, and mercy would become a farce. If there was not something to forgive, then what would be the function of mercy? What would be the measure that mercy overcomes?

The philosophical doctrine that properly concerns the opinions advanced by existentialists is not the doctrine of being, as I have already insinuated; rather, it is the doctrine of the good, nor do we mean the transcendental property that is convertible with being. We are talking about the good that divides being into *bonum simpliciter* and *bonum secundum quid*, good simply and good in a qualified sense. That division has been indicated already at the beginning of this talk. The good man is good, absolutely (*simpliciter*), in the prudent man. He is good absolutely not by reason of his absolute being, not by reason of his *esse simpliciter*. The *esse simpliciter* is only good in a certain respect (*bonum secundum quid*). By reason of an ultimate perfection man is good *simpliciter*, an ultimate perfection that derives from accidental being (*esse secundum quid*), and in itself is separable from his absolute being. For example, why is Socrates a good man? Because he has virtue; but virtue can be separated from him. He could be no good but would still be a man, and this man would retain substantial being and *esse simpliciter*, but he

would be no good. Why is he going to have virtue? Virtue is a quality, an accident, and a predicamental accident. That Socrates today is a good man is also accidental in the predicable sense of accident, *adesse* or *abesse*. This is true till the day of his death. It is only in God that what is being in the absolute sense is good in the absolute sense. All being is said properly of God, whose essence is his being. It may be well to remember here that there can be found in God no basis for a distinction, even of reason, between his existence and essence.

> Something can be called good both due to its existence and its property or by an added relation, as a man is called good both insofar as he is just and chaste or as ordered to beatitude. Therefore by reason of the first goodness, being is convertible with good, and vice versa, but by reason of the second, good divides being.[6]

It follows from the preceding that the substantial or absolute being of the creature is formless, as it were, by comparison with the accidental being that renders it good in the absolute sense. There is no good but [being] *secundum quid*. Everything depends on it for us. St. Thomas says,

> in God, the absolute goodness itself is identical with his essence; in us, however, it is to be considered according to the things that are superimposed on the essence.[7]

If, then, by "existence" were meant that actuality that is by reason of the things "superimposed on the essence," which determine

6 *De ver.*, q. 21, a. 2, ad 6: "[A]liquid potest dici bonum et ex suo esse, et ex aliqua proprietate, vel habitudine superaddita; sicut dicitur homo bonus et in quantum est et in quantum est iustus et castus, vel ordinatus ad beatitudinem. Ratione igitur primae bonitatis ens convertitur cum bono, et e converso; sed ratione secundae bonum dividit ens."

7 Ibid., a. 5, c.: "Et ideo ipsa absoluta bonitas in Deo idem est quod eius essentia; in nobis autem consideratur secundum ea quae superadduntur essentiae."

whether or not a man is "good absolutely," we would be willing to say that, simply speaking, essence is prior to existence. For it is not merely by reason of his true being, dependent upon an *esse secundum quid*, that a good man grows into a truer likeness of him "Who is." It is by reason of being what we should be because of some accidental being, virtue, that we resemble God most, not by reason of our *esse simpliciter*. A good man resembles God more profoundly than the greatest of the devils. The very greatest of them resembles God much less than this charwoman who has charity. She is closer to God. If we want to have a perfect idea, as perfect as we could have, of what it is to be similar to God, we would not go to the depths of hell to see the greatest of all angels, who, in some respects, resembles God most. To consider things absolutely, it would be much better to look at the charity of this charwoman, that is, charity in virtue of which there is a univocal resemblance between this person and God. This resemblance is by reason of charity, which is the measure of the *lumen gloriae*, the light of glory that man shall receive; for the *lumen gloriae* proportions us to God as he is in himself by means of himself. If we do not see God as he is in himself, then we do not see him simply. There is not a univocal participation in the divine nature, according to the object of the divine knowledge, merely entitatively speaking. Indeed, the answer to the question "To be or not to be?" gives rise to a far more important query. It is good to recall this; some contemporary Thomists think they are solving the problem of existentialism by making the distinction between essence and existence. It has nothing to do with that.

To Hamlet's question, "To be or not to be?" the answer that we shall inescapably be is not the final solution. It may be our tragedy. The certainty of life beyond death leaves in our historical being—truly a being-toward-death in which our lot shall be established once and for all—a supreme concern about the one thing necessary: to be *good* in the absolute sense, not *to be*

in the absolute sense. The choice is not, forthwith, between "to be or not to be"; it is between goodness absolute and the kind of absolute being that, in itself, may as well as not be superfluous, expendable, and destined for the refuse-heap—*de trop*, as one writer puts it. For the "absolute being" of a rational creature confirmed in evil is a being *de trop*, seeing that, for him at any rate, if not for the universal species, it would be better not to exist. For any condemned man or any condemned angel, it would have been better not to be. What may be *de trop* for man is, indeed, his *esse simpliciter*.

In the final analysis, this problem of existence, of true being, of historical being is really a moral and personal one. The solution lies not in any science but in our conduct. No amount of speculative nor even of practical doctrine, whether natural or supernatural, can make a man to be as he should be. Yet, that is what many critics demand as an essential condition of true doctrine. It has been said, for instance (and you may know this), that the demonstration of God's existence and of the immortality of our soul—and some have included faith as well—could hardly be certain unless they irresistibly compel one to pursue the good and to be a saint, as if such knowledge had to be practical truth and thus constitute prudential judgment. Whoever seeks a doctrine that is to be "existential" in this sense is on the road to despair.

We thank you.

TEACHING AS A FUNCTION OF DIVINE GOVERNMENT

Charles De Koninck

No matter what your future occupation, teaching by word and example will be part of it. Let us therefore face the question, on this important day in your life, just what teaching is.

As Aristotle observed, man is born the most helpless of all animals—naked, defenseless. But this is compensated for, he adds, by reason, hands, and tongue. For these organs—hand and tongue—have a freedom and infinity that reason demands. But, as we all know, reason, manual dexterity, and speech develop gradually. The child would remain quite helpless if left with what nature alone provides. I mean that native indigence is not immediately compensated for by the child's own reason, hands, and organ of speech—assuming that noise is not all the same as articulate speech. The original helplessness is to be immediately compensated for by the reason, hand, and speech of the parents.

Among some animals other than man there is likewise a certain amount of teaching. But the organic structure of those animals is by nature so highly specialized that the range of development, as compared to man, is extremely limited, and achieved in a very short time. On the contrary, what a man has to learn, if he is to live as the rational creature he is, takes a very long time. In fact, the greater his innate ability, the more help he will derive from those who are already trained in thought, behavior, work, and communication. Any person who all too soon and too

[This is an undated typed manuscript from Folder 22, part 11, in the De Koninck archive; given its reference to teaching for "nearly thirty years," it would likely have been composed very late in De Koninck's life, around 1963. It appears to be an address to students, presumably at a commencement ceremony.]

readily believes that he stands in need of no one else will never get very far and bears witness to a mediocre endowment.

The parent of the child, and especially the mother, is the original teacher, and in this particular regard, the most important of all. For, as Plato taught,

> Don't you know that the beginning of anything is the most important part of every work and that this is especially so with anything young and tender? For at that stage it's most plastic, and each thing assimilates itself to the model whose stamp anyone wishes to give it.[1]

For man, he adds, though gentle and capable of being the most divine of all animals if rightly trained, becomes if brought up badly the wildest of all creatures that live upon the earth,

Aristotle and St. Thomas went so far as to say that unless a child has been encouraged to like what is right and beautiful, and to dislike the wrong and the ugly, *before* the so-called age of reason, it will be almost impossible for it to acquire virtue in later life. Notice, now, that they are dealing with teaching, by example and by word, before the child is sent to school.

The rights of the child, then, who is the common good of its family, are not confined to shelter, clothing, and nourishment; its chief right is to a proper education right from the start. Education must begin at home; it is the parents' charge. An increasingly difficult one. Greater leisure inflicts upon the parents more distractions than man has ever known; irrelevancies within the home and without are bound to expand and, accordingly, there will be an unconscious, growing tendency to evade and postpone the chief function of parenthood until the burden

1 Plato, *The Republic*, Book 2, 377b. [We have replaced De Koninck's translation, which appears to have been improvised from a French translation, with that of Allan Bloom: *The Republic of Plato*, trans. Allan Bloom, 2nd edition (New York: Basic, 1991), 54.]

can be pressed upon professional shoulders. This is unfair to the child as well as to the persons entrusted with its further training.

When the Angelic Doctor turns to the share that man has in divine government, his first question is "Utrum unus homo possit alium docere," "Whether one man can teach another."[2] The question whether man shares in divine government through self-propagation of his nature comes last of all. Notice, now, that the *Summa* is a theological treatise, in which what is most perfect in itself is considered first. And so, when theology treats of man's share in divine government, the first activity considered is that of teaching, because it the most perfect; and the very last to be considered is physical generation, which, no matter how good in itself—for after all, we owe to our parents the goodness of existence and of our natural life—yet compared to teaching, it is far inferior.

Why should illumination and teaching be so superior to any other activity ad extra, as regards externals? The reason is that knowledge is life of the highest kind. Concerning God, Aristotle had reasoned thus: God is pure actuality; that which is most actual is also most alive; but to think is to be alive in the highest degree; the life of God, therefore, is one of thought, thought of the most excellent actuality, namely, that of thought itself; it follows that God's life, which *is* God, is to think himself as pure thought, and this *is* God, Hence, to be a proper cause of such life is to be a cause of the highest kind. Little wonder that the very first fruit of charity, the first of the spiritual works of mercy, should be the act of teaching the ignorant: "docentes ignorantes."[3]

But how is it, you may ask, that we can apparently play around so freely with the word "parenthood"? When we call the teacher a "parent," are we not resorting to metaphor, as when we

2 *ST* I, q. 117, a. 1.

3 *ST* II-II, q. 32, a. 2, c.

speak of "mother" earth, or of a celestial body such as the sun as a "father" of life?

In his commentary on Saint Paul's Epistle to the Ephesians, Aquinas asks how we are to understand the statement: "I bend my knees to the Father of our Lord Jesus Christ, from whom all fatherhood in heaven and on earth receives its name" (Eph 3:14). One may wonder, St. Thomas says, whether fatherhood among the angels and on earth is derived from the fatherhood in God. And a reason for our difficulty is that the name "father" is first said by us of the parent who gives us life—that is, our natural life—for this is the father whom we know first. Hence it is only by an extension of the word that we can say "Father" of God, so that it is from *our* fatherhood that the fatherhood of God receives its name.

To this St. Thomas replies that a name may be taken in two ways: a) either as expressing or signifying our intellectual conceptions, for vocal sounds refer to or are signs of the affections or conceptions that are in the soul, and in this sense a name is first verified of creatures, then of God; or b) again, the same name may be taken as manifesting the nature of what is named as it is in itself, outside our conceiving and thus naming it, and this is to be found in God primarily. Hence the name "fatherhood," if meant to signify the conception in our intellect that imposes the name upon the thing, is verified primarily of creatures, and then of God, since we know the creature before we know God. But, if taken as signifying the very thing named and not primarily the way we conceive of the thing, it is to be found in God before it can be said of us, seeing that the power of generation is in us from God.

> It is as if the Apostle said, "Fatherhood in creatures is merely nominal, as it were, or vocal, whereas the divine fatherhood, by which the Father gives all of the divine

> nature to the Son, without any imperfection whatsoever, is true fatherhood—that is, fatherhood in the fullest way."[4]

From this it is plain that if we attend to the *res significata*, to the thing named, a human father shares more profoundly in the fatherhood of God in educating his offspring than in generating. Accordingly, the teacher who does not share in natural generation nonetheless is more truly a father of his pupil than the one who merely gave birth to the child. The substance of the offspring is of course the basic good. Still, "to be a human person" is not the same as "to be a good person"; for the goodness that is ours in virtue of our substantial being is only relative, *secundum quid*.[5] Hell is full of substantial being, all persons, but they are good only *secundum quid* and not *simpliciter*; it would be better for these not to be at all rather than to be absolutely. Naturally speaking, a man can become a good person only through proper education, both moral and intellectual. He who devotes himself to this task enjoys *vera paternitas*.

I consider myself a very ordinary teacher, and it is therefore with well-founded misgivings that I emphasize the importance and nobility of teaching. All the same, I have been at it for nearly thirty years. During this time, I have had a large number of young priests as students in philosophy, and in theology as well. Some of these are now teaching in seminaries and universities. It has happened many times: Only two weeks ago I received a letter in which a teaching priest expresses frustration. Almost as old as I am, he feels that in devoting nearly all of his time to study and teaching he not doing the work of a priest, that he should now get into a parish and do some active work. That,

4 *In Ad Ephes.*, c. 3, lec. 4, n. 169: "[Q]uasi dicat: paternitas quae est in ipsis creaturis, est quasi nominalis seu vocalis, sed illa paternitas divina, qua Pater dat totam naturam Filio, absque omni imperfectione, est vera paternitas."

5 See *De ver.*, q. 21, a. 5, c.

of course, is the business of his bishop or religious superior. Meanwhile I refer him to St. Thomas's *Quaestiones quodlibetales*, where he asks "Utrum vacans saluti animarum peccet circa studium tempus suum occupat," "Whether one who has time to attend to the salvation of souls sins if he occupies his time with study."[6] Here is the answer of this great Doctor of the Church:

> It should be said that any two things can be compared to each other both simply speaking and in reference to a certain situation. For nothing prevents what is simply speaking better from being less choiceworthy in a certain situation; for example, to study philosophy is simply speaking better than acquiring wealth, but in a time of need acquiring wealth is more choiceworthy, and a certain precious pearl is more dear than one loaf of bread, but in a situation of hunger, the bread would be preferred, according Lamentations 1:4: "they gave everything precious for food to refresh souls."
>
> One should be aware, however, that in every craft the one who plans the execution of the craft, the one called the master craftsman, is simply speaking better than any manual laborer, the one who carries out the deeds according to what is planned out for him by the other. This is why, in constructing an edifice, the one who plans out the building deserves a greater payment, even though he does nothing with his hands, than does the manual artisan, who chops the lumber and hews the stones. Now, in the spiritual edifice, there are some who are like manual workers, those who are particularly intent upon the care of souls, for example, in administering

6 *Quodl*. I, q. 7, a. 2. [The title of the article reads slightly differently in the actual text, both in the introduction of question 7 and in the first objection of the article: "de studio theologiae, utrum aliquis teneatur dimittere studium theologiae, etiam si sit aptus ad alios docendum, ad hoc quod intendat saluti animarum," and "Videtur quod aliquis qui potest saluti animarum curam impendere, peccet, si circa studium tempus occupat."]

the sacraments or particularly doing something of this sort. But the ones who are like the principal artisans are the bishops, who command and plan out how those mentioned ought to carry out their office; this is also why they are called "bishops," that is, "overseers."

And in a similar way, teachers of theology are like principal artisans, those who inquire into and teach how others ought to promote the salvation of souls. Therefore simply speaking it is better and more meritorious to teach sacred doctrine, if it is done with good intention, than to devote oneself to the particular care for the salvation of this or that person. This is why the Apostles says of himself, in 1 Corinthians 1:17, that "God did not send me to baptize but to evangelize," even though baptizing is a work most conducive to the salvation of souls, and in 2 Timothy 2:2 the Apostle says, "These things commend to faithful men who will be worthy of also teaching others." For even reason demonstrates that it is better to instruct about matters pertaining to salvation those who can benefit both themselves and others than those who can benefit only themselves.

Nevertheless, in a certain situation, when there is an imminent need, both bishops and teachers would be obligated, by an interruption of their proper office, to be particularly intent upon the salvation of souls.[7]

7 Ibid.: "Dicendum quod aliqua duo possunt comparari ad invicem et simpliciter et secundum aliquem casum. Nihil enim prohibet id quod est melius simpliciter, in aliquo casu esse minus eligendum, sicut philosophari est simpliciter melius quam ditari, sed in tempore necessitatis ditari est magis eligendum; et aliqua pretiosa margarita est carior uno pane, et tamen in aliquo casu famis, panis praeeligeretur, secundum illud *Threnorum* IV: dederunt pretiosa quaeque pro cibo ad refocillandas animas.

"Est autem considerandum quod in quolibet artificio simpliciter melior est qui disponit de artificio, et dicitur architector, quam aliquis manualis qui opera exequitur secundum quod ei ab alio disponitur; unde in aedificiis construendis maiori mercede conducitur qui disponit de aedificio, licet nihil manibus operetur, quam manuales artifices, qui dolant ligna et incidunt lapides.

Saint Thomas is merely repeating the early Fathers when, in his commentary on 1 Corinthians he says that the teachers in the Church are the "eyes" of the Mystical Body; that those who lead a more fully practical life are its feet, and the prelates its hands.[8] To be the eyes of the Mystical Body is, of course, most fully true of those who teach divine truths—I mean revealed truths. And so we think immediately of professors of theology. Yes, but who first speaks to the child about God, about his Incarnation, about his Mother and his foster father? The child's own mother, and sometimes its own father. Hence the mother, as a teacher of her child, is truly an eye of the Church in that full sense of the word.

But how far does human teaching as a function of divine government go? Is it confined to the truths of Faith? This is of course the highest function of all. But inasmuch as a living faith seeks understanding, a Christian mind naturally strives to use

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In aedificio autem spirituali sunt quasi manuales operarii qui particulariter insistunt curae animarum, puta sacramenta ministrando vel aliquid huiusmodi particulariter agendo; sed quasi principales artifices sunt episcopi, qui imperant et disponunt qualiter praedicti suum officium exequi debeant; propter quod et 'episcopi,' id est superintendentes, dicuntur.

"Et similiter theologiae doctores sunt quasi principales artifices, qui inquirunt et docent qualiter alii debeant salutem animarum procurare. Simpliciter igitur melius est docere sacram doctrinam, et magis meritorium, si bona intentione agatur, quam impendere particularem curam saluti huius et illius. Unde Apostolus de se dicit, *I ad Corinthios*, I: non enim misit me Christus baptizare, sed evangelizare, quamvis baptizare sit opus maxime conferens saluti animarum; et *II ad Timotheum* II, dicit Apostolus: haec commenda fidelibus hominibus, qui idonei erunt et alios docere. Ipsa etiam ratio demonstrat quod melius est erudire de pertinentibus ad salutem eos qui et in se et in alios proficere possunt, quam simplices qui in se tantum proficere possunt.

"In aliquo tamen casu, necessitate imminente, deberent et episcopi et doctores, intermisso proprio officio, particulariter intendere saluti animarum." [After the colon in the text above, De Koninck gives neither the Latin nor a translation, just ellipses and the citation, apparently intending to insert the text later. He does include a parenthetical note: "Voir 'In Memory of a Catholic Teacher.'" This may be a note to himself of where to find a translation.]

8 See *In I Corinth*., c. 12, lec. 3, n. 739.

even the purely human disciplines and arts, for all of these can and must contribute to turn our whole being to the One who is that utter knowledge of himself in which He wants us to share. This is achieved by teaching wisely, no matter what subject. Even grammar and mathematics can be taught with wisdom. No matter how humble the subject of his art or science, the true teacher must have some grasp of where his particular discipline stands with regard to all the other departments of knowledge. He does not have to deviate from his subject and teach philosophy or theology instead of the art of computation, for instance. But the pupil must be discreetly made aware of the limitations of any given subject. I mean—to take an extreme example for the purpose of illustration—that the mathematician who would breed contempt for theology, or the theologian who would underrate mathematics, would be an unworthy spiritual parent. No matter what the subject, it must be taught in such a way that it does not divide the mind of the student, by over-emphasis, or by setting one discipline against another, for this would be to instill the very opposite of wisdom. Now, it is precisely because of the *wisdom* that, no matter how unostentatiously, informs his subject, whatever it may be, that any such teacher is an eye of the Church.

Permit me to say a final word on behalf of your teachers here present. Since they are true parents of your spiritual life, all your life long you will owe them a duty of true filial piety. Just as the child will never be able to render full justice to the parents who gave it birth according to the flesh, neither will you ever be able to do full justice to those who devote their whole lives to the teaching of truth. (I'm quoting Aristotle.) Some people seem to have misunderstood this doctrine, which St. Thomas has made his own. Of course, when these great teachers say that it is impossible to achieve justice in the matter, they are not exactly speaking of money, but neither do they exclude it. For some are inclined to reason: Since we cannot pay adequately,

why try to pay at all? Most of you graduates will one day be parents. Remember then that the sacrifices—including material exactions at the expense of better plumbing—that you will have to make for the education of your children are the noblest thing you can do.

You owe a very special duty of gratitude, of filial piety, to those of your teachers who devote their whole lives to a common good that reaches far beyond that of the family. One chief reason for the excellence of celibacy is that this state of life allows one to share more deeply and universally in the true fatherhood of God, which is purely spiritual. Bearing in mind the distinction we quoted from St. Thomas, the teaching nun is a mother in the most profound sense of this word, just as the priest, both as teacher and as minister of the sacred for the life of divine grace is most truly a father. In fact, that is precisely the reason we give them these names.

Our Lord says, in St. Matthew: "You therefore are to be perfect, even as your heavenly *Father* is perfect" (Mt 5:48, emphasis added). And now apply these words to yourselves as teachers, and to all those who have helped you to know the Father who is in Heaven, and to understand what this means to each and every one of us.

THE ROLE OF WOMAN IN THE WORK OF REDEMPTION

Charles De Koninck

During the centenary celebrations of Mary's apparitions in Lourdes, an author of the Reformed Church wrote:

> It is not because we stand in need of feminine and maternal tenderness that we should bring into the drama of salvation a feminine figure. If God had judged this to be relevant, He would have taken it upon Himself to arouse such a figure, and that in a fashion which would not make of her a screen to separate us from her Son.[1]

We must take it for granted that the author of these words does hold that Christ is truly the Son of Mary, and that her Son is a divine person. It is plain, too, that the author believes the Sacred Scriptures to be the word of God to man.

The author's statement is in fact quite amazing, seeing that what he calls "the drama of salvation" was begun by a feminine figure. For we read in Genesis that "the Lord God said: 'It is not good for a man to be alone: Let us make him a help like unto himself'" (Gn 2:18). And the Lord God made what he took from Adam into a woman and brought her to Adam. "And Adam said: 'This now is bone of my bones and flee of my flesh; she shall be called woman, because she was taken out of man'" (Gn 2:23).

[This was a talk given at a conference. It exists as a corrected typed manuscript in Folder 19, part 7, of the archive. Although not dated, it was probably written in the early 1960s, given that the words quoted at the outset were from 1958, the centenary of the apparition at Lourdes.]

1 [De Koninck gives no indication about the identity of this "author of the Reformed Church" or of the work being quoted.]

From the very beginning the Fathers of the Church pointed out the inverse proportion between the formation of our first parents and the formation of the Son of Man from the Virgin Mary. Eve, the first virgin, was taken and formed from Adam, whereas Christ received his humanity from the Virgin Mary, who can say of her Son what Adam said of the one whom God made a help like unto himself: He is bone of my bones and flesh of my flesh. And she can say in all truth that he is the Son of Man *because* he was taken out of woman.

In fact, what the author calls "the drama of salvation" was begun in the person of the woman whom God had formed from the first man with the distinction of making him "a help like unto himself." For it is to the woman that the Serpent addressed himself. It is in her that Satan aroused the desire for a premature confirmation in the good: She desired this security in her own time, of her own accord, over and against the commandment that God had given to the man.

Who first seduced them to that revolt? The infernal Serpent,

> He it was, whose guile,
> Stirred up with envy and revenge, deceived
> The mother of mankind.[2]

> And the woman saw that the tree was good to eat [that is, the tree of knowledge of good and evil], and fair to the eyes, and desirable for the sake of acquiring knowledge; and she took of the fruit thereof, and did eat, and gave to her husband who did eat. (Gn 3:6)

Plainly, on this account, it is through woman, seduced by the Serpent, that sin came into the world.

2 Milton, *Paradise Lost*, Book I, lines 34–36.

> "It is the woman," Adam replied to God, "whom thou gavest me to be my companion, who gave me of the tree, and I did eat." And the Lord said to the woman: "Why hast thou done this?" And she answered: "The Serpent deceived me, and I did eat." (Gn 3:12–13)

Now, this role of the first Eve will be emphasized by the Apostle: "And it was not Adam who was seduced, but the woman, who, seduced, made herself guilty of transgression" (1 Tm 2:14).

Now, we do not say that Eve committed the fault of Adam. We did not sin in Eve. It was the fault of Adam that was transmitted to their posterity. For, as St. Paul says, "by one man sin entered into this world, and by sin death; and so death passed upon all men, in whom all have sinned" (Rom 5:12). This same Adam, as St. Paul adds, is a "figure of him who was to come" (Rom 5:14). "For by a man came death, and by a man the resurrection of the dead. And as in Adam all die, so also in Christ all shall be made alive" (1 Cor 15:21).

Why, then, did God bring woman into "the drama of salvation"? Why did he not let Adam sin first, and quite on his own accord? Why did God in fact plan things in such a way that the transgression, committed by the man, the first made, had already entered the world through the mediation of the woman who had been seduced by the one "who was a murderer from the beginning" (Jn 8:44)? It is God himself who underscored this mediation: "Because thou hast hearkened to the voice of thy wife, and hast eaten of the tree, whereof I commanded thee that thou shouldst not eat, cursed is the earth in thy work" (Gn 3:17).

Why does Genesis emphasize woman, taken from Adam to be a help like unto himself? Because, as God had said, "it is not good for man to be alone" (Gn 2:18). And this man is Adam, a figure of the One Who is to come.

God *might* henceforth have left woman in the shadow. But in fact, he most definitely did not. In announcing the work of redemption to the Serpent and to our first parents, God takes it upon himself to maintain the feminine and maternal figure: "I will put enmities between thee and the woman, and thy seed and her seed; she shall crush thy head, and thou shalt lie in wait for her heel" (Gn 3:15). It is God himself who speaks of the hostility between the one who "is a liar, and the father thereof" (Jn 8:44) and the woman; of the feud between the one "in whom there is no truth" (Ibid.), "the great dragon . . . , that old serpent, who is called the devil and Satan, who seduceth the whole world" (Rv 12:9), and the posterity of the woman! Whoever the persons or person in question, the figure is that of woman playing an eminent role, well defined, in the great work of Redemption. And the Lord said to the woman: "I will multiply thy sorrows, and thy conceptions: in sorrow shalt thou bring forth children, and thou shalt be under thy husband's power, and he shall have dominion over thee" (Gn 3:16). Of these children we understand that they are the offspring that are hostile to the offspring of the serpent, given birth to in the pangs God gave woman to endure. "Adam called the name of his wife Eve ['Living']: because she was the mother of all the living" (Gn 3:20).

Forever woman, from the beginning to the bitter end, from Genesis right into the Apocalypse.

> And a great sign appeared in heaven: A woman clothed with the sun, and the moon under her feet, and on her head a crown of twelve stars: And being with child, she cried travailing in birth, and was in pain to be delivered. And there was seen another sign in heaven: and behold a great red dragon, having seven heads, and ten horns. . . . [A]nd the dragon stood before the woman who was ready to be delivered; that, when she should be delivered, he might devour her son. (Rev 12:1–4)

How, then, can we possibly say that the feminine and maternal figure, so far as the work of salvation is concerned, is invented by our need for that kind of tenderness? All the words we have quoted are in principle accepted by the author who makes this allegation.

Now, this woman, if she could escape our attention, is nonetheless, on the part of the dragon, the ancient serpent, the object of a well-defined preoccupation.

> And when the dragon saw that he was cast unto the earth, he persecuted the woman, who brought forth the man child. . . . And the serpent cast out of his mouth after the woman, water as it were a river; that he might cause her to be carried away by the river. And the earth helped the woman, and the earth opened her mouth, and swallowed up the river, which the dragon cast out of his mouth. And the dragon was angry against the woman: and went to make war with the rest of her seed, who keep the commandments of God, and have the testimony of Jesus Christ. (Rv 12:13-17)

Who, then, has decided that it was opportune to introduce a feminine figure into both the order of original justice and the order of redemption? That among other reasons God did do this because we stand in need of feminine and maternal tenderness does not alter the fact that God did choose to do what he did—and nothing of what he does is done in vain. Nor should we be blind to the feminine and maternal tenderness of Mary toward the Son of God. God has no need for tenderness from anyone. "God is love" (1 Jn 4:8), but this love, in which we share by the theological virtue of charity, is not a passion. But if God, in his humanity, does in fact deign to stand in need, even of sensible affection, and of sensible signs of it, who will reproach him? He has freely willed to have a Mother, and she was no doubt such as

the Author of Nature wants a mother to be. And Mary was no doubt the Mother of the Son of God precisely as he wanted her to be. If the Eternal Word, the Image of the Father, chooses to be *born of woman*, must he therefore divest her of feminine and maternal tenderness toward him who is her Son? Can we expect him to make her unnatural? Contrary to nature? Must his own feelings be contrary to those inspired by nature?

He most certainly did not despise the signs of sensible tenderness.

> And turning to the woman, he said unto Simon: "Dost thou see this woman? I entered into thy house, thou gavest me no water for my feet; but she with tears hath washed my feet, and with her hairs hath wiped them. Thou gavest me no kiss; but she, since she came in, hath not ceased to kiss my feet. My head with oil thou didst not anoint; but she with ointment hath anointed my feet. Wherefore I say to thee: Many sins are forgiven her, because she hath loved much." (Lk 7:44-47)

The Holy Scriptures are replete with feminine figures who play leading roles in God's plans for the salvation of the world. Thus Genesis reports on a certain woman named Sara, a free woman, the wife of Abraham, who persisted in calling her his sister, as she called him her brother—which was not without giving rise to certain misunderstandings, as in the case of Abimelech, who excused his attempts at courting her, saying, "Did he [Abraham] not say to me: 'She is my sister'; and she say, 'He is my brother'?" (Gen 20:5)[3]

Now, Sara (then called "Sarai") was sterile. But she had in her household an Egyptian servant called Hagar. So, Sara conceived a

3 I mention this point merely because the Gospels speak of Christ's brothers and sisters, so that if we did not understand the meanings of these semitic terms we might conclude that the Son of man was a member of a family large beyond reckoning.

plan—rather unusual to us—in order to make sure that her husband should have the numerous offspring that had been promised him. Hagar gave birth to Ishmael, a figure of the Synagogue.[4] And when Abraham and Sara had become old, advanced in years, God announced to him: "Sara thy wife shall bear thee a son, and thou shalt call his name Isaac, and I will establish my covenant with him for a perpetual covenant, and with his seed after him" (Gn 17:19). We know the rest of the story, and St. Paul makes much of it. For besides being historical figures, Sara and Hagar are also allegorical, representing the two alliances: one represents the old Jerusalem, the other, "that Jerusalem, which is above, and free, which is our mother" (Gal 4:25).

Thanks to his son Isaac, son of Sara, Abraham will have a posterity to bear his name. And now God gives rise to another great feminine figure, Rebecca, "an exceedingly lovely young maiden, and a most beautiful virgin" (Gn 24:16). And as she left her family to become the wife of Abraham's son Isaac, she was told by them, "Thou art our sister, mayst thou increase to thousands of thousands, and may thy seed possess the gates of their enemies" (Gn 24:60). Having given birth to twins, Esau and Jacob, it is Rebecca who combined a successful plan to ensure the blessing of her husband upon Jacob, the son whom she preferred. Again St. Paul points out the meaning of this feminine figure introduced by God in the work of the covenant concluded with our forebears in view of our redemption by his Son.

And it is God who chose Judith to wound and destroy those who had formed such dark designs "against thy covenant" (Jdt 9:13). It is of her that Ozias, the prince of the people of Israel, said:

> Blessed art thou, O daughter, by the Lord ,the most high God, above all women upon the earth. Blessed be the

4 [See perhaps Gal 4:21–31.]

> Lord who made heaven and earth, who hath directed thee to cut off the head of the prince of our enemies. Because he hath so magnified thy name this day, that thy praise shall not depart out of the mouth of men who shall be mindful of the power of the Lord forever, for that thou hast not spared thy life, by reason of the distress and tribulation of thy people, but hast prevented our ruin in the presence of our God. (Jdt 13:23–25)

Another feminine figure will in the course of time save God's chosen people from extermination. I mean Esther, Assuerus's queen. Now, there is a passage in this book that will be most relevant to the point we wish to make here; I mean the words of King Assuerus, when he says: "Thou [Esther] shalt not die; for this law is not made for thee, but for all others" (Est 15:13). Here we have a biblical figure who is above the law, as it were, and not subject to the sentence passed upon the whole people. Esther is one figure of another Woman to come, and her exemption is itself in turn a figure.

Now, why should all these women be mentioned at all, and why should they be emphasized as they are, if they were to be deemed irrelevant to God's great design, to his covenant with man and to salvation? And each of these feminine figures acted in a fashion that was particularly appropriate to their womanhood. Human beings are masculine or feminine, and God redeemed mankind, not angels. Why, then, should man and woman not each have their share in the work of redemption, a share that befits their nature as man and as woman?

We are told by the Holy Spirit, through his prophets, that original sin did not come into this world without the mediation of woman—of the woman whom he had made a help like unto Adam. Besides, Adam called her "Eve because she was the mother of all the living" (Gn 3:20). Now, God, as we read, in passing sentence upon the act of disobedience committed first

by Eve, then by Adam, again brings the woman to the foreground, this time in relation to the struggle and the victory to be achieved—that is, to the order of redemption, a work to be fulfilled by the offspring of the woman.

Although all the feminine figures we have mentioned are foreshadowings of the Woman to come, there is the respect in which none of them can be compared even to Eve, the mother of all the living. For Eve has the nature of first principle in more than one respect: in the order of nature, but also in the order of human action. Notice that in the commission of evil, the created person has the nature of first cause, whereas in our good actions God is the first and proper cause. Now, Eve—of all mankind—was the first to sin, both against God and neighbor. And her sin was the first cause of sin in this order. For, as Adam said: "It is the woman who gave me of the tree, and I did eat." Although it was Adam's sin that was transmitted to their offspring, he sinned because of Eve. In other words, Eve, through Adam and in him, is a universal cause, even as it is thanks to Adam that she is mother of all the living.

And this brings us to the main point of the present talk. For just as the first Eve exercised universal causality in the fall of mankind, so, inversely, does Mary, the New Eve, exercise a universal causality in the order of redemption. This is not new doctrine. It is contained in the very words of Scripture and was fully brought out by St. Irenaeus of Lyons in the second century.[5] The proportion that he points out to us is the following: Just as death came into this world through the disobedience of Eve, so did life come to us through the obedience of that other Virgin, Mary. You have all heard of this "recapitulation"—the parallel between Adam and Eve, on the one hand, and the New Adam and New Eve, on the other. The first Eve's mediating role in the

5 Irenaeus, *Adversus haereses* III.22.4. Irenaeus had known St. Polycarp, a disciple of John the Evangelist.

fall is inversely parallel to the second Eve's mediating role in salvation. She shared in her Son's passion by her compassion.

God did not present the world with the first Eve to place Adam in the shadow, or, to use the expression of the author we have quoted, "a screen to separate us from her son" ["pour faire écran à son mari"]. For God himself has made it known that it is by the first Adam's offense that death came into the world:

> by one man's offence . . . . Therefore, as by the offence of one, unto all men to condemnation; so also by the justice of one, unto all men to the justification of life. For as by the disobedience of one man, many were made sinners, so also by the obedience of one, many shall be made just. (Rm 5:17–19)

But the guilt of the first man did not exclude the mediation of the first woman in his guilt. Similarly, the merit of the second Adam did not exclude or bypass the merit and mediation of the second Eve.

Neither the unicity nor the primacy of Adam excludes the universal share of the woman from his being the one father of mankind: the absolute priority of this father did not prevent Eve from being the mother of all the living. The transgression committed by the woman did not put that of Adam in the shadow; on the other hand, our common father would have had no descendants without the fecundity of this mother. Now, this paternity of Adam, is it less certain because we children of Adam are at the same time the children of Eve? It is said in Tobias: "Thou madest Adam of the slime of the earth, and gavest him Eve for a helper, and the human race was born of those two" (Tob 8:8). Now, this share belonging to the mother of all the living, does it in any way make the origin of our life equivocal or ambiguous? Is this mother to be held for little or for nothing because it is her husband who is the father of all? Is it fitting that we should overlook

the woman who disobeyed first of all, because we inherited our sin from the man whom she led to disobey?

And why did God make such a case of the hostility between the Serpent and the Woman? Was it for no purpose at all that God announced the many pangs and throes with which she was to bear and give birth to her children? Can we be indifferent to this suffering and act contrary to nature?

Nor can we be led to believe that St. Paul created confusion when he wrote that "Adam was not seduced; but the woman, being seduced, was in transgression" (1 Tm 2:14). The first Eve was not a screen to separate Adam from his sons—I mean the Adam who was the figure of the New Adam to come. She was no such hindrance, neither as a help like unto Adam, nor in her disobedience, nor in her fecundity as spouse and mother of all the living.

The same holds true of Mary. Neither her obedience, nor her motherhood, nor her compassion make for a screen that would separate us from her Son. And when did the Church ever allow us to consider her as an obstacle of that kind? All is said when the Church teaches that God made for the New Adam a like unto himself—which is precisely what is meant by the "Immaculate Conception." It is this particular fullness of grace of the handmaid of the Lord, of His mother and spouse, that establishes between them the most perfect friendship of all. It is in His friendship toward this feminine and maternal figure that God shows the nobility of His friendship toward all mankind.

ON THE ORIGIN OF THE BODY OF THE FIRST MAN

Charles De Koninck

I – Statement of the Question:

1°. A man who is generated is so by both a natural generator and by God creating him. A man who is generated is so by a natural generator as by one disposing the matter such that it would receive a human soul and would participate in its existence [*esse*].

A man who is generated is so by the creating God in a manifold way: 1) as a finite being is from the creating God as from the universal cause of the whole of the being [*totius entis*]; 2) formally as a man, who is from the creating God in a peculiar manner under a double aspect: a) the intellectual soul, by which man exists formally, is immediately created by God and is infused into disposed matter; b) man's body is not constituted as formally human except by the peculiar creative action of God,

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[This is a translation of a typed but somewhat unpolished text that De Koninck composed in Latin (with handwritten revisions) and presented in the form of a Thomistic manual article. The original text is headed with "Article II," indicating that a prior article—presumably on the creation of the first man's soul—was either intended or was perhaps even composed but is not in the De Koninck archives; there are, however, extensive notes for such an essay in the archive. This text might be fruitfully compared to the corresponding questions in the *Summa* (*ST* I, qq. 90 and 91); it also bears a striking resemblance, in overall presentation and in basic viewpoint, to Fr. Henri Grenier's *Cursus Philosophiae*, Vol. 1 (Quebec: Le Seminaire de Quebec, 1944), Bk. 4, c. 4, a. 2. There is otherwise no other indication of when De Koninck composed it. De Koninck's argument, however, is more direct and forceful than that of Grenier. De Koninck's text can be found in Folder 18, part 1, of the archive. We have attempted to approximate De Koninck's format, although most of the St. Thomas texts that he gives as lengthy footnotes we have included in the body of the text, with only the Latin left in the footnotes.]

for the body becomes formally human insofar as it participates in the existence of the soul, which is immediately created by God, and for which the generator merely disposes the matter. In fact, as has already been said, in man there is but a single existence, namely, the existence of the soul, which is communicated to the body.

With man's peculiar creation[1] securely settled, a great problem yet remains as regards the origin of the first man. Since the human soul is created by God when it can be infused into sufficiently disposed matter,[2] we should ask by what the matter was disposed so as to receive the soul of the first man. As is evident, such a disposition could not have come from another man as from a generator. Does it come immediately from God? If not immediately from God, to what extent can such a disposition be called a work of nature? Is it [a work of nature] only on the side of matter, or is it also sometimes on the side of the natural agents? In other words, here one finds the problem of the transformation or evolution of species.

2°. In natural science, three problems of evolution are given, problems that are generally confused by authorities. One is experimental, the second is strictly philosophical, and the third is partly experimental and partly philosophical.

1) In the first problem, experimental science first asks about the *fact* of a succession of species from less perfect to more

1 Response of the Biblical Commission, June 30, 1909 ["The Historical Character of the Earlier Chapters of Genesis"]. See Denzinger, *Enchiridion symbolorum, definitionum et declarationum de rebus fidei et morum* (Friburg: Herder, 1911), n. 2122.

2 Thesis 15 of St. Thomas. [This refers to the twenty-four Thomistic Theses articulated by the Sacred Congregation for Studies in 1914. The fifteenth thesis reads: "By contrast [with animal and vegetative souls], a human soul does subsist on its own and is created by God when it can be infused into a subject suitably disposed; also, by its own nature, it is indestructible and immortal."]

perfect. Second, it tries to explain this progressive succession *by some scientific theory*. Yet no philosophical meaning [*sensus*] should be attributed to a scientific theory. For, in the first place, the scientific notion of species is extremely [*maxime*] ambiguous, and it should be wholly distinguished from the philosophical notion of species.

A philosophical species can be called a *natural* species, and it is constituted by an essential difference. This is of four sorts: the inorganic, the vegetative, the sensitive, and the rational. These natural species are immediately opposed—that is, they cannot have intermediate species between themselves. Nonetheless, they can, not in act but in potency, be participated in in an infinity of diverse ways; for example, the sensitive species is participated in a different way by a bird than by a horse, or by a cow, and so on. Such diverse participations are not determined *a priori*; rather, they are not known except from experimental science, when they become stable, and therefore these species are properly called "scientific," that is, systematized. They stand to natural species as quasi-species stand to highest genera.

Secondly, experimental science, like every science, explains the complex (composite) through the simple; for example, it explains mixed or composite things through elements that are more and more simple. But we should note that in an experimental science the simple is lower and less perfect, while the complex is higher and more perfect. Thus, for example, the element is less perfect than the mixture, the inorganic is less perfect than the organic, and so on. In philosophy, on the other hand, the simple is more perfect and higher; for example, God is simpler than an angel, and an angel is simpler than a man, a man (because he has a spiritual soul) is simpler than a beast, and so on. Therefore experimental science and philosophy proceed in opposite ways. Philosophy explains the lower through

the higher, whereas experimental science explains the higher through the lower.

Therefore it is no wonder that experimental science tries as far as it can to explain the origin of a higher species through a mere derivation from a lower species. Nevertheless, such explanation is legitimate, as long as it is not considered as an explanation through causes properly so called—that is, a philosophical explanation.[3]

2) In the second problem, the philosopher contemplates the evolution of species[4] through strictly philosophical principles, that is, through a consideration of prime matter, substantial form, efficient cause, and most of all final cause. These philosophical principles we already know in part, but we recall them to memory:

a) Prime matter desires the human soul as its ultimate form.

> Since, as has been said, everything moved, insofar as it is moving, tends toward the divine likeness so that it might be perfect in itself, whereas each thing is perfect insofar as it comes to be in act, it is necessary that the intention of each and every thing existing in potency is so that it might through its motion tend into act. Therefore to the degree that some act is later and more perfect, so too is the appetite of matter more fundamentally borne toward it. Whence it is necessary that the appetite of matter, whereby it desires form, tends to the more ultimate and most perfect act that matter can attain as to its ultimate end.[5]

3 [A sentence here is stricken, which reads: "Thus the spiritual soul and a spiritual agent can in no way be included in a differential equation of physics."]

4 [The first part of this sentence, up into "through" is stricken, leaving an incomplete sentence to begin this section.]

5 *SCG* III, c. 22, n. 7: "Cum vero, ut dictum est, quaelibet res mota, inquantum movetur, tendat in divinam similitudinem ut sit in se perfecta; perfectum autem sit unumquodque inquantum fit actu: oportet quod intentio cuiuslibet

Therefore prime matter does not exist under a lower form except as tending toward the human soul. Whence all mobile beings lower than man, such as inorganic things, plants, and beasts, are intended by nature not for their own sake,[6] but for the sake of the human composite. Nor are they ordered toward man only as food or as objects to be known, but also as intermediate beings by which nature tends toward the human soul—in other words, the end of every generation whatsoever is man:

> In the acts of forms, however, a certain gradation is found. For prime matter is in potency first to the form of an element, but when existing under the form of an element it is in potency to the form of a mixture, on account of which elements are the matter of a mixture; however, when considered as under the form of a mixture, it is in potency to the vegetative soul, for soul is the act of such a body. Furthermore, the vegetative soul is in potency to the sensitive, and the sensitive to the intellectual. The progression of generation displays this. For in generation the embryo first is alive with the life of a plant, but later with the life of an animal, and finally with the life of a man. Now, among general and corruptible things, beyond this form no further and more dignified form is found among generable and corruptible things. Therefore the ultimate end of the whole of generation is the human soul, and matter tends toward this as to its ultimate end. Therefore the elements are for the sake the mixed bodies, and these for the sake of the living, among which plants are for the

in potentia existentis sit ut per motum tendat in actum. Quanto igitur aliquis actus est posterior et magis perfectus, tanto principalius in ipsum appetitus materiae fertur. Unde oportet quod in ultimum et perfectissimum actum quem materia consequi potest, tendat appetitus materiae quo appetit formam, sicut in ultimum finem generationis."

6 See *SCG* IV, c. 97 and *De pot*., q. 5, a. 5.

> sake of animals, animals for the sake of man. For man is the end of the whole of generation.[7]

b) Matter desires the human soul as a potency not in itself disposed to it, but as a potency to be disposed from within [disponenda ab intrinseco].

For if matter were from itself sufficiently disposed to the human soul, it would always and everywhere be informed by such a soul, for when placed in its ultimate disposition, form necessarily follows.[8] But from within matter is gradually disposed to the human soul through lower forms; for example, as existing under the form of a beast it is more disposed to the human soul than as existing under the form of a plant. And in a more perfect beast it is more disposed to the human soul than in a less perfect beast. Therefore the human soul, which is first in intention, nonetheless should be last in the order of execution. Certainly God can immediately change and dispose any matter whatsoever from within to receiving the soul:

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7 *SCG* III, c. 22, n. 7: "In actibus autem formarum gradus quidam inveniuntur. Nam materia prima est in potentia primo ad formam elementi. Sub forma vero elementi existens est in potentia ad formam mixti: propter quod elementa sunt materia mixti. Sub forma autem mixti considerata, est in potentia ad animam vegetabilem: nam talis corporis anima actus est. Itemque anima vegetabilis est potentia ad sensitivam; sensitiva vero ad intellectivam. Quod processus generationis ostendit: primo enim in generatione est fetus vivens vita plantae, postmodum vero vita animalis, demum vero vita hominis. Post hanc autem formam non invenitur in generabilibus et corruptibilibus posterior forma et dignior. Ultimus igitur finis generationis totius est anima humana, et in hanc tendit materia sicut in ultimam formam. Sunt ergo elementa propter corpora mixta; haec vero propter viventia; in quibus plantae sunt propter animalia; animalia vero propter hominem. Homo igitur est finis totius generationis." [Grenier cites this same article on p. 543.]

8 See *Cosmologia,* p. . [This is the first of three incomplete citations of a book given simply as *Cosmologia,* followed by a place to write in a page reference. It is possible that De Koninck had in mind Fr. Edouard Hugon's *Cursus Philosophiae Thomisticae, II Philosophia Naturalis: Cosmologia* (Paris: Lethielleux, 1905).]

> The fact that a certain form is not suddenly imprinted on a subject arises from the subject not being disposed and the agent needing time to dispose the subject. And this is why we see that as soon as matter is disposed by a preceding alteration the substantial form is acquired by the matter. . . . For the fact that a natural agent cannot suddenly dispose the matter arises from the fact that there is a certain lack of proportion of that which in the matter is resistant to the strength of the agent; and on account of this we see that to the degree that the strength of the agent is stronger, so too is the matter more quickly disposed to it. Therefore because the divine power is infinite, it can suddenly dispose any created matter whatsoever to form.[9]

But in such a way he acts outside the order of agency of the entirety of created nature and brings forth a miracle, as happens, for example, in the resurrection of the dead;

> in the first establishment of nature one should not look for a miracle, but something that the nature of things might have, as Augustine says.[10]

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9 *ST* I-II, q. 113, a. 7, c.: "Cuius ratio est quia quod aliqua forma non subito imprimatur subiecto, contingit ex hoc quod subiectum non est dispositum, et agens indiget tempore ad hoc quod subiectum disponat. Et ideo videmus quod statim cum materia est disposita per alterationem praecedentem, forma substantialis acquiritur materiae, ... Quod enim agens naturale non subito possit disponere materiam, contingit ex hoc quod est aliqua disproportio eius quod in materia resistit, ad virtutem agentis, et propter hoc videmus quod quanto virtus agentis fuerit fortior, tanto materia citius disponitur. Cum igitur virtus divina sit infinita, potest quamcumque materiam creatam subito disponere ad formam."

10 *ST* I, q. 67, a. 4, ad 3: "in prima autem institutione naturae non quaeritur miraculum, sed quid natura rerum habeat, ut Augustinus dicit." [Immediately before the quotation De Koninck has stricken "In the production of man, such a mode of agency should be excluded, because…"]

c) To every passive potency there corresponds an active potency.

> To every passive potency there corresponds an active potency. For potency is for the sake of act, just as matter is for the sake of form. Now, a being in potency cannot attain being in act except through the power of something existing in act. Therefore a potency would be idle unless there were the active power of an agent that could lead it to act, although nevertheless there is nothing idle in things of nature. And in this way we see that all things that are within the potency of the matter of generable and corruptible things can be led to act by the active power that is in the heavenly body that is the first active principle within nature.[11]

Therefore in the beginning, to prime matter *potentially* desiring the human soul as ultimate act there had to correspond an active cause that would dispose it proximately to such an act. That cause was not some man, as is obvious; yet it had to be something living—indeed, a spiritual agent—as something sufficient to dispose matter to the human soul, which is a spiritual form:

> For according to its own proper species, no agent intends a form higher than its own form; for every agent intends a likeness with itself. Now, the heavenly body, insofar as it acts through its own motion, intends the ultimate form, which is the human intellect; this is indeed higher than every form, as is evident from things treated before

11 *SCG* II, c. 22: "Omni potentiae passivae respondet potentia activa. Potentia enim propter actum est, sicut materia propter formam. Non potest autem ens in potentia consequi quod sit actu nisi per virtutem alicuius existentis in actu. Otiosa igitur esset potentia nisi esset virtus activa agentis quae eam in actum reducere posset: cum tamen nihil sit otiosum in rebus naturae. Et per hunc modum videmus quod omnia quae sunt in potentia materiae generabilium et corruptibilium, possunt reduci in actum per virtutem activam quae est in corpore caelesti, quod est primum activum in natura."

> [ch. 22]. Therefore the body of the heavens does not act toward [human] generation according to its own proper species as a principal agent, but according to the species of some higher intellectual agent, to which the heavenly body stands as an instrument to a principal agent. However, the heaven acts toward generation insofar as it is moved. Therefore the heavenly body is moved by some intellectual substance.[12]

Such a spiritual agent is not natural insofar as it exists outside the universe of mobile beings—whether it be God or a spiritual creature or angel,[13] as St. Thomas teaches:

> Therefore this is how bodily forms are caused: not as infused by some immaterial form, but as matter is brought forth from potency to act by some composite

12 *SCG* III, c. 23: "Nihil enim secundum propriam speciem agens intendit formam altiorem sua forma; intendit enim omne agens sibi simile. Corpus autem caeleste, secundum quod agit per motum suum, intendit ultimam formam, quae est intellectus humanus, quae quidem est altior omni corporali forma, ut ex praemissis patet. Corpus igitur caeli non agit ad generationem secundum propriam speciem, sicut agens principale, sed secundum speciem alicuius superioris agentis intellectualis, ad quod se habet corpus caeleste sicut instrumentum ad agens principale. Agit autem caelum ad generationem secundum quod movetur. Movetur igitur corpus caeleste ab aliqua intellectuali substantia."

13 Ibid.: "However, it makes no difference to the present consideration whether the heavenly body is moved by a conjoined intellectual substance that is its soul or by a separated substance, and whether each of the heavenly bodies is moved by God, or none of them is moved immediately but only by the mediation of created intellectual substances, or only the first is moved immediately by God and the others by the mediation of the created substances—as long as it is held that the heavenly motion is due to an intellectual substance." ("Non differt autem, quantum ad praesentem intentionem, utrum corpus caeleste moveatur a substantia intellectuali coniuncta, quae sit anima eius, vel a substantia separata; et utrum unumquodque corporum caelestium moveatur a Deo immediate, vel nullum, sed mediantibus substantiis intellectualibus creatis; aut primum tantum immediate a Deo, alia vero mediantibus substantiis creatis; dummodo habeatur quod motus caelestis est a substantia intellectuali.")

> agent. But because a composite agent, which is a body, is moved by a created spiritual substance, as Augustine says in *On the Trinity* III, it follows further that the bodily forms are derived from intellectual substances, not as infusing forms but as moving things to their forms.[14]

Yet insofar as it corresponds to the appetite of prime matter, which has the notion of a nature,[15] it had to change and dispose matter naturally—that is, according to the requirements of matter.

Therefore it had to dispose it according to a succession of time, applying all the natural causes, for example, through local motion and so on:

> Nonetheless it should not be denied that the heavenly motion is natural. For any motion is said to be natural not only because of its active principle, but also on account of its passive principle, for example, in the generation of the simple bodies, which cannot be called natural by reason of an active principle. For that is moved naturally by an active principle when its active principle is within it, for nature is a principle of motion in that in which it exists. Now, the active principle in the generation of a simple body is outside it. Therefore it is not natural by reason of its active principle, but only by reason of its passive principle, which is matter, in which is present the natural appetite for a natural form. Therefore the motion of the heavenly body, as regards its active principle, is not

14 *ST* I, q. 65, a. 4, c.: "Sic igitur formae corporales causantur, non quasi influxae ab aliqua immateriali forma, sed quasi materia reducta de potentia in actum ab aliquo agente composito. Sed quia agens compositum, quod est corpus, movetur a substantia spirituali creata, ut Augustinus dicit III de Trin.; sequitur ulterius quod etiam formae corporales a substantiis spiritualibus deriventur, non tanquam influentibus formas, sed tanquam moventibus ad formas."

15 See *Cosmologia*, p. [see note 8].

> natural, but is more voluntary and intellectual; however, as regards its passive principle, it is natural, for the heavenly body has a natural aptitude to such motion.[16]

For prime matter, as the first root of successive duration or time,[17] does not naturally receive its entire perfection immediately, but only according to a succession of time, in which succession the appetite of matter is more and more borne into its ultimate terminus.

d) Material forms do not come to be by an infusion into matter, but by a bringing forth from matter.

Matter is ordered to the human form and to all other natural forms in different ways. For it is ordered to the former as to receiving an act and being infused with it from without, when the matter itself has been disposed; whereas it is ordered to the latter forms as to acts that are to be brought forth from its own potency. For matter potentially contains within itself all material forms, whether merely bodily or vegetative or sensitive. Whence these forms are said to come to be not through creation, which comes to be without a pre-existing subject, nor through a transformation of one form into another, but through a change of the

16 *SCG* III, c. 23: "Non tamen est negandum motum caelestem esse naturalem. Dicitur enim esse motus aliquis naturalis, non solum propter activum principium, sed etiam propter passivum: sicut patet in generatione simplicium corporum. Quae quidem non potest dici naturalis ratione principii activi: movetur enim id naturaliter a principio activo cuius principium activum est intra, natura enim est principium motus in eo in quo est; principium autem activum in generatione simplicis corporis est extra. Non est igitur naturalis ratione principii activi, sed solum ratione principii passivi, quod est materia, cui inest naturalis appetitus ad formam naturalem. Sic ergo motus caelestis corporis, quantum ad activum principium, non est naturalis, sed magis voluntarius et intellectualis: quantum vero ad principium passivum est naturalis, nam corpus caeleste habet naturalem aptitudinem ad talem motum." [Grenier quotes this same passage on 545.]

17 *Cosmologia*, p. [see note 8].

composite—that is, through a change of matter toward act, or through the bringing forth of form out of the potency of the matter itself:

> For some, like Plato and Avicenna, asserted that all forms are from without. . . . But in this they seem to have been deceived, since they attributed coming to be properly to these forms, even though coming to be is only of the composite, to which being itself properly belongs. For [material] forms are said to exist not as subsisting, but as that by which composite things exist. This is also why they are said to come to be not by their own proper making, but rather through the making of the supposits that are changed by the change of matter from potency to act. Whence just as composites come to be through natural agents, so too do forms that are not subsistent.[18]

Therefore the matter of each and every composite is remotely in potency to each and every other material form. Thus, for example, the matter of each and every inorganic thing is in potency to the form of the living, and the non-living can be changed into the living, yet under the influence of an efficient cause that has life. For nothing is brought from potency to act except through a being in act.

3) In the third problem of evolution, natural philosophy, insofar as it exercises the office of wisdom, reflects on the

18 *Quodl.* IX, q. 5, a. 2, c.: "Quidam enim, ut Plato et Avicenna, posuerunt omnes formas ab extrinseco esse. . . . Sed in hoc videntur fuisse decepti quod attribuebant fieri proprie ipsis formis, cum tamen fieri non sit nisi compositi, cuius etiam proprie est esse. Formae enim esse dicuntur non ut subsistentes, sed ut quibus composita sunt, unde et fieri dicuntur non propria factione, sed per factionem compositorum, quae fiunt per transmutationem materiae de potentia in actum. Unde, sicut composita fiunt per agentia naturalia, ita etiam formae quae non sunt subsistentes."

assertions of experimental science and its theories, so as to judge and make use of them.

By such reflection the philosopher, by comparing philosophical conclusions and the assertions of experimental science, wishes to explain each more profoundly. Nonetheless, such an explanation is only temporary [*nisi ad tempus*], since scientific theories are changeable, yet more and more perfect.

But we should note that natural philosophy, only as *wisdom*, and not in fact as science, materially depends on experimental science, and not formally. Whence a strictly philosophical conclusion should not be rejected because it is not explained by any scientific theory.

The experimental fact of a succession of species seems certain, based on paleontology, and it is implied by comparative anatomy, embryology, and the phenomenon of mutation—even if perhaps all mutations should be judged to be regressive. Whence today all the more eminent biologists should be called "evolutionists."

The genetic theory of the ascent of species by way of mutation is best able to explain this. Nevertheless, no scientific theory explaining the transition from the inorganic to the organic is given.[19] But we should not thereby assert the impossibility of such a transition.[20]

II – Various Opinions:

1°. The materialistic evolutionist confuses a scientific theory with a philosophical teaching. This is why he rejects the creation of the world, the creation and spirituality of at least the human soul, and asserts that the inorganic evolves itself, through a successive evolution of species all the way up to the human

19 The impossibility of explanation may be attributed to the heterogeneity of physical science and biological science.

20 [There is no text in this note in the MS.]

composite, without the influence of a higher cause. Such an opinion should be rejected and is alien to the faith.

2°. Nearly all scholastics, especially the modern ones, in a similar way do not sufficiently distinguish between scientific theories and philosophical conclusions. Thereby they attribute to scientific theories immediately a philosophical meaning and fall into confusion. Thus, in order to solve the problem of evolution, they do not sufficiently consider the nature of prime matter; they conceive material forms as though subsisting things; and finally, they conceive the world of mobile beings as a *closed system* on which no spiritual agent *naturally* acts. In this last they most of all deviate from St. Thomas, who teaches (as is clear from the texts cited) that matter *naturally* tends toward the human composite under the impulse of some spiritual cause.

Modern scholastics in general adhere to *fixism*[21] or *creationism*. Creationism teaches that all new species take their origin either by a special creation—that is, by creation properly so called, as though material forms come to be through themselves and are not brought forth from the potency of matter—or by a special intervention of God, as though prime matter, as desiring the human soul, would not require a spiritual agent *naturally* changing and disposing it to receive such a soul. Others, finally, have dared to say that every new species, both as regards form and as regards matter, were specially and immediately created by God himself, the matter of the first man excepted.[22]

Among the scholastics, some nevertheless partially adhere to evolutionism but perhaps they do not sufficiently set guard over philosophical principles, especially the principle of

21 [Grenier defines "fixism," in the parallel article, as the opinion "that in the beginning God produced each of the different species from inorganic matter. These species are fixed and remain unchanged for the future" (544).]

22 [This sentence is handwritten at the end of the paragraph.]

causality. Some hold that evolution is possible within the same philosophical species, without the intervention of a higher cause; others admit such an evolution from plant to animal; others, finally, like Leroy, O.P., Theilard, S.J., Dordolot, and so on, extend evolution to the *human body*. These last authorities either speak improperly or they teach a false opinion.[23]

Nevertheless, some Thomists, like Gardeil and Sertillanges, explain the evolution of species more profoundly through the very principles of St. Thomas.

III – Statement of the Thesis:

> **THESIS**: Prime matter, through the evolution of species, was disposed to receiving the soul of the first man, yet under the influence of a spiritual cause, the activity of which should be called "natural."

First part: Prime matter, through the evolution of species, was disposed to receiving the soul of the first man. If prime matter desires the human soul as the ultimate and most perfect act that it can attain, it was disposed through the evolution of species to receive the soul of the first man. But prime matter does desire the human soul as the ultimate and most perfect act that it can attain. Therefore prime matter, through the evolution of species, was disposed to receiving the soul of the first man.

With respect to the major premise: If prime matter desires the human soul as the ultimate and most perfect act that it can attain, it was disposed to this either immediately or successively through an internal change, insofar as it exists under more and more perfect forms. But the first should not be admitted, since that would be a miraculous change, and one should not seek a

23 [The final half of this sentence, starting with "either," is struck in the MS, leaving an incomplete sentence.]

miracle in the first establishment of nature; but the second is the evolution of species. Therefore . . .

With respect to the minor premise: Every potency tends toward its act, and it is inclined to that act more so if it is more perfect. But the most perfect act of prime matter is the human soul. Therefore . . .

Second part: Prime matter was disposed to receiving the soul of the first man under the influence of a spiritual cause. To prime matter insofar as it desires the human soul there corresponds an active cause that can dispose it to such an act naturally and proximately. But as regards a human soul this active cause cannot but be a spiritual cause. Therefore . . .

With respect to the major premise: This is because to every passive potency there corresponds an active potency.

With regard to the minor premise: To an effect is proportioned an efficient cause in such a way that it would be either of the same species as the effect or of a higher order than the effect, for nothing gives what it does not have. But by reason of the matter, there was no man for the soul of the first man, yet the efficient cause had to be living, indeed spiritual, as proximately disposing the matter to the act. Therefore . . .

Third part: The activity of this spiritual cause was natural. The activity corresponding to a natural desire is natural—that is, it is exercised naturally, even if it arises from a supra-mundane cause. But the activity of a spiritual cause disposing matter to receiving the soul of the first man corresponded to the natural desire of matter. Therefore such an activity, even if it arose from a spiritual cause, was nonetheless natural—that is, it was exercised naturally.

The major is clear from the statement of the question.

With regard to the minor: This is because the appetite of matter for the human soul is natural.

IV – The Human Body Formally as Human Cannot Be Produced by Any Evolution of Species.

The body is formally human only by reason of the human soul, which is its substantial form. But the human soul cannot be produced but by God creating it. Therefore the human body is constituted formally as human only by the peculiar creative action of God, nor as such can it be produced by any evolution of species. And one should hold to this firmly.

THE NOTION AND ROLE OF THE IDENTICAL ACCORDING TO MEYERSON

Charles De Koninck

Emile Meyerson (1859–1933) stirred much interest, especially among French scientists. He has not received on this continent the attention that he merits. The present series of courses will not bear on the philosophy of Meyerson in its entirety. We are going to apply ourselves exclusively to his notion of the identical and to the role that it appears to play in what he calls the "path of thought." After having made certain preliminary considerations, we will directly approach the text of his essay entitled "The Notion of the Identical."[1]

I – The One of Parmenides

Perhaps no one has better summarized the thought of Meyerson than Prince Louis de Broglie in his book *Matter and*

[At the beginning of the French typed manuscript is the following note: "Summer course, July 1962: The reader will notice very early that the following notes are the direct transcription of a recorded course—this text was not written." On the final page this is specified as Quebec, July 12, 1962. The translation of the text, with some revisions, was made by David Quackenbush. The reader will note that on occasion the French phrasing will be given in parentheses; in particular, given the ambiguity of "identity" in contemporary English, we sometimes will give both this and the archaic but less misleading "sameness" as the translation.]

1 ["Le Notion de l'identique," *Recherches philosophiques* 3 (1933): 1–17, republished posthumously in *Essais* (Paris: J. Vrin., 1936); it was republished in 2008 by Corpus De Oeuvres De Philosophie en Langue Française. All page references will be to this edition. Unfortunately, this essay has never been translated into English.]

Light.[2] Here is what the eminent French physicist said:

> The central idea of Meyerson seems to have always been the following: Our reason does not believe it has understood a fact unless it succeeds in showing how this fact was already contained implicitly in our previous knowledge, in identifying it in some way with what was already given. From this comes, for him, the importance in all the branches of science of the claims of permanence, of the essential role there of the principles of conservation in physical and chemical theories. But in showing this instinctive tendency of our reason, the great philosopher boldly underlined its paradoxical character, because the identifying effort of reason, if it should be able completely to succeed, would result in the abolition of all diversity and all heterogeneity—that is to say, in a kind of negation of the very world that it seeks to explain. And if reason nonetheless manages to escape from this vicious circle and establishes a science that incontestably progresses, the explanation is, he thinks, that it lets be slipped into our theoretical constructions some irrational elements of which the more or less surreptitious introduction permits the ensemble of our successive identifications not to constitute only an immense tautology.[3]

De Broglie had said,

> But as the universe definitely cannot be reduced to a vast tautology, we must necessarily face here and there in our scientific description of nature "irrational" elements that resist our attempts at identification—the effort, ever

2 Louis de Broglie, *Matière et Lumière* (Paris, 1937) [The same is available in English under the title *Matter and Light: The New Physics*, trans. W. H. Johnston (New York: W. W. Norton, 1930).]

3 De Broglie, *Matter and Light*, 286 [319–20 in the French edition].

> tired, of human reason working hard to circumscribe these elements and reduce their domain.[4]

We will see in what follows that this summary is very faithful. Putting it in relief, it has also the advantage of linking the thought of Meyerson to certain attempts that we will meet in the pre-Socratic philosophers. If we consider the limit toward which scientific thought tends, according to Meyerson—that is to say, absolute sameness, pure tautology—how can one not think of the immobile one of Parmenides? And when one speaks of irrationality as being the reason for the diversity of things, of the diversity of our conceptions, and of the relations that we establish between our conceptions and reality, how can one not think of potentiality, to whatever degree this be, the subjective condition of all that is not God and of all diversity in this world. Let us not get ahead of ourselves, but instead let us consider first what we ourselves intend by the word "identical."

The *identical*, the *equal*, the *similar*, are the divisions of the one. They are not the only divisions, but they are the only ones that it is necessary for us first to consider in the present context. The *identical*, or the same, is said of what is one in substance. The most perfect sameness is expressed in a proposition of identity, such as, for example, Socrates is Socrates. No doubt one could also say "same" of things that are multiple and strongly different among themselves. Let us consider now the word *equal*. "Equal" is said of what is one according to quantity, as two equal numbers, or two equal lines. *Similar* is said of what is one according to quality. Thus, two figures, or two colors, are or can be similar. Manifestly, the words in question do not have only this sense. One substitutes one for the other rather often to signify the same thing. For the moment, we will hold ourselves to the sense we

4 *Matter and Light*, 284–85 [318 in the French].

define. We will see that this definition of sameness corresponds rather well to what Meyerson intends by the same term.

The three terms that we define contain a certain multiplicity. However, in the case of the identical, the multiplicity is found only in our manner of expressing it. In saying "Socrates is Socrates," we do not speak of two Socrates's, but of the same Socrates, numerically the same. The splitting giving place to Socrates-subject and to Socrates-predicate is the product of our thought. If this splitting were of an order other than purely intentional, we would say exactly the contrary of what we want to say. The terms of this splitting are bound between themselves by a relation said to be "of reason," and of reason only, by opposition to a real relation.[5] On the contrary, in the case of equality and of resemblance or similitude, the terms that one calls equal or similar are in themselves multiple. One says, in effect, that line A is equal to line B, and this does not suppress their duality in themselves. The same for things or objects that resemble themselves.

"What is," *quod est*, or *being*, is apparently for Parmenides all one, indivisible in any manner whatsoever, unique, absolutely necessary. This position is rather manifestly contrary to experience. We remark that even Parmenides admits that it is contrary to sensible experience. But sensible experience, for him, bears only on sensible appearances, and does not surpass them. Sensible appearances form the domain of *doxa*, of opinion, of thought that is always provisional, thought that does not ever arrive at its term. By contrast, science, *epistēmē*, bears on the necessary, on the immobile, the unchangeable, the opposite of the contingent. That knowing (*savoir*) in the plain sense of this term can bear only on the necessary, the immutable, will be maintained through Plato and Aristotle, up to Kant, and even Hegel.

5 See *Metaphysics* 5.9, 1018a5 and St. Thomas's commentary, lec. 11, nn. 911–12.

Without any doubt, the proposals of Parmenides contain a good many confusions. The paradoxes of Zeno, which are a manner of dialectical defense of the position of Parmenides, show to what extent the problem that he faces is difficult. According to Aristotle, the fundamental error of Parmenides consisted in presuming that the word "one," on the one hand, and the word "being," on the other, signify in only one manner—that is to say, these two words do not have respectively only one sense. In reality, in current language, the word "being" has multiple significations. The same for the word "one." These are cases of what St. Thomas calls a "manifold name," *nomen multiplex*. They are also called "analogical." But although an analogical word has multiple senses, these diverse senses are not absolutely diverse, as in the case of equivocal names. The senses of an analogical name have a relation among themselves, a relation of anteriority and posteriority. This relation of anteriority and posteriority sometimes expresses the order following which we have come to know things, and sometimes the order of things themselves. The pre-Socratic philosophies most opposed among themselves rested most often on a question of words. This is not to say that at root they defended the same thing in different words. By a question of words, we mean here that these philosophers failed to distinguish expressly the different senses that one sole word can have, even in current language—not only senses entirely different, but senses that, even while being connected to one another, are nonetheless distinct. All the philosophical positions discussed by Aristotle in the first book of the *Physics* rest on such confusions. Anaxagoras, for example, believed that "to be" means, and means nothing other than, "to be in act," and that "to be in act" means to be in act in only one way. Once these "identifications" have been made, one sees how their philosophical proposals follow from them in a very rigorous manner.

We have of Parmenides a substantial fragment (DK 8) which gives a certain idea, although still confused, of his fundamental position concerning being. I say "confused" for the simple reason that in the very thought of Parmenides this idea was confused. It would be wrong, it seems to me, to want to reduce his thought to the interpretation that Burnet made of it in *Early Greek Philosophy*. Here is what Burnet said in this work:

> What *is*, is a finite, spherical, motionless corporeal *plenum*, and there is nothing beyond it. The appearances of multiplicity and motion, empty space and time, are illusions. We see from this that the primary substance of which the early cosmologists were in search has now become a sort of "thing in itself." It never quite lost this character again. What appears later as the elements of Empedokles, the so-called "homoeomeries" of Anaxagoras, and the atoms of Leukippos and Demokritos, are just the Parmenidean "being." Parmenides is not, as some have said, the "father of idealism"; on the contrary, all materialism depends on his view of reality.[6]

Of course, the Marxists want to interpret Parmenides in this fashion. It seems to me, however, that these two contrary interpretations, materialist and idealist, are equally false. It is false to treat a confused thought as if it were distinct. Here is the fragment in question, and you will see what I mean:

> There still remains just one account of a way, that it is. On this way there are very many signs, that being uncreated and imperishable it is, whole and of a single kind and unshaken and perfect. It never was nor will be, since it is now, all together, one, continuous. For what birth will

6 [See John Burnet, *Early Greek* Philosophy, 4th ed. (New York: Meridian Library, 1957), 182. We here present the English, though De Koninck quotes the French translation, *L'aurore de la philosophie grecque* (Paris, Payot et Cie, 1919), 210, ¶89.]

you seek for it? How and whence did it grow? I shall not allow you to say nor to think from not being; for it is not to be said nor thought that it is not; and what need would have driven it later rather than earlier, beginning from the nothing, to grow? Thus it must either be completely or not at all. Nor will the force of conviction allow anything besides it to come to be ever from not being. Therefore Justice has never loosed her fetters to allow it to come to be or to perish, but holds it fast. And the decision about these things lies in this; it is or it is not. But it has in fact been decided, as is necessary, to leave the one way unthought and nameless (for it is no true way), but that the other is and is genuine. And how could what is be in the future? How could it come to be? For if it came into being, it is not: nor is it if it ever going to be in the future. Thus coming to be is extinguished and perishing unheard of. Nor is it divided, since it all exists alike; nor is it more here and less there, which would prevent it from holding together, but it is all full of being. So it is all continuous; for what is draws near to what is. But changeless within the limits of great bonds, it exists without beginning or ceasing, since coming to be and perishing have wandered very far away, and true conviction has thrust them off. Remaining the same and in the same place, it lies on its own and, thus fixed, it will remain. For strong Necessity holds it within the bonds of a limit, which keeps it in on every side.

Therefore it is right that what is should not be imperfect; for it is not deficient—if it were, it would be deficient in everything. The same thing is there to be thought and is why there is thought. For you will not find thinking without what is, in all that has been said. For there neither is nor will be anything else besides what is, since Fate fettered it to be whole and changeless. Therefore it has been named all the names which mortals have laid

> down, believing them to be true—coming to be and perishing, being and not being, changing place and altering in bright color. But since there is a furthest limit, it is perfected, like the bulk of a ball well-rounded on every side, equally balanced in every direction from the center. For it needs must not be somewhat more or somewhat less here or there. For neither is it non-existent, which would stop it from reaching its like, nor is it existent in such a way that there would be more here, less there, since it is all inviolate; for being equal to itself on every side, it lies uniformly within its limits.
>
> Here I end my trustworthy discourse and thought concerning truth; henceforth learn the beliefs of mortal men, listening to the deceitful ordering of my words. For they made up their minds to name two forms, of which they needs must not name so much as one—that is where they have gone astray—and distinguished them as opposite in appearance and assigned to them signs different one from the other—to one the ethereal flame of fire, gentle and very light, in every direction identical with itself, but not with the other; and that other too is in itself just the opposite, dark night, dense in appearance and heavy. The whole ordering of these I tell you as it seems fitting, for so no thought of mortal men shall every outstrip you.[7]

This fragment virtually contains many things. One can see in it a first intimation of the true God. It manifestly has to do with a being of which it is in principle necessary to reject all imperfection. Permit me to draw your attention to three terms in this fragment. The first, here: "one, *continuous*." Now, the word "continuous" can be understood of quantity, that is, of continuous quantity. The word in question can have this sense, and it is

7 [The translation, with a few modifications in spelling and punctuation, is taken from G. S. Kirk, J. E. Raven, and M. Schofield, *The Presocratic Philosophers*, 2nd ed. (Cambridge: Cambridge University Press, 1983), 248–56.]

on this that Burnet lingers. If one kept only this sense, the criticism that Aristotle makes of Parmenides in the first book of the *Physics* is quite just. But this same word can have a more abstract sense—that is to say, the sense of "uninterrupted," "without flaw," "unceasingly." Now, it is indeed this that characterizes the "immobile" that is in question further on: "in an integrity closed and immobile."[8] Nothing obliges us to understand this immobility in the physical sense of the word, a sense that opposes it to the mobile, mobile in the physical sense yet again. Nothing prevents us from understanding it following a further imposition that is verified most perfectly of God in His immutability. That is the second word.

Here is the third: "Being is complete in all parts; *similar* to the mass of a well-rounded sphere."[9] Note well that Parmenides says "similar," while Burnet will say that the being of Parmenides *is* a well-rounded sphere. Parmenides give the sphere as an example in the strong sense of the term—that is to say, an argument that St. Thomas calls an *exemplum*, and Aristotle *paradeigma*. The last part of the fragment, "to name two forms," describes the way of *doxa*. From this point of view, the world, we have seen, is a very multiple ensemble of things that appear and disappear to the point that one cannot acquire science of them. It is the fragmentation of the sight of the real on the surface. It is this sight that results in the multiplicity of our words. Now, men, not knowing the opposition between the way of science, the divine way, and that of opinion, are brought to extend to being, the immobile one, the language in which they express sensible appearances. We will see further on that the successors of Parmenides attempted to purify this language in order that

8 [This corresponds to "whole and changeless" in the translation above.]

9 [In the translation above, "it is perfected, like the bulk of a ball well-rounded on every side." The Greek word rendered as "like" in the Kirk, Raven, and Schofield translation, and as "similar" in De Koninck, is *enaligkion*.]

it might be more appropriated to the true reality of the immobile one. They made two attempts, the one as remarkable as the other, although on first view they can have a childish air.

Before passing to another philosopher of antiquity, Heraclitus of Ephesus, permit me to return for a moment to the distinction that Parmenides made between *doxa* and *epistēmē*. If we put aside *epistēmē* to retain only *doxa*, we will have a conception of human knowledge and its relation to reality quite similar to that of David Hume.[10] Immanuel Kant, for his part, will retain the notion of science in the sense of *epistēmē*, but this will be a science without real subject. For what regards reality, Kant accepts the position of Hume. For this latter, all beings are contingent; they are all simply there, juxtaposed, following each other in time. If we see among them constant relations, this constancy is nothing other than a habit acquired by the mind. In the mind itself there is never anything but images, images in the sense of diminished sensations that follow each other but with no scientific relation either between them or between the things of which the images are images. Kant is nonetheless persuaded that we possess true science in the Aristotelian sense of the word—what, at least, he believes to be Aristotelian. He finds the notion of science verified in logic, in mathematics, and in mathematical physics. It is known that for him Newtonian physics was absolutely definitive. From whence comes the scientific character of these sciences? Not from a subject independent of us but from the structure itself of the human reason. Necessity, for example, essential to science, comes not from the things considered but from reason itself, which makes a triage (a sorting)

10 I don't say it without some embarrassment, because our task before modern and contemporary philosophy certainly does not consist in reducing them to all the first philosophies. We mean to make not a pure and simple reduction, but a comparison that can aid in better comprehending especially the unity of philosophy in its fundamental problems.

of the things considered; this necessity is always due first to the very nature of reason, not to things.

Note, on the other hand, that the given examples bring to the position of Kant a certain likelihood. Indeed, we construct enunciations and we construct syllogisms. In mathematics too we construct the different subjects that this science considers. With regard to mathematical physics, we anticipate the data when, for example, we establish provisional relations between certain number measures. We anticipate the data again in formulating hypotheses. In all these cases, the constructive character of our mind plays a primary role.[11]

II – Lycophron's Attempt

In a certain regard, Heraclitus is without doubt the opposite of Parmenides. Heraclitus indeed emphasizes the multiplicity of things—their constant evanescence and contrariety—everywhere in his work.

> You cannot descend two times in the same river; because new waters flow always over you. (D. 12)

> *Polemos* (war) is the father of all things and the king of all things. (D. 53)

There is much truth in these observations of Heraclitus. Look at how the world is dispersed, how all things that we observe are evanescent. In a certain regard, the evanescence of natural things is perhaps greater than what Heraclitus noted. These things, indeed, are measured by time. Now time is composed of

11 Let us add this parenthesis also, which serves uniquely to show how there is all the same a certain comparability between these positions of modern philosophy and those of antiquity. I repeat, it is not a matter of a pure and simple reduction, not even a partial one, but of a comparison that permits us to see a certain unity in the course of the history of philosophy.

non-existents, of a time before, which is no more, and of a time after, which is not yet. What of time is present is not of time; it is the indivisible instant that is per se present. Fortunately, the present instant is renewed constantly and continuously.

But the observations of Heraclitus do not bear only on the multiplicity of things, on their contrariety, and on their obsolescence. He observes equally that there is something above the contraries, that there is a unity which does not let itself be carried away by contraries. Thus, that "conflict is the father of all things" is not carried away by the flowing of contraries. The *logos*, more particularly under the form of wisdom, is above the contraries.

> Of all those whom I have heard speak, there is not one who has understood that wisdom is separate from the all. (D. 108)

> Wisdom is one thing alone. It consists in knowing the thought by which all things are directed by all things. (D. 41)

All that remains rather vague, but there is another point of Heraclitus that can help us to better understand in what this transcendence consists. He says, indeed, "good and bad are all one" (D. 58). This affirmation appears to imply that contraries are one in notion, or that the notion of contraries is the same notion. If Heraclitus intended that good is bad, and bad good, his point is evidently unacceptable. But if he intends us to understand that the notion of good is the very notion of bad, his point is true. Indeed, although *in things* contraries cannot be simultaneously present in the same subject, on the contrary, *in knowledge*, contraries as contraries are essential to each other. For example, it is impossible to conceive of blindness without conceiving of sight, because blindness, as negation of sight, implies the notion of sight. Sight, on the other hand, if

one knows it as the contrary term of blindness, its notion, also must be related simultaneously to its contrary. But in reality, contrary terms cannot be simultaneously present; a man cannot be at once blind and see. In other words, *contraria in rebus non sunt contraria in mente*, "things contrary in reality are not contrary in the mind." We have here, therefore, a first distinction between one of the senses of the word "nature" and one of the senses of the word "reason."[12]

Here, therefore, are two cases of unity understood in the sense of the identical. Let us return now to the point of view of Parmenides. If being is one, in the sense that he intended, how does it happen that this unity is not found expressed in our language, language so multiple, so complex, so composed, so composite. As curious as that can appear today, the successors of Parmenides made draconian efforts to attempt to conform, as far as possible, language to what they believed to be reality, one, indivisible. Here is what Aristotle relates about it:

> Even the later of the ancients were troubled that the same thing might turn out for them to be at once one and many. Whence, some did away with "is," as did Lycophron, and some changed speech, [saying] "the man whitened," not "the man is white," or "walks" instead of "is walking," hence, they would not make the one many by adding the "is," as if "one" and "being" were used in one way.[13]

12 See St. Thomas, *In VII Metaphys*., lec. 6, n. 1405. We will see further how it is for the same reason necessary to distinguish between rational powers and irrational powers.

13 *Phys*ics 1.2, 185b25–32. [The translation is taken from *Physics, Or Natural Hearing*, trans. Glen Coughlin (South Bend, IN: St. Augustine's Press, 2005).] If you look at the translation of Carteron, you will see that he renders the perfect *leleukotai* by "has whitened." It seems to me, however, that in this particular case the perfect is translated much better by the definite past or even by the present, in light of the idea that Aristotle wants to manifest. Further on I will explain myself on this subject.

You have noticed that it is the verb "to be"—that is to say, the word "to be" understood as verb, and especially as the *copula*—whose exclusion must serve to unify the expression. It suffices to think about the difference between a noun and a verb to take account of the importance of this exclusion. Indeed, in what does a verb differ from a noun? By this, that a noun signifies without time, while a verb signifies with time. It does not signify *time*, but very precisely *with time*.[14] The verb, indeed, signifies first an action or a passion, such as to run or to fall. Now, the actions and passions that we know first are in time, measured by time. This is why the verb "consignifies" time, that is to say, signifies with time. Now, time, like movement, is first of all a physical reality—concrete, in the singular, in the existential in the strongest sense of this term. I understand existence as in "Socrates exists" as different from "man exists," or "equilateral triangle exists," or "relations of pure reason exist," and so on. This mode of signifying is found in all verbs we employ as verbs. (Often a verb in the infinitive is used as a noun, as in "to walk is to move.") It is worth noting that a verb such as "to think," which signifies an action immobile and timeless in itself, signifies nonetheless *with time*.

Since the noun signifies *without time*, its mode of signifying is manifestly simpler, at least in this regard. This might be able to make us believe that if we were able to express ourselves in nouns alone, without verbs, our language would be not only simpler, but even more true. In fact, however, such language would be sadly impoverished. Certainly there can be languages without the verb. However, even if the *oral* verb were excluded, that for which the oral verb, the exterior word, holds place would nonetheless be in the intelligence when we say, for example, "white man" for wanting to say that in truth "man is white." On the contrary, if we wanted to exclude from thought

14 St. Thomas explicates at length on this subject in lessons 4 and 5 of his commentary on the *Peri hermeneias*.

itself that for which the sensible, exterior verb holds place—that is to say, the voice significant *ad placitum, with time*—we would no longer be able to speak of the true or the false. True thought requires a verb; the expression of this thought—its sensible, adequate explication—requires the oral verb. In the context of language that is also explicit, if I said simply "white man," one could always ask, "Well! what about this white man?!"

The noun alone has, therefore, a double imperfection: It makes abstraction from time and, as a result, from existence understood both in the sense of the first imposition and in the later senses; and what the noun alone expresses is neither true nor false. The noun alone therefore keeps us short of existence and of truth. In order to be in truth, and to express this truth, our intelligence must compose or divide, and it does it by means of the verb as *copula*, that is to say, the verb, which always consignifies time even when it signifies no time or nothing of time. We have already suggested that even when our intelligence expresses the truth of absolutely atemporal things, it cannot ever do it with truth without consignifying time, time in the most concrete sense of the word, the time that measures movement in the world of singulars, the world in which our intelligence depends on sensible, individual things—a dependence that cannot be broken even when the intelligence bears on things beyond all possible sensation.

For the rest, the successors of Parmenides of whom we are speaking now perceived this themselves. They gave an account of the imperfection of a discourse that excludes the verb, that excludes the *copula*, the sign of composition or division (man *is* white, man *is not* white). Their attempt, however, as impossible as it was, is far from being without sense. Indeed, the enunciation by way of composition and division is characteristic of the human intelligence. More precisely, reason and nature are, the one and the other, discursive.

St. Thomas spoke of this most expressly in his commentary on Boethius's *De Trinitate*, q. 6, a. 1. Here is how he explained this subject: Just as the rational soul takes its knowledge of intelligible things from sensible things, which are most known to us, so natural science proceeds in departing from things that are more known to us to go toward the things that are more knowable in themselves. In other words, our knowledge is confused at the beginning, while more distinct knowledge requires a certain discourse going from one term to another—not a syllogistic discourse from the beginning, but a discourse that consists in passing from one thing to another, from the confused to the distinct, as in passing from the whole signified by a name to the definition of this thing by the distinct parts that define it. On the other hand, since it is the property of reason to go from one thing to another—to discourse—this is verified especially in natural science, where knowledge of one thing is derived from knowledge of another thing, as when we go from knowledge of an effect toward knowledge of its cause. Now, in natural science, we not only go from one thing toward another that is simply other according to reason, and which is not another thing in reality, as when we proceed from animal toward man; we also go from one thing toward another thing that is *really other* than the first, as from the generator to the engendered, or inversely. In natural science, indeed, where demonstrations are most often made by means of extrinsic causes, one proves something about a thing by another thing perfectly extrinsic to the former. This is why there exists a certain isomorphism between the discourse that has its place in nature and the discourse that characterizes the human intelligence:

> And in this way the mode of reason is observed in natural science most of all, and on account of this, among the other sciences natural science is most of all conformed to

> man's intellect. Therefore to proceed according to reason is attributed to natural science—not because it belongs to it alone, but because it befits it especially.[15]

Let us go now to the Prima pars, question 85, the body of article 5, where St. Thomas makes the remark that our intelligence, passing from potency to act, resembles beings subjected to generation, which do not immediately have all of their perfection, but acquire it by a successive process. Similarly, human intelligence does not obtain perfect knowledge of a thing from first apprehension, but knows first something of a given object, for example, that it is this thing, confusedly, which is the first and proper object of the intelligence. It then knows the properties of it, the accidents, and the relations that surround what this thing is. And because of that, the intelligence must compose the things it has known, or divide them, separate them one from another, and then it passes from one composition, or from one division, to another, in which reasoning consists.

In the contrary way, the divine intelligence and angelic intelligence are compared to incorruptible realities; they have all their perfection from the first. They also have total knowledge of a reality immediately. In knowing what a thing is, they know at the same time, and in a manner incomparably more perfect, everything that we are able to know by apprehension, composition, and division, or then by reasoning. The divine intelligence, however, and the angelic intelligence know composition and division as well as reasoning, but they do not know them by composing or dividing or reasoning; instead, they know them by a simple understanding of what they are.[16]

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15 *In De Trin.*, q. 6, a. 1: "et ita modus rationis maxime in scientia naturali observatur, et propter hoc scientia naturalis inter alias est maxime hominis intellectui conformis. Attribuitur ergo rationabiliter procedere scientiae naturali, non quia ei soli conveniat, but quia ei praecipue competit."

16 See in this same article especially the response to the third objection.

If we saw in the attempt of Lycophron a manner of protest against human intelligence, as opposed to intelligence simply, we could only approve of it, because the intelligence that proceeds by way of composition, division, and reasoning is an intelligence that is irremediably imperfect. Our mode of knowing is indeed very far from a divine being. It is marked by multiplicity and discourse. This is why our intelligence merits more the name "reason" than "intelligence." Because the separate substances know from the outset and naturally—without composition or division, without discourse—everything that they are ever able to know, they are called "intelligences." Human souls, on the other hand, which acquire knowledge of the truth by a certain discourse, are called "rational."[17]

The citation of Prince de Broglie will have sufficed to permit us to glimpse in what sense Meyerson had perfect reason.

III – Truth and Becoming

To manifest the position of Lycophron, Aristotle chose, as examples, *man* and *white*. "White" is indeed only an accidental predicate of man. "Animal," on the other hand, is an essential predicate of man. The reason for this choice seems to me to be the following. The accidental predicate "white" puts before us a most manifest case of multiplicity. To be a man does not entail being white, just as being white does not entail being a man. This separability, this multiplicity, being more marked, permits us to see better the manner in which Lycophron intended to surmount the multiple, the multiple in oral expression. Because it is indeed the most manifest multiplicity that he intended to avoid.

St. Thomas explains that the successors of Parmenides, such as Lycophron, observed that man and white even so form a certain unity, without which "white" would not be able to be said of man.

17 See *ST* I, q. 58, aa. 3 & 4.

But they see also that this word "is," being a verbal copula, relates two things that are distinct from each other. Desiring to escape multiplicity in a complete manner, they said that one must remove this word "is." Now, "white man" is an imperfect *oratio*. It is true that it is finished as far as the first operation of the mind goes. But we have seen that simple apprehension remains short of existence and truth. Those are only known in the second operation of the mind—that is to say, by way of composition or division.[18] It is in comparison with this second operation that mere apprehension engenders in the hearer's mind only an imperfect sense. It is not the apprehension alone, the mere seizure of an object, that is the good of intelligence; rather, it is the truth that is this good. Other successors of Parmenides have perceived this. They wanted to correct this defect, not by reintroducing the copula "is," which would enunciate the multiple—which they want to escape—but by saying, "man whitens," or again, in place of saying, "man is walking," they said, "man walks."

How would this verbal turn be able to create the *appearance* of a suppression of the multiple? Here are the terms in which St. Thomas explains it: "because through that which is 'whitening' is not understood any real thing, it seemed to them, but just a certain alteration of the subject."[19] There is not, in truth, any difference between "homo ambulat" and "homo est ambulans"—I mean that the difference is only grammatical and logical. This attempt of the successors of Parmenides nonetheless retains its importance. Where lies the semblance to truth that appears to found this second attempt to surmount the multiple?

To understand it, let us apply ourselves to the example "to whiten." This verb signifies a becoming, more precisely a becoming according to contraries. Now, it is rather paradoxical that

18 See *ST* I, q. 16, a. 2.

19 *In I Phys.*, lec. 4, n. 26: "Quia per hoc quod est albari non intelligitur res aliqua, ut eis videbatur, sed quaedam subjecti transmutatio."

this opinion of the Parmenideans should be able to be manifested in being applied to the position of Heraclitus and his successors, a position which is in one sense at the opposite extreme from that of Parmenides. The *heraclizantes* had made the true observation that of the changing thing—that is to say, the thing in movement—one can say nothing true insofar as it is in the state of change. As St. Thomas says: "For what is changing from whiteness to blackness is not white, nor is it black, insofar as it is changing."[20] In other words, since the thing that passes from white to black is not yet determinately black and is no more determinately white, insofar as it passes from one color to the other, one cannot say any more about it; one can say only that the white becomes black. But this becoming itself implies something of the indeterminate and the ineffable.

We have already spoken of the simultaneity of contraries in knowledge. Now we come to see that this simultaneity is not found exclusively in knowledge. To show it, let us support ourselves with a passage in *De veritate*. Here is the division that St. Thomas makes.[21]

The forms that pertain to the same genus regard one power alone, whether these forms be contraries, as whiteness and blackness, or not, as triangle and square. Now, of these forms it is said that they are in one same subject in three ways: (1) They are able to be in one same subject *in power*. It is thus that a subject that is white in act can be at the same time black in power; this is what we intend in saying that the power of contraries is one and the same, and that different forms are of the same genus. One finds here simultaneity of act and of power. While I am sitting it is at the same time possible that I stand up,

20 *In IV Metaphys.*, lec. 12, n. 683: "Quod enim mutatur de albedine in nigredinem, non est album nec nigrum in quantum mutatur."

21 See *De ver.*, q. 8, a. 14, c. [The paragraph that follows is a close paraphrase of what St. Thomas says.]

but it is not possible that I be at once sitting in act and standing in act. (2) Contrary or diverse forms appertaining to the same genus can be in the same subject, but *in imperfect act*, as when they are in becoming. Considered in this manner, these forms can be simultaneously in the same subject, as when one thing becomes white, while it whitens ("ut patet cum aliquis dealbatur"). Indeed, in this case, in the course of the whole time when the thing becomes white, the whiteness is present in the state of becoming, while the blackness is on the way to disappearing, to not being any more. This simultaneity is possible thanks to the indetermination of which we are going to speak. (3) The forms in question can be considered in perfect act in a given subject, as when whiteness is in the term of becoming white. It is in this manner that it is impossible that two forms of one same genus be simultaneously in the same subject, because it would have to be that one same power be able at once to be terminated in different acts, and this is impossible—just as it is impossible that at one of its extremities a line be terminated at two distinct points.

This division permits us to put in evidence the radical difference between the simultaneity of contraries in becoming and the simultaneity of contraries in knowledge. In the case of knowledge there are achieved contrary terms, which are simultaneous. On the other hand, in becoming, the terms cannot coincide simultaneously, except insofar as they are not yet achieved. The animal that becomes progressively blind, insofar as he becomes blind, is not yet blind. However, in knowledge, the term of this becoming, blindness, implies in act the opposite term: sight. This last simultaneity of contraries is attributed to the perfection of knowledge, while the simultaneity of contraries in becoming we attribute to a real indetermination, which has its own manner of unity. We distinguish clearly, therefore, these two sorts of simultaneity.

But one sees at the same time how it would be easy to confound them. And this is what has been done throughout the history of philosophy. Knowledge, because of its intentional character, and becoming, because of its indetermination, are the one and the other difficult to grasp. One can say that, in one sense, all of philosophy turns around these two problems.

As to becoming, Greek philosophers, without exception, have found it very difficult, very obscure. It is only with Descartes that becoming, movement in particular, will become the most clear thing in the world.[22] By contrast, Parmenides found becoming so obscure that he was not able to admit it as a reality. Becoming was only a sensible appearance that has nothing to do with true being. On the other hand, Heraclitus found becoming real but so obscure that he denied the possibility of a science of nature.

Let us note in passing that the two sorts of contrariety have been confounded by all those philosophers of antiquity who asserted that in order to know contraries in nature it would be necessary that there exist in the intelligence itself a contrariety identical and adequate to that which one finds in natural things, in natural becoming in particular. We will see in what follows how Hegel made the same assimilation.

Let us return for a moment to the simplicity of apprehension in comparison with the composition and division that knowledge of the truth requires. Certainly, there is a relation under which simple apprehension imitates more the divine mode of knowing, while the enunciation, by reason of its complexity, is separate from the divine mode of knowing under this precise relation. It often happens that things that are in themselves very imperfect imitate very perfect things better than perfect things can. For example, there is a relation under which first matter, the reality most separate from God, is compared nonetheless to him.

22 [See *Rules for the Direction of the Mind*, Rule 12 (AT 426).]

> Just as the first matter is called formless through its lack of form, so too formlessness is attributed to the First Good, not through its lack but through its exceeding; and in this way, according to a certain distant assimilation, a likeness of the First Cause is found in the first matter.[23]

Here is a case of the principle expressed by the adage *imperfecta perfecte, perfecta imperfecte*. Another case of the same principle: There is generation properly so called in God. It is the expression of the superabundant fecundity of God. But in creation, the beings most perfect in their nature—that is to say, the separate substances—do not generate. In creation, generation properly called can only be found in less perfect beings—that is to say, in beings composed of matter, form, and privation. Notice, however, that it does not follow that the less perfect things are at root more perfect, but simply that they are able, under the relation of a certain assimilation, to be an example more revelatory of perfection than things more absolutely perfect.

In short, the perfection of human knowledge requires a compromise with an immense complexity, and even with what is always provisional. Already from the point of view of the intelligence alone we require two intellectual powers: the agent intellect and the possible intellect. The agent intellect is necessary because we live in a world of things that are only potentially intelligible, on which, however, we depend in order to know. If we were independent of sensible things in order to know what anything is, we would have no more need of the agent intellect; our means of knowing sensible things would be prior to sensible things themselves. On the other hand (and we will return to it further on), the separate intelligences receive their intelligible

23 *In De div. nomin.*, c. 4, lect. 2, n. 297: "Sicut materia prima dicitur informis per defectum formae, sic informitas attribuitur ipsi primo bono, non per defectum, sed per excessum, et sic secundum quamdam remotam assimilationem similitudo causae primae invenitur in materia prima."

species directly from God. In order to know, our intelligence, with its two powers, is far from sufficing. From the first we require multiple external and internal senses that, in the order of generation, are prior and presupposed to reason. Our knowing power is consequently radically divided. Our external and internal senses are organic faculties—that is to say, faculties that incorporate a material tool, such as the eyes, such as the cerebral organ of the memory. Not only are the external senses multiple but, in order to know, they must first entitatively take on their objects. To touch the corner of this desk, my hand must be spread on the object and even take on in some way the figure that remains imprinted in the palm, as you see. The sense of touch is the most dispersed of all. The external senses have in common that they engage us physically in material reality. By reason of their organic character they belong to the material world—that is to say, by their proper materiality. But it is not by this engagement alone as part of the physical world that we have sensible knowledge. The stones also, just as the trees, make part of it. All knowledge, indeed, requires a measure of immateriality. As you know, even the internal senses are organic faculties, beginning with the *sensus communis*, all the way to memory and the cogitative, senses very similar to intelligence. Our external sensations wither in the measure of time. When contact ceases with the external object, whether it be tangible or visible, the sensation itself is cut off, withers.[24]

IV – The Divine Sameness

It is in comparing the human intelligence to that of the angel, and that itself to the divine intelligence, that one better sees how all created intelligence declines from the sameness of the divine

24 For a complete view of the multiplicity of our external and internal senses, see *ST* I, q. 78, especially articles 3 and 4.

intelligence, and in what measure that of man declines from angelic intelligence. We are now going to consider this decline under the relation of the *idem et diversum.*

We suppose here several propositions established in the *De anima*, especially in Book III. Differing from the term of a transitive operation, where the effect is exterior, the object of an immanent operation—"object" signified as term of the operation—is interior to the operating subject. It is thus that the sensible in act is nothing other than the sense in act, and the intelligible in act is the intelligence in act. It is in virtue of a sensible or intelligible species that the sense or the intelligence is in act. However, since our knowledge is acquired, the faculties of knowing are at the very beginning in potency. It is because of a potentiality that the sense is something other than the sensible, and the intelligence something other than the intelligible.

In God, by contrast—since he is pure act, excluding all potentiality of whatever genus it may be—the intelligence and what this intelligence grasps must be under all relations identical, in such a fashion that this intelligence is always its intelligible species and this species is nothing other than the very substance of the divine intelligence. It is therefore the intelligible species itself which is the divine intelligence. One cannot conceive of a more absolute sameness.[25] In this unique intelligible species, which is God, God knows himself in his absolute comprehensive sameness. All possible things are found represented in an exhaustive manner, those that God could make but did not make, as well as the things that he made. The sameness of the divine intelligence with its intelligible species, with the divine substance, admits no division. Notice too that this sameness is life *par excellence*. Indeed, because God is pure act, and a thing is perfect insofar as it is in act, and the most elevated actuality is that of life, and the most elevated degree of life is that of

25 See *ST* I, q. 14, especially articles 2, 3, and 4.

the intelligence, the life of God consists in thinking, in thinking one thought, which bears on itself, where the one thinking, the thought, and what is thought are absolutely identical. St. Thomas even asks if all things are life in God: "Utrum omnia sint vita in Deo."[26] Here is what he answers: the life of God is identical to his act of understanding; completely identical in God are the intelligence and what it understands (its object), as well as his very act of understanding. Therefore everything that is in God insofar as it is understood by him is identically his living, the very life of God. Also, as all things that are made by God are in him insofar as they are intelligible, it follows that all things in him are nothing but the divine life itself. Here is the text of St. Thomas:

> God's living is his understanding, but in God the intellect and what is understood and his very understanding are the same thing. Whence whatever is in God as understood is his living itself, or his life. Whence since all things that have been made by God are in him as things understood, it follows that in him all things are the divine life itself.[27]

All created intelligence declines from sameness, as we will see. From the fact that everything outside of God is composed of act and potency, it is impossible that the intellection of the angel be identical with his substance. If the angel were pure intellection, this intellection would be subsistent and, as a result, identical to that of God—it would be God himself. But just as every created being is only a being by participation, so created intellection is only intellection by participation. That is to say, creatures,

26 See *ST* I, q. 18, a. 4.

27 Ibid.: "Vivere Dei est ejus intelligere, in Deo autem est idem intellectus, et quod intelligitur, et ipsum intelligere ejus. Unde quidquid est in Deo ut intellectum, est ipsum vivere, vel vita ejus. Unde cum omnia, quae facta sunt a Deo, sint in ipso ut intellecta, sequitur quod omnia in ipso sunt ipsa vita divina."

either individually or in their ensemble, are only compared to God in the fashion of a part to a whole.[28]

The angel, therefore, however perfect he be, because his action is distinct from his substance—distinct from his being and distinct from his essence—declines from this sameness, which is only found in God.[29] Briefly, in the most perfect angel one must see a real distinction between *what he is* (his essence), *that by which he is* (his existence), and his activity of *thinking* or of *willing*, whether this activity be immanent or transitive.

The angelic intelligence, however, although declining infinitely from the pure and simple sameness of the divine intelligence, is, from the point of view of the identical, very superior to that of man. Ours is indeed divided into two powers, the agent intellect and the possible intellect. Already under this relation, our intelligence declines from that of the angel.[30] And just as the angelic intelligence is one sole and same power, his knowledge is exclusively intellectual.[31] In this again we decline from the identity of the knowledge of the angel—that is to say, from the pure intellectuality that attains at once intelligible things in act and those sensible, which are only intelligible in potency.

Every angel grasps intuitively what he is. The first act of his intelligence—an act always identical, whose duration is indivisible, aeviternal, as is that of his substance—consists for the angel of speaking himself to himself. But the angel does not know only himself. By what means does he know, therefore, things other than himself? Does he know them simply in seeing what he himself is? Each angelic individual is a nature distinct from every other angel according to species. Being purely spiritual

28 When one says "whole" of God, it is evidently a matter of a *totum ante partes*, not of a *totum ex partibus*.

29 See *ST* I, q. 54, aa. 1, 2, and 3.

30 See *ST* I, q. 54, a. 4.

31 See *ST* I, q. 54, a. 5.

substances, these substances could not owe their individuality to a principle that would make them composite substances. Being limited to his individual species, the angel cannot therefore find in his essence the representation of things other than himself.

Knowing himself, the angel evidently knows himself as a participated being, as limited, and in which he sees at the same time his dependence on another, on a superior principle, to which he is compared as part to whole, a whole prior to its parts, and on which every part depends absolutely for all that it is. It is thus that the angel knows God, and that he cannot cease to know him. However, in this knowledge of God, he does not see what God is. To see him thus, grace is necessary for him, the light of glory. (However, even from the purely natural point of view, it is impossible for an angel to be an atheist.)

But as far as beings other than God himself, how does Gabriel, for example, see them? His proper essence, we have said, is too limited to represent them. In the knowledge that he has of himself, he would never be able to know other things except in a confused manner—that is to say, to the extent that he resembles other things in a certain measure. However, every intelligence implies a certain infinity, because its object, the true, is convertible with being, which no creature exhausts. The perfection of the intelligence, on the other hand, consists in a distinct knowledge of things. In order to know creatures other than himself distinctly, the angel must have in his intelligence certain other determinations than that by which he knows himself. That is to say, in order to know them, he requires intelligible species appropriate to the things, thanks to which he is able to see them distinctly.

From where does he obtain these intelligible species? Do they come to him from the distinction of the things that he knows distinctly? This is impossible, because for that the angel would have to undergo entitatively the things that he knows, but

to undergo in this manner supposes corporeity, materiality. He is, therefore, not able to receive the intelligible species in question except from God, who produces these species as he produces the very substance of the angel.

St. Thomas specifies, however, that these species are "connatural," by way of differentiation from natural species. That means that the angel does not hold his means of knowing in the fashion by which he holds his faculty of knowing. The reason that St. Thomas gives for this distinction is this: The angel receives intelligible species in order that there be represented in him the universe such as it is. Now, God, even while creating Gabriel, would have been able to make the universe in its ensemble very different. In other words, there is no analytic relation between the nature of a given angel and the other natures that God created. However, if the intelligible species do not unfold naturally from the essence of an angel in the fashion in which his intelligence unfolds from it, he receives nonetheless these intelligible species in a fashion connatural to his substance, following the great principle that everything that is received is received according to the mode of the one receiving, or the recipient. Also, the superior angel receives more perfect intelligible species than those of an inferior angel. But it is always the same universe that is represented, although in a fashion more or less perfect, following the degree of natural perfection of a given angel.[32]

The intelligible species in question are derived from the intelligible species that is God and that St. Thomas calls *rerum factiva*. Consequently, neither the intelligible species that is God, nor the intelligible species in the angelic intelligences are abstracted from things. This is why St. Augustine and St. Thomas say that there is a triple being in things. The being of things is first in the Word; they have their being in the divine art, which is the Word, before having it in themselves. They then have their

32 See *ST* I, q. 56 a. 1.

being in the angelic intelligence, because God has produced nothing of which he has not imprinted the nature in the intelligence of the angels. It is only in the third place that things have their being in their proper nature.[33]

In the Prima pars, question 56, article 3, St. Thomas asks himself whether the superior angels know by means of species that are more universal than those of the inferior angels. His response is the following: The superior beings hold their superiority from their proximity and resemblance to the first one (*uni primo*), which is God. Now, in God the entire plenitude of intellectual knowledge is contained in one—that is to say, in the divine essence, by which God knows all things. Now, this intelligible plenitude is found in intellectual creatures in an inferior and less simple manner. This is why the things that God knows by one, the inferior intelligences know by multiple means, and this multiplicity will be so much the greater as the intelligence is further away from the first intelligence. This is why the more an angel is superior, the more he knows the universality of things known by means of fewer intelligible species. This is why these species must be of more universal forms, of which each is extended to many things. Here is an example by which one can manifest what is in question: There are, indeed, men who cannot grasp an intelligible truth unless there be spread out a great number of particular cases. This is a sign of the debility of their intelligence. On the other hand, those of an intelligence that is more powerful are able to grasp many things by means of less numerous givens.

In question 50, article 3, St. Thomas has shown that the angels exceed in number material substances *quasi incomparabiliter*. And as they differ individually, the ones from the others, according to species, and these species constitute degrees of perfection that are greater and greater or more and more

33 See *De pot.*, q. 4, a. 2, ad 8; *ST* I, q. 56 a. 2.

restricted (according as one looks from the base of them toward the height, or from the height toward the base), the universality of knowable things requires, in inferior angels, more and more numerous intelligible species. Here is, therefore, another relation under which the angels decline more and more from the absolute identity that is proper to God. In the measure, therefore, that one descends in the angelic hierarchies and orders, one notes a manner of tending toward an absolute plurality—that is to say, toward a knowledge that requires more means of knowing than things known. This is the case with man, whose intelligence is the most distant from the first one, which is God.

Certainly, we ourselves also have universal intelligible species. But in the measure that our species are more universal, the knowledge of distinct things is more confused. For example, if we only knew man as animal, our knowledge of man as such would be extremely confused; we would not know him as man. So, in order to have an appropriate knowledge of man, we need an intelligible means other than, and more distinct than, that of animal.

To show the difference between the universality of the intelligible species of man and of angel, let us note first that there are three sorts of universality. (a) There is first the universal *in re*, in the reality; understood thus, the universal is nothing other than the nature itself that is found in particulars, which nature, multiplied in singulars, is the foundation of what one calls the "universal in act," and which is not as such in particular things. It is true to say that Socrates is a man, but it is false to say that man is Socrates; there must therefore be, in Socrates, Plato, and so on, a reason why it is true to say that Socrates is a man, Plato is a man, and so on. (b) There is the universal *a re*, from the reality; this is the universal received from the thing by way of abstraction. And this universal is posterior to the thing. This is the kind of universal that characterizes the human intelligence,

which depends on things and whose knowledge is posterior to the things known. In order to arrive at this universal, our intelligence must leave aside the inferiors of which this universal can be said. Although "man" can be said of every man, the concept of man does not distinctly represent any man. That means that in order to arrive at the intelligible actuality, beginning with singulars, our intelligence must make a sort of compromise, leaving aside the existential and singular actuality, the first foundation of the abstract universal. (c) There is finally the universal that St. Thomas denominates *ad rem*, for the reality. This universal is prior to the thing in the manner in which the idea of the building in the intelligence of the builder is prior to the building of whose construction this idea is the idea. Here is the manner in which the universal forms of things are found in the angelic intelligence—not that these forms produce things, but they are similar to the productive forms, in the manner, however, in which one can have a speculative knowledge of a workable thing, or again of a practical knowledge. This universal is also called *universale in repraesentando* (universal in representation) while the second is qualified as *in praedicando* (universal in predication).[34]

Speaking of the great universality of the forms in the superior substances, St. Thomas remarked that it does not entail, as it does however with us, imperfection in knowledge. By the similitude of *animal*, by the mediation of which we only know a thing according to its genus, our knowledge is less perfect than that which we have by the similitude *man*, by which similitude we know the species. For to know a thing only according to its genus is to know it imperfectly and, so to speak, in potency, whereas to know a thing according to its species, especially according to the ultimate species, is to know it perfectly and in act. Now, our intelligence, because it holds the lowest degree among intellectual substances, requires more numerically articulated

34 See *In II Sent*., d. 3, q. 3, a. 2, ad 1.

similitudes than it knows distinct objects among them. But the intelligible similitude that is found in the separate substance is of a more universal power, of a sort that it is extended undivided to many things simultaneously. It is a little as if in knowing *animal*, we should know distinctly all the animal species without returning to the distinct intelligible species. But man does not in fact possess any means of knowing that would be universal *in repraesentando*. The reason for this is that his reason is posterior to things, and as a result it is "pluralized" from the beginning by the plurality of sensible things, of which it requires a plurality of sensations before being able to pass to intelligible actuality where singular things are no more directly perceived. Human knowing declines from sameness from the beginning. And in the measure that it approaches sameness—as it does in knowledge of the species *man*, or of the genus *animal*—the knowledge of their inferiors is accordingly confused.[35]

The reminders that we are making give but a still vague idea of the growing complexity of things and of knowledge itself in the measure that it is distant from the identical one that is God. Let us now consider the order of separate substances under another relation, one that will permit us better to see both human nature and knowledge as the lower limit of a progressive degradation.

V – How Man Falls Short of the Identical

We have indicated that the multitude of separate substances is, as it were, incomparable with that of natural things.[36] The reason that St. Thomas gives for this is that, in creation, spiritual beings are more multipliable than material beings. He gives mathematics as an example, where one can easily conceive a

35 See *SCG* II, cc. 98–100.
36 See *SCG* II, c. 92.

number as great as one wishes. Now, mathematical things have only intelligible being, but this intelligible being does not exist outside the limits of the intelligence. Separate substances, on the other hand, exist in themselves outside of the intelligence. However, under the relation of intelligibility, they are proportionally comparable to mathematical beings. We do not intend to prove here the position of St. Thomas; let us take it here simply as a supposition.

Not only are the separate substances of themselves more multipliable than natural substances, but, if we consider their ensemble, the more they are superior—that is to say, more separate from matter, more remote from what limits form and multiplicability—the more they are numerous. It is thus that the angels of the first hierarchy are in a greater number than the angels of the inferior hierarchy. And in the interior of a hierarchy, the angels of the first order are in a greater number than those of the second and third.

Now, not only are the superior angels more numerous, but the superior angels differ much more among themselves according to species, according to perfection, then the inferior angels. Let there be angels A, B, and C. A and B differ much more between themselves than do B and C. This is to say, in the measure that one descends in the angelic orders, the angels, while remaining specifically different from one individual to another, differ less and less, the one from the other. The limit of these degradations would be a non-differentiation according to species— that is to say, a multiplicity of individuals of the same species. We have before us, therefore, the notion of natural substances, of substances that belong to the same natural genus, and even of substances that do not differ between themselves except according to number. This is the order of discrete quantity.

Regarding the orders of separate substances under the relation of simplicity, we note that each separate substance,

however uncomplex and simple, nonetheless, in the measure that it is distant from the absolute simplicity of God, approaches more and more to substantial complexity, to composition. This composition divides up in many ways. One of them is that of divisibility, another that of heterogeneous parts. It would unfortunately take too much time to show how one can make these latter genera of complexity arise by way of degradation. It will suffice for the moment to name them and to indicate them by examples. It is thus that every quantified, natural being comports exteriority within itself insofar as it is extended, insofar as this part here is not that part there. Another exteriority is that of heterogeneous parts. For example, the head of a man is outside his feet, the stomach outside the heart; these parts differ among themselves in a formal fashion. Well! Under all these relations, the natural being is far from the identical, even from a sameness similar to that which is encountered in the most inferior separate substance, to which the natural being is compared as a popped kernel of corn to the grain enclosed on itself.

Having considered briefly the objects and means of knowing in separate substances, it remains to know how they use these means. The first question that one proposes on this subject is the following: Is a created separate substance able to consider simultaneously the universality of knowable things whose intelligible species it contains?[37] It is necessary to distinguish. From the supernatural point of view, in the beatific vision, the angel and the blessed souls can see all things simultaneously since the intelligible species in which they can know all things at once is nothing other than the very essence of God. But outside of the vision, they use their multiple intelligible species. Now, none of these species represents the universe in its totality, and this is

37 I have already given you the reference to *De ver.*, q. 8, a. 14, where St. Thomas explains himself at length on this subject. See *ST* I, q. 58, a. 2, and parallel places.

why many of them are needed. In order to consider things distinctly, the separate substance can use only one species at a time. If it could make use of all these intelligible species at once, it would have to have an intelligible species that comprehended all the others, and consequently rendered them superfluous. Thus, in order to consider distinctly the entire knowable universe, the separate substance must use these intelligible species successively. This succession introduces a new sort of duration, which is called "discrete time," in opposition to cosmic time, which is continuous. It is thus that the inferior separate substance takes more time to make a tour of his intelligible universe than the superior substance takes. What the latter sees in one look, the inferior cannot see but by multiple successive looks. In the measure that one descends in the angelic orders, thought becomes more and more diffuse, becoming always more distant from sameness. At the limit of these descents, we have a continuous succession, that of time, which measures our substance and our operations.

We have just a moment ago employed the metaphor of popcorn, where what had been interior is spread suddenly without. The interiority of the intelligible species of the separate substance is defined by their priority to things known. The numerous intelligible species of the inferior separate substance maintain this interiority; they remain always within. However, with regard to the order of the ensemble of separate substances, the relative degradation tends toward an exteriority of cognitive species, which will be defined by the priority of things to the cognitive species. In return, sensible things, in virtue of their sensible quality, are themselves the determinations that are imprinted in the external senses. Thanks to the determination of the sensible thus impressed in the sense, the sense becomes the sensible in act. The sensible qualities that are impressed in our sense are at the same time qualities first extrinsic to sense,

but extrinsic also to the thing of which they are the quality, in the manner in which an accident is extrinsic to substance. If in knowledge by external senses it were a matter of cognitive species—that is to say, expressed species—we would have no cognitive contact with reality, with what for us is first of all reality. It is true that the intelligible species by which the separate substance knows things other than himself are also qualities, distinct from the substance. But they are qualities at once inherent and anterior to the things known, while in our knowledge we depend on qualities extrinsic to us, anterior to our knowledge, and extrinsic conditions of our knowledge.

This shows how much we are in some way poured out of ourselves in knowing. This exteriority, on the other hand, this dispersion, which from the beginning our external senses take on, is interiorized more and more, even already at the level of the external senses, to the extent that sight, for example, extends itself to a greater number and to a greater variety of things. In the internal senses a greater unity is produced, even of more multiplied and distinct things, because the inferior virtue works by multiple means, but the superior virtue works by one alone. Because the more a virtue or active power is elevated, the more it gathers the multiple into one, whereas the more a virtue is inferior, the more it is divided and multiplied. It is thus that the diverse genera of sensible objects perceived by external senses are gathered by one single power called the "common sense."[38]

Now we should consider another division of the one. It will permit us to see how we are able—in a manner purely tentative but nonetheless significant—to surmount the many that divides our knowledge and our mode of knowing. We base ourselves on the division that is found in *Metaphysics* 5.6.[39] It is the division

38 See *SCG* II, c. 100.

39 See *Metaphysics* 5.6, 1016b30 and St. Thomas, *In V Metaphys.*, lec. 8, nn. 876–79.

of the *one* into one according to number, one according to species, one according to genus, and one according to proportion.

It is in the numerically one, as Socrates, that we find the unity according to number, which we express in the proposition of identity, "Socrates is Socrates." However, things that are numerically multiple but one according to species are manifestly not one and the same in the manner of Socrates. Seen from the point of view of the numerically identical one, "man"—insofar as one says it of men, the universal *a re*—is neither one nor multiple. If it were one in the sense in which Socrates is one, there could be only one man, as there can be only one single separate substance of the species Gabriel. If it were multiple in the fashion in which Plato and Socrates are multiple, one could not say "man" of Socrates and Plato. "Man" would not be predicable as species. One sees from this that the unity of the predicable species is a wholly other genus than the numerical unity of which we have spoken.

The generic one is still again of a wholly other type. Regarded from the point of view of the numerically same one, the genus is neither one nor multiple in this sense. Its characteristic unity consists in this: While the species as such is only divided by inferiors that are individuals, the genus is divided properly by inferiors that are species. It is not properly divided by individuals. The species and the genus have, respectively, a unity such that the species is said in one single manner, while the genus also is said in a single fashion. Thus, when I say that Socrates is a man and that Plato is a man, "man" is said in a single manner. The same for the genus: "animal" is said in the same fashion of man and of horse, despite their differences; these differences, although very great, are not expressed by the same proximate genus. In other words, the genus, whether it be proximate or distant, is said in a univocal manner, and the species is as well. On the other hand, "universal" is not said in a single

manner of genus and species. They are only one in following a proportion. And this is the fourth division of one.

The unity of proportion has place between terms that are only reducible in a proportional manner. For example, the word "healthy" is said directly of the animal but is not said of a medicine or of urine except following their proportion of cause or of sign to what is first signified by the word "healthy," which is predicated directly of the animal as of its proper subject. There is also another case of this one according to proportion: that of proportionality. Thus, we say that sensible light is in relation to the eye what intelligible light is in relation to the intelligence. Here we have four terms and two proportions. What characterizes unity of proportion is that the terms are actually distinct. The proportionally one is an *actual* multiple. It is in this that it differs from the numerical one, from the specific one, and from the generic one.

Let us pause a moment on a characteristic of the genus, compared to the three other divisions of the one (the numerical one, the specific one, and the proportional one). Note right at the beginning that the intention of species and the intention of genus are not tied to what is said as ultimate species. For what is said as species, on the one hand, can be said as genus, on the other hand. For example, take the genus *figure*. It is divided into plane figure and solid figure. They are considered under this relation as being species, but these species are also genera. Thus, plane figure is divided into unilateral plane figure and multilateral plane figure. In relation to this last, the genus *figure* is a remote genus. In its turn, unilateral figure can be subdivided into regular unilateral figure, such as circle, and irregular unilateral figure, such as ellipse. Similarly, multilateral plane figure is divided into regular and irregular; and the regular into triangle, square, and so on, embracing as proximate genus all the regular polygons.

Now, just as the genus is not divided by individuals of its species, so the remote genus is not divided by the species that divide the proximate genus. Here now is the most important point. A universal can be predicated of inferiors that do not divide it, predicated *with identity*.[40] The most complete text on this subject is found in the *Physics* 4.14. Here is the text in question:

> It is also rightly said that the number of the sheep and of the dogs is the same, if both are equal; the group of ten, however, is not the same, nor are they the same ten, as neither are the equilateral and the scalene the same triangle, though the shape is the same because both are triangles. For those are called the same which do not differ by a difference of that [which was in question], but not those which do differ by that [sort of difference], as triangle differs from triangle by a difference (wherefore they are different triangles), but not [by a difference] of shape, but they are in one and the same division. For one sort of shape is a circle, another a triangle, and of this, one sort is equilateral, another scalene. The shape, then, is the same, and this is triangle, but the triangle is not the same. And the number, then, is the same. For the number of these does not differ by a difference of number. The [group of] ten, however, is not the same. For that of which it is said differs. For these are dogs, those horses.[41]

Once can, therefore, say that the equilateral triangle and the scalene triangle are the same plane figure, but one cannot say that they are the same triangle, although "triangle" is said in the same manner of the two. But it does not suffice that a thing can be said

40 On this subject, see *Metaphysics* 5.6, 1016a25 and St. Thomas, *In V Metaphys.*, lec. 7, nn. 861–63.

41 *Physics* 4.14, 224a3–15. The commentary of St. Thomas, lec. 23, n. 13, explains this passage in a very detailed fashion. One can also see St. Albert the Great, to the same end.

of many things in a single manner for one to say what is said in adding sameness. One can say that Plato and Socrates are the same animal, but one cannot say that they are the same man.

Now we are going to consider a very particular case of predication with identity. It is furnished for us by the example of the triangle and the circle. Let us take them here, as Aristotle does, as the immediate division of a genus that we have taken as proximate genus, namely, plane figure. The equilateral triangle is a species of polygon. Let us inscribe it in a circle. Let us trace, from the extremities of each side two equal straight lines to the top of the respective arcs that the chords subtend. This process can be continued to infinity. The chords are multiplied and shortened, each tending toward having no length, while the distance from the top of each curve to its chord diminishes. The polygon thus becomes more and more similar to the circle, but it never becomes completely similar, nor identical. Even should one find an angular area equal to the area contained by a circle, there would always remain the difference according to figure. Seen under this relation the process in question will remain eternally unfinished.

This tendency toward the limit in the given example, if it were able to succeed, would issue either in contradiction—that is to say, a figure at once unilateral and non-unilateral—or in a sterile sameness, that of the circle, with the polygon having evanesced (the anti-geometric hypothesis of Antiphon). But the tendency remains: It is established as tendency, and it has its permanence completely in that. Seen from the side of the means of knowing, there corresponds a tendency toward a unique means of knowing the diverse distinctly. But this tendency—it too—remains in a state of tendency.

Let us note now this important point to which we are going to make allusion: When we attempt to define a notion (that of circle, for example) in terms of another notion (that of polygon)

two things are happening—one on the side of the object, where we attempt to exhaust the area of the circle, and in doing this the polygon becomes more and more similar to the circle, less and less discernible; the other is produced on the side of the means of knowing, where we approach a distinct knowledge of the circle and of the polygon without distinct, multiple, means of knowing—that is to say, we are able to bring ourselves as much as we wish to a single means of knowing without however attaining it. In other words, the limit of this tendency would be a universal *in repraesentando*. These two tendencies that correspond, one on the side of the object and the other on the side of the means of knowing, are a way of becoming, but a becoming of which the term is beyond the scope, a becoming that remains in the state of becoming, *quasi in statu motus existens*. It is, however, in this operation that our thought approaches tangentially to that of the intelligences.

Let us say the same thing in another manner: The goal of this effort by means of the method of limits is, on the one hand, a more precise knowledge of the object (for example, of the area of the circle expressed in terms of the angular figure), but it is at the same time an effort to reduce the division of our means of knowing. This effort only succeeds in appearance—appearance either of a perfect precision or of a distinct knowledge of the multiple by means of the one. But it produces at least an appearance. If you prefer the term "phenomenon," the phenomenon is all the same the phenomenon *of* something. This something, would it not be the human intelligence which, despite its grand limitations, remains all the same capable of realizing itself, and of doing so in an extremely concrete manner? Now, it is precisely in this capacity of recognizing its limits that all intelligence, however imperfect it be, manifests its originally and fundamentally divine character. This makes one think of Socratic wisdom,

which consisted not of not knowing, but of knowing that one did not know, of living by means of ever new examples.

Permit me to repeat here what I have said of the dialectical philosophies of the nineteenth century:

> A remote genus is predicable of species with identity, just as a proximate genus is of individuals. Thus the circle and the polygon are the same figure. This predication with identity is possible because the remote genus is not divided by the species, but by the immediate genera beneath it; and likewise, the proximate genus is not divided by the individuals, but by the species. But Hegel identifies the properties of the remote genus with those of the proximate genus. Then it follows that the circle and the polygon are the same plane figure, which means that plane figure is identical with the differences that divide it. This procedure might seem plausible from the fact that one can define the circle dialectically as the limit of a regular inscribed polygon whose sides increase indefinitely in number, giving the apparent tendency of one species to pass continuously into another, by means of a purely quantitative change. If this tendency could really be accomplished, we would finish with an essence which is contradictory, or in other words impossible.
>
> In this way, we can see how the "dialectic of speculative reason" tries, by means of the pure common character of speculative reason—a negative community of abstraction—to derive all things in their differences. We do not mean to deny this dialectical process. We only wish it to be recognized as dialectical. It is a legitimate and fruitful process, provided that one sees it only as a purely logical expedient for tentatively surmounting the multiplicity of our means of knowing, a multiplicity in which our knowledge is lacking in the very character of wisdom.
>
> It is very true that the dialectical reduction of

> volume to area, area to line, and line to point makes our knowledge more perfect and more like Divine knowledge, which attains all things in what is most proper to them through a single unique species, a universal means of knowing. We have a better knowledge of the human intellect when we can see it as the limit of a degradation in the very nature of intellect. But, at the risk of destroying the very term of this reduction, one must realize that it is a purely dialectic reduction, that the movement given to things is but a movement of reason projected into objects, and that this reduction remains in the state of tendency. This movement does not have the reduction of the known natures themselves as its end: the reduction occurs in strictly scientific knowledge when one nature is recognized as the explanation of the other, both remaining radically distinct; its end is the reduction of the means of knowing. But a reduction of this sort can only be tentative; if it were to be completed, it would be frustrated by the destruction of the natures which we want to attain to in their difference. Hegel, a victim of emancipated language, holds it possible to engender in this way a new and richer object—the square-circle, for example.[42]

Frederick Engels, basing himself on an interpretation of the differential calculus that was still current in his time, falls into the entirely expired supposition of Antiphon, and declares that at the limit the curve is a straight line. He always considered the infinitely small as a least magnitude, while in reality the infinitely small is a variable and moving quantity, in other words, a magnitude as small as one wishes but which is never

42 [Charles De Koninck, *De la primauté du bien commun contre les personnalistes* (Québec: Éditions De L'Université Laval, 1943); English translation taken from "On the Primacy of the Common Good," *The Aquinas Review* 4 (1997): 92–93.]

at the limit, but which remains on this side of the other. Here is the text of Engels:

> At the moment when the mathematics of straight lines and curved lines are almost exhausted, the mathematics which conceive *the curve as being a straight line* (differential triangle) and *the straight line as a curve* (curve of the first degree, an infinitely small curvature) open to them a new and almost infinite way. Metaphysics![43]

To understand the entire weight of this affirmation, it is necessary to know what Hegelians and Marxists mean by "metaphysics." It is thought that gives itself the principle of contradiction as its wholly first principle. Metaphysics differs, for them, from dialectics by this, that the latter passes beyond contradiction, thanks to contradiction. For example, metaphysical thought does not allow passing to a limit that implies contradiction. Dialectical thought accepts contradiction as a radical condition of becoming, of development, of evolution, and as a result it does affirm, for example, that at the limit the curve *is* a straight line. The neo-Kantian Ernst Cassirer summarizes this purported difference in these terms:

> Aristotle's logic is unexcelled in the precise working out of contradictions, in setting up the categories by which the classes of being are distinguished. But it is unable to overcome this opposition between the various classes of being; it does not press on to their real point of unification. Hence it remains caught in the empirical and the finite; it is unable to rise to a truly speculative interpretation of the universe. The physical universe of Aristotle is dominated by the opposition between "the straight" and "the curved"; motion in straight lines and motion

43 Frederick Engels, *Dialectics of Nature* (Paris: Librairie Marcel Riviere et Cie, 1950), 285.

> in circles are for him essentially and radically distinct. But the transition to the infinitely large and the infinitely small shows that this is a matter not of an absolute but a relative distinction. The circle with an infinite radius coincides with the straight line; the infinitely small arc is indistinguishable from its chord.[44]

VI – The Species of Sameness in Knowledge

Let us now see the different species of sameness that we encounter in our intellectual knowledge. There is first that of sensible experience, which we obtain "ex collatione plurium singularium in memoria receptorum," from the gathering of many individuals received within memory.[45] It is also said that experience "fit ex multis memoriis," arises from multiple memories. This experience, however, although one—and distinct in this respect from "multae memoriae," multiple memories—does not reach sameness of itself, because it remains subjected in the cogitative power, which is an internal sense. It is, however, the foundation of the universal that, for its part, is identical—that is to say, the same notion is said of many inferiors. It is at this level that, thanks to the natural light of the intelligence, the intelligible in potency becomes the intelligible in act. "Man" is said in a single fashion, a fashion perfectly identical, of all men.

Then there is the sameness of the defined and the definition. The name "man" and the definition "rational animal" signify entirely the same thing, but not in the same fashion. The name "man" signifies only a confused whole, while the definition "rational animal" signifies man in a distinct manner. But, as we have said, the mode of signifying is not the same. Man is only a confused whole in our fashion of knowing and of naming him

44 Giovanni Pico della Mirandola, quoted in *Journal of the History of Ideas* 3 (1942), 322–23. This idea is developed at length by Ernst Cassirer in his chief work, *Individual and Cosmos* (Leipzig, 1927).

45 [See *Posterior Analytics* 2.19, 100a4–5.]

simply by one name. He is not, however, a confused whole in reality. In reality he is a distinct whole, an integral whole. If what the essential definition expresses were not identical to what the name signifies, the definition would not be good, and one would not be able to say it with truth of the thing defined. The name and the definition differ from each other, but what they refer to is in itself entirely identical.

We just said that if the definition is good it can be said with truth of the thing defined. This puts before us another genus of identification: that which one encounters in the enunciation. If a definition, considered in itself, is neither true nor false but simply good or bad, it is nonetheless virtually a proposition, to the extent that one can say it of the thing defined.

The enunciation is either compositive or divisive.

> There is *composition* when the intellect connects one concept with another, as though apprehending the conjunction or *sameness* of the realities of which they are the conceptions; there is *division*, however, when it connects one concept with another in such a way that it apprehends their realities as being diverse.[46]

On this identity, affirmed or denied—that is to say, on this particular sense of *same* and *other*—depends all our knowledge of the truth, at whatever level this may be.

The predication, thus understood, is therefore an identifying or diversifying operation. Now, as we have seen several times, a thing can be said of another thing in diverse manners, which makes room for diverse predicables. "Animal" is said of man in the manner of a genus; "man" is said of Socrates in the

46 *In Peri herm*., lec. 3, n. 4: "Compositio quidem, quando intellectus comparat unum conceptum alteri, quasi apprehendens conjunctionem aut identitatem rerum quarum sunt conceptiones; divisio autem, quando sic comparat unum conceptum alteri, ut apprehendat res esse diversas."

manner of a species; "rational" is said of man as a difference; "grammatical" is said of man as a property; "white," or "seated," is said in the manner of a predicable accident. In all these cases, there is identity not only in the term that is said of its inferiors, but in the predication itself. We have already remarked that each type of predicable has its own unity. Their common name, "universal," is one only by a community of proportion. Each predicable is a universal whole. Note here the difference between the universal whole and the whole called integral. Here is how they are distinguished:

> A "whole" is said in two ways: either such that each of the things contained by the containing whole is "the one itself," that is, is the containing whole itself; this is in a universal whole, which is predicated of every one of its parts; or it is a one that is constituted from its parts such that every one of its parts is not that one, and this is the notion of an integral whole, which is predicated of none of its parts.[47]

It is the universal whole that is said as being entirely identical with each of its subjective parts. If the intelligence did not form relations of reason called "second intentions," if it were not able to form relations of universality, it could not be true to say, "man is an animal," or "Socrates is a man."

We pass now to the categories—that is to say, to the predicaments—which are the supreme genera, irreducible between themselves. We have already related that "to be" is said in diverse fashions; it is said in one manner of man or of animal, in other

47 *In V Metaphys.*, lec. 21, n. 1099: "Totum dicitur duplicitur; aut ita quod unumquodque contentorum a toto continente, sit ipsum unum, scilicet ipsum totum continens, quod est in toto universali de qualibet suarum partium praedicato. Aut ex partibus constituatur unum, ita quod non quaelibet partium sit unum illud. Et haec est ratio totius integralis, quod de nulla suarum partium integralium praedicatur."

manners of their magnitude or their quality, and in yet another manner of relation. Mark now the difference between the following attributions: "Socrates is a man" or "Man is an animal," on the one hand, and "Socrates is of moderate height," or "Socrates is brown," or again, "Socrates is a father," on the other. In the two first cases, what is said of the subject is essential to it. In the other cases, we say something that inheres in the subject, without being the subject.

We have recognized the categories of quantity, of quality, and of relation. There are here two manners of being intrinsic: either in the manner of first subject, or in the manner of inherence. In the other categories, something extrinsic is said of a subject, either as cause or as measure.[48] What is necessary to note is that the order of the categories is such that they are removed more and more from the pure and simple interiority of the predication called "essential." In a very determined sense, the most remote of all the accidental categories is *habitus*, that is to say, "what results in man from the fact of being clothed." *Habitus*, thus understood, supposes indeed a substantial duality. Now, the most radical otherness is that of one substance distinct from another, since substance is logically defined as being that of which all is said but which is said of nothing, and naturally as what is in itself and not in another thing. The case of *habitus* is particularly quite interesting, because the substance of clothes as clothes (not to confound it with *habitus*) is entirely ordered to an achievement of man that nature cannot realize, as nature does, however, realize in the case of the other animals. This category is entirely characteristic of man and is found nowhere else. It is a manifest sign of the incomplete character of man as product of nature, of man who has need of being completed by his own proper reason. Entirely extrinsic as is the substance of clothing, as human clothing it is a work of reason and, under this relation,

48 See especially *In III Phys*., lec. 5, n. 15.

comes from within; and in the same proportion, *habitus* also emanates from the reason, and it is in this sense more intimate than the extrinsic measure.

What is necessary to remark with regard to each of the categories is that each is said in a manner absolutely univocal of its inferiors, but compared between themselves, they are said in a manner radically and irreducibly different. Under this last relation, we find ourselves before a multiplication of which the unity is only proportional and which consequently cannot be said with identity. If we were to be able to pass from one category to the other—that is to say, if there had been transgression in the supreme genera—we would have to suppose that in their root all things are entirely identical in notion.

This would mean—as Plato thought and, later, Hegel—that being is a genus, and that it can be said in the manner of a genus. Here, therefore, is an identification that would lead necessarily to contradiction, which was accepted by Hegel as being the principle thanks to which he believed he could pass from one genus to another, for example, from quantity to quality. His examples were the passage from polygon to circle, or the passage from water in the liquid state to vapor, thanks to an increase in temperature. We have seen what must be thought of the first example. For the second, it is even less subtle than the first. Because it is not the *quantity* of the temperature (which is, by the way, an intensive quality) that is transformed into quality. It is the qualitative change, the alteration, the intensification of the temperature, that is terminated in a new state of its subject, that of vapor.[49]

There is still another sameness on which human science depends. It is that of the middle term in reasoning, the term B

49 It would be interesting to read Hegel to notice how in writing he observes faithfully the different modes of predicating, either predicables or categories, even when he writes in order to abolish the categories of being.

which binds A and C. Without this sameness, our knowledge would be limited to pure description. We think we possess science of a thing in an absolute manner when we believe that we know the cause by which the thing is, and that we know that this is the cause of that thing, and also that it is not possible that the thing be other than it is.[50] Note now that it is thanks to science, thanks therefore to the identity of the middle term in syllogistic demonstration, that we succeed in knowing not only any causes whatever, but universal causes.

Recall here the distinction that we have seen between universality *in praedicando* and universality *in repraesentando*. Now, a universal cause *in repraesentando* can be a universal cause *in causando*. That is to say, just as in one sole intelligible species the separate substance can attain many things at the same time and distinctly, so also it is able in one sole, undivided act to be the cause of many things at once. It is thus that the immense plurality and variety of created things are produced by God in one sole, absolutely undivided act, which is the very being of God. As far as created separate substances, they are unable to be the cause of all the things of which they have universal intelligible species *in repraesentando*, but of certain things of which they have a practical knowledge, they are able also to be universal causes. As far as the absolutely universal cause of the whole of being—which latter is divided into predicaments, into act and potency, into the necessary and the contingent—it is characterized, as we have seen, by absolute sameness. God is his action, even his creative action. The action of God, which is his being, is measured by absolutely indivisible eternity. And all that God freely wills, he has willed freely for all eternity.

Note that our manner of speaking of eternity always implies something of the temporal. We are unable, by the way,

50 This is the description that Aristotle makes in Book 1 of the *Posterior Analytics*, c. 2, at the beginning.

to signify it except by means of a negative term: "the simultaneous whole and perfect possession of boundless life."[51] The mode of signifying of the word "boundless" ("interminabilis") is negative. But what it signifies is all that is most affirmative and positive. In eternity there is no past and future—neither in being nor in acting—as those are characteristic of temporal duration, whether discrete or continuous. St. Thomas describes eternity as an "*always standing now*, not one flowing nor one having a before and after."[52] The sameness of eternity is therefore absolute, and it is God.

Certainly, the names of God are multiple and are not synonyms. However, although the significations are different, all refer to the same thing. It does not follow that the multiplicity of notions and of names is vain:

> For to all of them there corresponds one simple "what," manifoldly and imperfectly represented by all such... This very thing pertains to the perfect unity of God, that things that are manifoldly and dividedly in other things are in him simply and unitedly. And from this it arises that he is one in reality and manifold according to account: because our intellect apprehends him in a manifold way, just as realities represent him in a manifold way.[53]

To say of God that he is wisdom, that he is goodness, that he is, is not to say that when we say "wisdom," we say "goodness" or

51 *ST* I, q. 10, a. 1: "Interminabilis vitae tota simul et perfecta possessio."

52 *In IV Phys.,* lec. 18, n. 5: "*Nunc semper stans*, et non fluens, nec habens prius et posterius."

53 *ST* I, q. 13, a. 4, c.: "Quia omnibus respondet unum quid simplex per omnia hujusmodi multipliciter et imperfecte representatum . . . hoc ipsum ad perfectam Dei unitatem pertinet, quod ea quae sunt multipliciter et divisim in aliis, in ipso sunt simpliciter et unite. Et ex hoc contingit quod est unus re et multiplex secundum rationem, quia intellectus noster ita multipliciter apprehendit eum, sicut res multipliciter ipsum representant."

"perfect existence"; however, the wisdom of God and the goodness of God are identically his being.

> Whatever we affirm of God does not befit him according to the way in which it is signified by us. For names imposed by us signify through the mode whereby we ourselves understand, which mode the divine being transcends.[54]

It is thanks to science, to demonstration, that we know that such a sameness exists, an identity that we cannot naturally know otherwise than by way of demonstrative causality and of negation. And it is thanks to the sameness of the middle term in demonstration that we are able to succeed in knowing—in a manner as inadequate as one likes—that there exists such an identity that is, so to speak, the principle of all other identities, which can only decline from it.

It is from the sameness of God that all other things receive their measure of sameness.

> Other things have their sameness through God, and this is in two ways. In one way, this is insofar as he bestows sameness on realities existing in their proper nature; and [Dionysius] says that this *same thing* [*idem*] that is God shines over *all things* so that they participate in his own sameness [*identitatem*], as far it is suitable to each; for he gives to something that it be simply the same, and to things that are in themselves diverse he gives a sameness of order, insofar as he coordinates *different things with different things*. In the other way, this is insofar as realities that are diverse in their proper natures are the same insofar as they are in God; and in this respect he says that this

54 *In De causis,* prop. 6, n. 43: "Quidquid de Deo affirmamus non convenit ei secundum quod a nobis significatur; nomina enim a nobis imposita significant per modum quo nos intelligimus, quem quidem modum esse divinum transcendit."

> is on account of his superabundance of *sameness*, and on account of the fact that he is the cause of every sameness. And *contraries* he possesses beforehand *in his very self* not in a diverse manner but *in the same manner*, just as diverse effects are in a uniform way in that which is, by way of excess, the one and unique cause of the *whole of sameness*.[55]

However, despite the multiple ways in which we decline from this sameness, we know nonetheless that there exists such a sameness, and that at the end of the account, the reason we are able in a certain measure to know it is none other than the proportion, the similitude, between the participation that is our own intelligence and that of which the psalmist says, "Tu autem idem ipse es" (Ps 101:28).

The superabundant sameness that is God is so profoundly and universally the cause of all other sameness, that despite its radical diversity from creatures, it is more united to its creature than is the creature to itself in its proper sameness. The sameness of God is therefore more one with the other than is the other with itself. When one distinguishes "union" from "unity," "union" means the unity of a multiple, while "unity" simply signifies the unity of the identical. However, the sameness of God, in his union with the creature, is more intimate to the creature

55 *In De div. nom.*, c. 9, lec. 2, n. 822: "Per Deum alia identitatem habent; et hoc dupliciter: uno modo, secundum quod tribuit identitatem rebus, in propria natura existentibus; et dicit [Dionysius] quod hoc idem quod est Deus, supersplendet omnibus ad hoc quod participent suam identitatem, secundum uniuscuiusque convenientiam: alicui enim dat quod sit idem simpliciter; et his quae sunt secundum se diversa, dat identitatem ordinis, secundum quod alia aliis coordinat. Alio modo, secundum quod res, quae in propriis naturis sunt diversae, sunt idem prout sunt in Deo; et quantum ad hoc, dicit quod hoc est propter superabundantiam identitatis et propter hoc quod ipse est omnis identitatis causa. Et contraria praehabet in seipso non diversimode, sed eodem modo sicut diversi effectus sunt uniformiter in eo quod est una et singularis per excessum causa totius identitatis."

than the creature is to himself in his proper sameness. This is because the absolutely universal cause is always more intimate to any of its effects than is that effect to itself.

This truth we know by means of demonstration, which depends on the sameness of the middle term.

VII – The Diverse and the Irrational

In the pages of "The Notion of the Identical," Meyerson hardly mentions the irrational of which Prince de Broglie speaks in the passage cited above.[56] But he treats it at length in his work *On Explanation in the Sciences*.[57] In these pages, Meyerson makes a kind of induction of the different sorts of irrationals that scientific inquiry meets in its reasoning. Here, in reference to mathematics, is a very interesting affirmation that we are going to analyze in what follows, albeit from our own point of view:

> It is certain . . . by the Eleatic (Parmenidian) conception, which dissolves all diversity in an indistinct whole, that the diverse, whatever it be, is repugnant to the foundation of our reason, which seeks to impose sameness on it. But, on the other hand, it is also entirely manifest that the existence of this diverse is the very condition of the functioning of reason, since the latter can only be exercised on it.[58]

Let us choose, from our point of view, an example of what can be called the "irrational." Discrete quantity, the enumerable, is more rational than continuous quantity, which, by reason of its divisibility to infinity, is in this sense indeterminate. This is, no doubt, why there have always been, in the course of the history

56 See notes 3 and 4.

57 *De l'explication dans les sciences*, 2nd ed. (Paris: Alcan, 1932); see c. 6, 186–230.

58 Ibid., 188.

of the philosophy of mathematics, attempts to arithmetize the continuous. This is what is done in taking a line as an ensemble of points. But there is also an inverse attempt: the geometrization of arithmetic. Why this attempt?

The integer numbers differ according to species. The number 2, for example, is known through a means other than the number 3; otherwise one could not think 2 without thinking 3. Each integer number, to the extent that it is distinctly represented, requires an appropriate intelligible species. This diversity of means of knowing separates us from pure intellectuality. Now, here is a subterfuge which permits us to *approach* more and more toward grasping a new integer number without passing to another means of knowing: Let there be the successive and partial sums of the series (2 + ½ + ¼ + . . .). This series converges toward the number 3. Manifestly, outside of the supreme sameness that is God, there is found in all things a root of irrationality, if it be only by reason of the composition of act and potency that divides every creature. But this irrationality is more or less great.

Certainly, arithmetic is more rational than geometry. What is there, therefore, particularly irrational in the integer numbers? The irrational is here nothing other than the interstices—that is to say, the numbers as distinct, the ones from the others, in a specific manner that requires, on our part, a diversity of intelligible species. We see that, in reality, the relative irrationality of the integer numbers is not in this regard in the numbers, but in the need in which our intelligence finds itself of having recourse to a multiplicity of intelligible species in order to represent them distinctly. Faced with two integer numbers, the intelligence can prove the measure of its proper irrationality—that is to say, the impossibility of attaining the multiple distinctly in one unique and identical means of knowing. In the given example, it attempts to surmount this diversity in using the infinite—in this instance, using the infinite series of fractions between the

numbers 2 and 3 in an endless attempt to close the interstice that separates one number from the other.[59] But if this tendency should come to an end, one would be found either before a contradiction or before a sterile sameness, because to say 2 would indeed either be to say 3 at the same time, or to say 2 would be only another way of saying 3 at the same time; or, if you please, 2 and 3 would be synonyms.[60]

For Meyerson, everything that is imposed on us as a fact carries with it something of the irrational. We would say that the anteriority of things by relation to the knowledge that we take of things, and our dependence on things themselves, is a sign of the measure to which we decline from intellectuality, and consequently from rationality, in our mode and means of knowing.

Our author devotes many pages to the irrationality of sensation. In "The Epistemological Paradox,"[61] Meyerson sees a certain contradiction between reason and the nature on which it depends. Because:

> Is there not, on the part of science, a contradictory attitude? Is it not strange that it studies the phenomenon, which is only change, with the aid of a principle that tends to affirm the sameness of the antecedent and the consequent—that is to say, to deny all change? And that it uses, in general, in order to penetrate the sense of things of which it maintains the reality, a conception that leads to the negation of all diversity? – The contradiction, indeed, is flagrant and irremediable, and nothing would

59 In reality, the fractional numbers include in their turn interstices that one can attempt to close with other sorts of numbers, but their intercalation only converges toward limits.

60 See on this subject the remarkable book of Herman Weyl, *The Open World* (New Haven, CT: Yale University Press, 1932). The conclusion of this work is this: The diverse that we attempt to surmount by means of the infinite is only truly reconciled in God.

61 Chapter 17 of *De l'explication dans les sciences*.

> mitigate its import, if there were not this reflection which is implied by the very concept of experimental knowing. Because from the fact that he has recourse to experiences (which he does as soon as he ceases to live a purely unconscious life), man proclaims his incapacity to penetrate things by the effort of reason alone—that is to say, he affirms that the ways of nature differ from those of the mind. But as, on the other hand, experience cannot be useful to him unless he reasons, this is why he supposes that, at least at the limits of this reasoning, there is agreement between mind and nature. In other words, the contradiction is the very consequence of this, that there exists an exterior world, a *nature*, that we sense—whatever be the case for the rest our efforts to absorb it or to fuse ourselves with it (*pour nous confondre avec elle*)—that is different from ourselves, all the while we remain confident—whatever we can do to oppose ourselves to it—that it is, after all, our sensation, or that it surrounds us.[62]

I do not know in what measure the following consideration can be pertinent. For us, a sensible reality that would be in itself intelligible in act implies a contradiction. Sensible reality only owes its intelligibility in act to the intelligence that makes it such, and it is not in itself but within the limits of intelligence that sensible reality acquires this actual intelligibility. It would be, again, contradictory that the intelligence should know the sensible world without rendering actual the intelligibility in potency of the sensible. This question is not posed in the case of separate intelligences, since they know the sensible world through the mediation of one or many species anterior to the sensible world itself and, at the end of the account, thanks to the *species rerum factiva* of God, where the sensible is actual in a way anterior to the sensible in itself. If the nature that surrounds

62 *De l'explication dans les sciences*, 670–71.

us and of which we make a part must be intellectually knowable for us, it is therefore absolutely necessary for us that we have an intellectual power which *makes* them, within our intelligence, intelligible in act—this is the agent intellect—while the possible intellect itself *becomes* everything that we know.[63]

Given the Hegelian point of view—the absolute priority of our thought in relation to things, and at the same time the impossibility of rationalizing them completely—it is not surprising to learn that Hegel felt an absolute disdain with regard to nature. Here is what Meyerson said about this:

> One will not find, we believe, in the whole immense Hegelian work, although it pretends to embrace the totality of the spiritual activity of man, one phrase, one expression testifying that nature has moved or has provoked, however slightly, his admiration. There is there, assuredly, with him an innate predisposition; his correspondence reveals to us that already at the moment when, at twenty-five, he visited the Bernese Alps, this spectacle left him indifferent. The view of the glaciers "presents nothing interesting," it offers "nothing great nor pleasant." The voyager found "no satisfaction other than that of having approached such a glacier" and judged that the base of the glacier resembled a very muddy street. In general, he observes that "neither the eye nor the imagination discovers in these shapeless masses any point whatever where the first could rest with pleasure or the second find a subject for occupation or play." The reason perceives "nothing which imposes on it, which forces wonder or admiration." The view of these eternally dead masses, he adds, has not given me "anything other than a monotonous and, in the long run, tedious impression: So it is."
>
> But what is perhaps most characteristic in this regard is the manner in which he speaks of the starry

63 See *De anima* 3.5 and St. Thomas's commentary, lec. 10.

> sky. He judges silly the admiration that Kant professed for this sublime spectacle; this is for him a subject of constant derision and one to which he returns many times. The immensity of the celestial spaces is a "bad infinite"; we must guard against all admiration and even all wonder in this regard, and as for the stars, they are comparable quite simply to a skin rash.[64]

This attitude of Hegel was so shocking that his disciples, even the most fervent, have felt the need to soften this intransigence. Meyerson reports that John McTaggart, in *Studies in the Hegelian Dialectic,* furnishes us with a good example:

> For this philosophy, "we cannot deny that there are in the universe the marks of rationality, just as we cannot deny that there are in it the marks of irrationality." But the latter do not give us the right to conclude to the incomplete rationality of the universe. It is indeed simply that our intelligence "persists in asking for what it cannot and should not obtain." This is what makes it the case that "taken in itself, philosophy proclaims its inadequacy, because it is obliged to affirm that things are completely rational and, consequently, completely explicable, while it cannot succeed in explaining them completely." Thus, it is not the universe that is at fault, it is our reason, and the philosopher declares this in some way irrational in the name of an apparently superior intelligence, of an *intellectus angelicus* for which the irrationalities that we perceive in the exterior world are resolved in agreements. The solution at first appears as contradictory, because what is rationality, if not the conformity to reason, to *our* reason, since we are not able to know another? (The author [McTaggart] does not entirely ignore this objection.) But that returns at root, quite simply, to seeing

64 *De l'explication dans les sciences*, 464–65.

> that our intelligence is antinomic and contradicts itself. However that is, it is certain that there is, in this attitude, a certain humility of mind that is as distant as possible from the "logical arrogance" of which Trendelenburg speaks.[65]

The lines that I will cite show sufficiently that our prolegomena to "The Notion of the Identical" are not as distant from the subject in question as they appear to be at first. It is not, however, in the *intellectus angelicus* that the absolute sameness of the *intelligere se ipsum* that is God is accomplished; one finds in it, however, a priority in relation to things.

We pass on now to examine the text of "The Notion of the Identical." We will comment on this study of Meyerson paragraph by paragraph.[66]

VIII – The Identical and the Indiscernible

¶ 1. With regard to the Leibnizian *intellectus ipse*, "intellect itself,"[67] Meyerson has written in *The Path of Thought*:

> Everywhere and always, whether it is a matter of realities the most down to earth or of the most abstract regions of knowing, the intellect only directs its efforts in one single and same direction, namely, toward intellection, the rationalization of the real by the identification of the diverse. It is therefore this contribution that definitively constitutes what Leibniz designated by the term *intellectus ipse*, or which at least forms a very essential part of it. Because the enunciation, in the Leibnizian form, *nihil est*

65 Ibid.

66 You will be able to number the paragraphs in the margin of your copy. There are 24 of them. [In lieu of including a translation of this essay, we will provide page references to the 2008 French edition; see note 1.]

67 "The Notion of the Identical," 203.

> *in intellectu quod non fuerit primo in sensu, nisi intellectus ipse*, is revealed to be literally true.[68]

Two remarks on this subject. (a) We would say of this *intellectus ipse*, when it concerns the human intelligence, that it is a positive power, a nature, a natural appetite whose object is nothing other than the truth. This is true before the intelligence knows whatever it might be. Manifestly the intelligence attempts to return the diverse to unity, since a thing is only truly knowable in the measure in which it is one or is conceived in the manner of unity. Indeed, the one as the true is convertible with being. (b) The second remark is this: Meyerson, in a note, returns to the passage we have just cited, and cites, as an opinion approximating to that of Leibniz, a text of St. Thomas:

> But because phantasms do not suffice to affect the possible intellect—rather, they must become intelligible in act through the agent intellect—it cannot be said that sense knowledge is the whole and perfect cause of intellectual knowledge; rather, in a way it is more the matter of the cause.[69]

Although the agent intellect does not know, it is all the same an intellectual power only depending materially on the sensible that it renders intelligible in act, this act being universal— that is to say, "one toward many."

When Meyerson says that "we are far from attributing in general to the definition the importance that one is used to recognizing in it; the progress of thought is worked, according to

68 *Du cheminement de la pensée* (Paris: Librairie Felix Alcan, 1931), 574.

69 *ST* I, q. 84, a. 6, c.: "Sed quia phantasmata non sufficiunt immutare intellectum possibilem, sed oportet quod fiant intelligibilia actu per intellectum agentem; non potest dici quod sensibilis cognitio sit totalis et perfecta causa intellectualis cognitionis; sed magis quodammodo est materia causae."

us, rather by example,"[70] he speaks with perfect reason. For in the study of nature the veritable definitions are not very numerous; most of them are tentative, provisional, and in argumentation the example plays a great role. You have seen, in the first two books of the *Physics*, that the general discussion of the principles of nature—that is to say, of the principles of the subject of natural science and the principles of the science of this subject—proceeds by means of examples in the sense of extrinsic arguments.

¶ 2. Note first that in this paragraph Meyerson qualifies the identical as the entirely *indiscernable*.[71] The term "indiscernable" was borrowed from Leibniz but is not taken here in the same sense. Meyerson is thinking rather of sameness such as Hegel spoke of it. Like Hegel, he symbolizes the principle of sameness in the following fashion: A = A. Now, says Meyerson, "this enunciation cannot present the sense of a perfect sameness, because this would be a tautology, a useless affirmation."[72] That is what he supposed—as he says, "a complete lack of accord between thought and the real."[73] Consequently, in thought, the second A must always be, by whatever circumstance this might be, differentiated from the first, the enunciation having precisely for its sole goal to affirm that this circumstance (or this group of circumstances) lacked significance in the species—that is to say, given the chain of reasonings that are applied to the former—and could therefore be set aside with impunity. We have borrowed the foundations of these theories from the logic of Hegel, and it is in following the trace of this latter that Bradley has made this conception precise. The phrase that we have cited just now on the impossibility of a strictly identical proposition is already attached to this order of ideas.

70 "The Notion of the Identical," 203.
71 Ibid., 204.
72 Ibid.
73 Ibid.

> "In order for an affirmation to be true," Bradley said, "is it not necessary that it affirm something?" And he asks himself, what would a strictly identical proposition affirm? "In abolishing the difference between the subject and the predicate," he adds, "we have abolished the judgment entirely."[74]

That is so true, adds Meyerson,

> that when we have the appearance of positing the same term as subject and predicate, for example, when we say, "a penny is a penny," the repeated term does not in reality have entirely the same signification as the term enunciated in the first.[75]

Bradley explained this with yet more clarity in other passages, says Meyerson:

> "Identity without difference," says the English philosopher, "is nothing at all," and he sets forth that, in order to comprehend the enunciations that seem to be fashioned according to this model, "we must always add 'despite,' 'nonetheless,' and 'once more,'" it being given that "we never affirm deliberately a simple tautology." Thus, "everywhere that we write =, there must be a difference, otherwise we would be incapable of distinguishing the one from the other of the two terms with which we are occupied." "No proposition," says Bradley again, "affirms Identity *alone*, but no judgment can be issued without stating or implying identity. Because anywhere identity is enunciated, difference is presupposed. Wherever ifference is enunciated, there is a basis of identity which underlies it."[76]

74 *Du cheminement de la pensée,* 97.
75 Ibid.
76 Ibid., 99.

A little further on, in the same work, Meyerson adds that "it is certain that, in thus transforming pure and simple identity in identification, one has the appearance of infusing it as an element of contradiction." Note indeed these differences between identity and identification. For us, identity (sameness) is said of what is identical, as in "Socrates is Socrates," although identification is the act of the mind in which we affirm this identity. Meyerson continues:

> But it is because of the fact that this contradiction is then quite fundamental—or as Hegel said, *necessary*—that it constitutes an *antinomy*, and that one finds it (as this philosopher declares in enlarging the Kantian concept) "in all the objects of all the genera in all representations, conceptions, and ideas." This contradiction comes from this: that reason, in *searching* to know the real, to rationalize it—which cannot be done, as we have said, except in recreating it—*senses,* however, at the same time that if it were to succeed in accomplishing this task, it would reduce all to non-being. This is but an aspect that is a little different from the essential conflict that we describe in affirming that, on the one hand, reason *wants* sameness, and on the other hand, it knows that there is diversity. It knows it because it senses that it only *tends* toward sameness, and that it has therefore been the case that the sameness was not present, that it does not pre-exist simply in knowledge, but that it is introduced precisely by the effort of the intellect.[77]

Is it indeed true that the enunciation "a penny is a penny" cannot present a perfect sameness without being a pure tautology, a useless affirmation? In fact, the first term of this proposition of sameness—provided that one understands it thus, and not as a manner of saying that even a penny has its value—signifies

77 Ibid., 101.

exactly the same thing as the second term. However, their mode of signifying is not the same. The first signifies by the mode of subject, the second by the mode of predicate. However, these different modes of signifying do not in any manner divide what they signify, that to which they are related. If one takes the two terms separately, outside of a proposition, they are neither true nor false. But if I want to speak and express the sameness of the thing as true, it is necessary that my intelligence fashion a composition within itself, to which composition cannot correspond a composition in the thing; otherwise, to affirm the sameness of the thing would be contradictory. One would say indeed that "Socrates is Socrates," while in reality Socrates would not be Socrates, but Socrates would be not-Socrates. In other words, the diversity in question is found not in the thing but in the intelligence, in the intelligence that makes use of the subject-predicate duplication as a means of expressing the non-diversity of the thing. That our intelligence must have recourse to composition in order to express the truth of the sameness comes, not from the thing identical in itself, but from a need characteristic of the human intelligence, as we explained above. The appearance of contradiction comes from a confusion of the real and the intentional, while one must distinguish the manner in which things are in themselves from the manner in which they are in our intelligence.

The idealist philosophies, which can be characterized by the identification of the real and the intentional, in this respect interpret the intentional in a purely material fashion, as if the duality of the terms that compose a proposition must correspond directly to a duality in things, as if the known were in the knower according to the mode of the known and not that of the knower. Now, the knower in question is man, whose intelligence is measured by things and depends on things in their relative anteriority to our knowledge; this is the reason for which we

must have recourse to abstraction, and in the enunciation, to composition or division, and in the case of science, to syllogistic discourse. One sees now that it is of sovereign importance to distinguish well the one and the many on the side of things from the one and the many on the side of means of knowing.

Therefore, when Meyerson affirms that in the case of the entirely indiscernible there must subsist no distinction between the notions that are affirmed to be linked by this relation, we, regarding sameness, distinguish between the object signified with truth by a proposition of sameness and the different modes of signifying of the terms that compose such a proposition. It is only when this distinction is not made that an affirmation of sameness appears contradictory.

Is anything new brought by the proposition "Socrates is Socrates" when compared to "Socrates" simply? It expresses within our intelligence, or in the oral enunciation, the *truth* of the sameness of Socrates. A proposition of identity would only be tautological if the first term signified exactly in the same *fashion* as the second, and in this case, the proposition would not even be a proposition. What would appear to be a proposition would in fact be nothing but "Socrates" said twice.

As important as is the distinction on which we are insisting, we must all the same recognize that the plurification to which our intelligence must have recourse, in order to express sameness, is a sign of a certain imperfection, of the extremely limited character of our intelligence insofar as it depends on things in order to be awakened to the act of knowing.

Recall here briefly that the relation of identity implied in a proposition of identity is a relation of pure reason, in no way real, because if it were, it would be the case that in reality Socrates himself were doubled and, consequently, to affirm

his sameness would be contradictory; or again, in order to be identical it would be the case that he is non-identical.[78]

¶ 3. Leibniz declares, therefore, that two indiscernibles cannot be discovered in the real.[79] This point is equivocal. "Indiscernible" from what point of view? Generic? Specific? Numerical? When Meyerson explains that objects differing in position in space necessarily present some other property that diversifies them, it is evidently necessary to understand "property" in a large sense. Two individual entities distinct solely according to position only differ among themselves in a purely material fashion: The one is here, the other there. Their principle of individuation is extrinsic to their form. I do not understand very well the position he attributes to Aristotle, namely, that the individual "includes the infinite."[80] Aristotle indeed speaks of things whose principle of individuation is in the last instance matter, which is indefinite, and as a result, thanks to quantification, the number of possible individuals in a given species is not of itself limited. In saying, "it is impossible that, in the infinite multiplicity of facts that characterize it, *all* be like to what is present elsewhere,"[81] Meyerson means perhaps—if I understand him correctly—that the individual, considered as part of an ensemble of which the parts would be similar, will vary in a certain manner according to the parts of the ensemble. (I do not believe that this paragraph is very important for the present discussion.)

¶ 4. "An object cannot be identical to itself at two distinct moments of time."[82] This needs to be well understood. Let there be an object given at time *t* and the same object at time *t'*. It is indeed the same object that is found first at *t* and then in *t'*.

78 It remains that case, however, that the creature, in its identity, declines from absolute sameness, as we have seen.

79 "The Notion of the Identical," 204.

80 Ibid.

81 Ibid., 204–5.

82 Ibid., 205.

Evidently, to be at time *t* and to be at time *t'* is not the same thing. The difference is nothing other than that of a priority and of a posteriority in time. See Aristotle's *Physics* 4.[83] St. Thomas says that:

> Time is the measure of motion itself, and the now of time is the measure of the very mobile that is moving. Whence just as the mobile is the same in substance during the entire motion even though it changes in being—just as it is said that Socrates in the market is different from himself in the house—so too the now is also the same in substance in the entire succession of time, changing only in being, that is, according to the account that it takes of the before and after. However, just as motion is the act of the mobile itself insofar as it is mobile, so too to exist [*esse*] is the act of what exists insofar as it is a being.[84]

That the flow of time brings with it a constant modification of the universe, affecting each of its parts, there is no doubt. Aristotle, in discussing the opinion of certain philosophers who see in time the cause of the generation of things and of progress, insists on the contrary that time alone, if it were a cause, would be rather a cause of corruption.[85] This is *tempus edax rerum,* "the devourer of all things." A concrete expression of it is found in the growth of entropy—that is to say, of the growing disorder of energy, from the qualitative point of view. The uni-

83 *Physics* 4.11, 219a30.

84 *In I Sent.,* d. 19, q. 2, a. 2: "tempus est mensura ipsius motus, et nunc temporis est mensura ipsius mobilis quod fertur. Unde sicut est idem mobile secundum substantiam in toto motu, variatur tamen secundum esse, sicut dicitur quod Socrates in foro est alter a seipso in domo; ita nunc est etiam idem secundum substantiam in tota successione temporis, variatum tantum secundum esse, scilicet secundum rationem quam accepit prioris et posterioris. Sicut autem motus est actus ipsius mobilis inquantum mobile est; ita esse est actus existentis, inquantum ens est."

85 See *Physics* 4.13, 222b16, and St. Thomas's commentary, lec. 22.

verse is subject in this respect in each of its parts to an incessant modification. It becomes in this sense less and less similar to what it was before, even if it be supposed that the quantity of energy remains complete.

¶ 5. Natural science, no doubt, and especially mathematical physics, makes use of indiscernibles. It is supposed, for example, that all electrons in the universe are of an equal and similar quantity of energy. It is impossible to verify exactly this equality and this resemblance; it is, however, a reasonable supposition. That this supposition approaches the truth is justified by practical success.[86] The rest of this paragraph of Meyerson is of great interest. The mechanist conception, invented by our mind, supported by the machines that we fabricate, never corresponds in more than an imprecise manner to reality. The entities of physics, such as we conceive them, are without blurs (*sans bavures*), but it would be impossible to escape these blurs in reality, even when they do not have them, because absolutely precise measures of physical magnitudes are inconceivable. One sees from this the role that the mind plays. Since the absolutely indiscernible is unverifiable in experience, any such indiscernible remains within the limits of the mind, especially the mathematical mind; nevertheless the indiscernible plays its role, similar to that of the ideal gas or the principle of inertia.

Note also what Meyerson says about uniformity: "Uniformity evidently can be only statistical."[87] Indeed, as far as statistics are used to calculate probabilities, the intelligence contributes further an *a priori* part, so far as the calculation of probabilities in itself has nothing of the probable, since it is all perfectly determined—that is to say, the probability of alternative A is of a numerical value, while the corresponding improbability B is also a perfectly numerical value. It is only in application

86 See "The Notion of the Identical," 205–07.

87 Ibid., 205.

to reality that the probable and improbable are introduced as distinct from the certain.

Mark also what Meyerson says of "metaphysical tendency."[88] It should not be forgotten that, for authors today, metaphysics means a reactionary tendency of the mind which wants definitive solutions immediately. It is thus that a good number (for example, Philip Frank) describe metaphysics as a physics that is now obsolete. Briefly, the metaphysician would be a person who refuses to change a physical theory that has been admitted for a long time, although experience henceforth is opposed to it. We should always recognize that it is very rare that two persons conceive the word "metaphysics" in the same way.

Here is an observation that appears to me entirely acceptable:

> The imagined identical . . . , that is to say, equally identical from those two points of view, from the point of view of time and space . . . is equivalent to the affirmation that an object cannot be rigorously identical except to itself, at the place and at the moment that we observe it.[89]

We have only to compare it to the text of St. Thomas that we will later cite from the *Sentences*. However, I would not employ the term "imagine," because it does not seem to me that an object identical to itself, at a determinate place and moment, only holds its sameness in the imagination, or at least that "imagine" is not related to a thing at a given place and moment, isolated, by abstraction, from movement and time. One could indeed employ the word "imagine" in relation to an instant that we have immobilized, as we do in considering time as a fourth coordinate, where the *flow* of time is excluded from the geometric

88 Ibid., 207.
89 Ibid.

representation and where the variation is not a becoming except in an equivocal but legitimate sense.

IX – The "Vacillation of Reason" Before the Identical

¶ 7. The sense of this paragraph does not seem easy to me. With what duality is it concerned? With the splitting effected by our reason in forming a proposition of identity? Of course, the subject and predicate are discernible as such, but these two terms refer to one sole and same thing. Following the preceding paragraph (¶ 6), the object was identical to itself, it was indiscernible from itself, but uniquely at a given place and time.

"To conceive simultaneously notions perfectly contradictory"?[90] Does the question here concern the terms "discernible" and "indiscernible"? These notions are indeed contradictory as far as the mode of signifying. But of what object do we say that it is at once discernible and indiscernible under the same respect? Note, on the other hand, that the notion of "indiscernible," insofar as it is negative in its mode of signifying, implies formally the notion of "discernible," just as every negation that we conceive, whether it be relative or absolute, implies with all necessity the affirmative term denied. In conceiving non-being, we conceive being at the same time; in conceiving blindness, we simultaneously conceive sight. There is no contradiction in that. There would be contradiction if we were to affirm at the same time and in the same respect the affirmative term and the negative term of the same subject. The terms thus opposed—the affirmative being in the notion of the negative term—despite the fact that they therefore have a notion in common (the affirmative), are not identical with each other. Being is not non-being. Blindness is not sight; blindness is the real negation of sight, real in the animal that should see.

90 Ibid.

I call your attention to "this species of syncretism or of vacillation (*flottement*) of reason, which permits it to conceive simultaneously perfectly contradictory notions."[91] You have the complete text before your eyes in your copy of "The Notion of the Identical." How should we understand, to what should we relate, this species of syncretism or vacillation of the reason? Should it be understood that the reason tells itself that the splitting that it forms within itself shows the imperfection of the enunciation by way of composition? On closer inspection, there is absolutely no contradiction in the enunciation by composition of an identity. On the other hand, we would be seeking the impossible if we should believe that we could affirm without composing.

¶ 8. How does "the perfect sameness between two objects constitute an impossibility"?[92] It is only in the last phrase of this paragraph that we see what the author wants to say, namely: one same object, at two different instants, cannot be in all respects identical, because one would deny by this fact the diversity of instants by which he is affected: To be in *t* and to be in *t'* are not the same thing, even if the thing that is found there is fundamentally the same. We can apply here the second phrase of this paragraph of Meyerson: "science, in accord with common sense, supposes indeed that these relations are attached to a support, it affirms the existence of a substrate."[93]

¶ 9. In reading this paragraph we are tempted to recall the divisions of the *one*, which we have already cited. By "perfect sameness"[94] does he understand numerical sameness? Or again, does he intend it in the sense of the Parmenidean one? Could it be at the same time a unique means of knowing all things? However it may be, once we know that it is necessary to have

91 Ibid.
92 Ibid.
93 Ibid.
94 Ibid., 208.

such a limit, although we may be unable to attain it, we know henceforth all our acts and all our attempts at identification—but that especially which conduces to knowledge of the principles that are entirely first in themselves, of the causes more and more universal—as participations more and more proximate to the divine. If we do not see things in their first and universal cause, we know at least that such a cause exists and that it is subsistent wisdom, speculative and practical.

¶ 10. Certainly, the infinitely small is a limit notion. And this notion has been badly understood for a very long time. One sees it indeed in the objection cited of Alembert. We have seen that the circle as limit—of a regular inscribed polygon whose sides are multiplied following the proportion we have described—implies no contradiction. What does imply a contradiction is that by such a progression one attains this limit. What Meyerson appears to want to say is that the scientific attempt tends toward a limit that cannot be attained without contradiction. Now, although this limit remains always beyond all our attempts—whatever be the knowledge that we are able in fact to acquire, whatever be the degree of approximation of the partial or entire truth—our intelligence will never be satisfied.

¶ 11. Here Meyerson asks himself whether there would not be place for making a compromise and of holding to the *similar*. Recall the definition given of the similar, or the like. Note, now, that there is no imperfection in similitude as such, although it implies the distinction of the similar terms. It is rather *our* manner of knowing similar things that implies imperfection, whether it concern mathematical objects or objects in nature. We are not able, in effect, to know them at the same time in one sole means of knowing.

All this paragraph makes one think of a limit like the one and identical being of Parmenides—identical in its being and identical in its knowing. Meyerson has just spoken of

"vacillations of reason" (¶ 7). It is indeed this which is produced here, to the extent that he seems to oscillate between the *real* one and multiple and the one and multiple *in knowing* as to its mode of knowing the real one and multiple. We have seen that absolute unity of being and absolute unity of the intelligible species—in which all things are represented in their distinctions without, however, dividing the knowledge in any manner—are only found in God in his absolute sameness, the cause of all other sameness, whether it be real or intentional. Is it permitted to believe that Meyerson was stammering about thoughts so profound? It seems to me that he was.

¶ 12. I admit that I do not understand "the rose is red" or "Socrates was an Athenian"[95] as examples of the conception that admits simple similitude. But when Meyerson says that the common phrase, of which he has given the cited examples, manifests "the same tendency"[96]—that is to say, the tendency toward perfect sameness—it becomes more comprehensible. In effect, every affirmative proposition implies a certain identification; but in the example "the rose is red," the identification could not be entire without contradiction, because that would mean that the rose and redness would be entirely identical, just as "the red rose is the red rose."[97]

Finally, Meyerson seems to say that it is only insofar as it tends toward the limit of pure sameness that the "essence of motor thought"[98] is manifested. It is, therefore, a matter of a thought that persists in the state of movement. And it is only in virtue of this movement that the limit has the character of limit. For example, the circle is not the limit of a given polygon, how-

95 Ibid., 212.

96 Ibid.

97 The case of "Socrates was an Athenian" is a little bit different, the verb being in the imperfect. See *In Peri herm*., lec. 5, nn. 12–14.

98 "The Notion of the Identical," 212.

ever great may be the number of its sides; it is only by relation to the regular inscribed polygon of which the sides are multiplied beyond any given number that the circle is a limit.

¶ 13. Recall once again the distinction that we have made between the *identical*, on the one hand, and the *similar* and the *equal*, on the other hand. One could not deny the multiplicity that the equal or the similar imply without destroying the equality or the similarity.[99] (To speak of a line equal to itself can only imply a relation of identity.) On the contrary, identity, in the respect in which it is identical, excludes multiplicity, and yet we must effect a splitting in thought in order to express this identity as true. With regard to similitude or equality, is it true that thought is at rest before it? If it is a matter of thought tending toward sameness of means of knowing distinctly the multiple, we would say that thought is not found at rest. On the contrary, if it is a matter of multiplicity on the side of the objects called "similar" or "equal," all thought is able to rest there.[100] Nonetheless, once the similitude is established, there remains the incitement to modify the fashion of knowing. If Meyerson meant a thought that would rest in its proper complexity, and if in this imperfection thought were given as the limit of perfection, he would have reason to see in it "the positivist conception of wisdom, that which intends to limit it to description."[101] At root, positivist thought finds its limit in the pure scattering of the calculating machine, a limit that is therefore none other than the very negation of intelligence—a negation accepted by those who substitute calculation for thought.

Yet, once more, if one means the intelligence that pursues as its limit a certain manner of imitating the universal *in*

99 Reading "similarity," whereas the typescript actually says, "ou la multiplicité."

100 Ibid.

101 Ibid.

repraesentando, it is true that the intellect unceasingly seeks identification—perfect rationalization—but that it is never able to satisfy itself, never able to attain to a true rest, never able to arrive at the state of pure intellect.[102]

¶ 14. Certainly it is "indispensable to maintain firmly in the analysis of thought," in the analysis of our mode and means of knowing, "the notion of absolute sameness"[103]—known by us by way of negation—in order for us to render account unceasingly of the measure in which we decline from its sameness. That we have naturally a unique means of knowing everything is certainly impossible—impossible for all created intelligence. It is therefore well understood that in its absolute purity this sameness is not found anywhere as acquired, neither in our common thought nor in our physical wisdom, in its largest sense, nor in our philosophical wisdom, since everywhere we collide with the multiple that divides our thought. In this regard, there is always and everywhere only partial sameness. Even if what we are speaking about is not in itself only a partial sameness, there is in *our mode* of knowing the perfect sameness only partial sameness. This is what one sees in the compositive character of the enunciation of identity or sameness.

¶ 15. The last phrase of this paragraph merits attention. What should be understood by "the nonexistence of such limitations"?[104] If we took as an example the circle as limit of a regular inscribed polygon whose sides are multiplied, this tendency toward the circle is its limitation; it is pursued indefinitely. If, on the other hand, we take as an example the separate substances in their natural knowledge, we find ourselves before a similar

102 His examples taken from architecture are not lacking in value. The heel of the lady's shoe exhibits an analogous tendency: It tends to be higher and higher and at the same time to become infinitely slim. At the limit women walk on air. (But rest assured, their heels also make more noise than ever.)

103 "The Notion of the Identical," 213.

104 Ibid.

nonexistence of limitations. I mean that the most perfect created separate intelligence possible is impossible.

¶ 16. The observations that Meyerson makes on the extremely equivocal character of the sign of equality in mathematics are very just, because it is sometimes a matter of sameness, sometimes of equality, sometimes of similitude. It is useless to want to give to this sign a unique sense. It suffices to be able to determine its sense by the context.

¶ 17. We have seen, in our prolegomenon, that the term "identical" (or "same") is an analogous term. It is the same for the word "identification." Also Meyerson has reason to say "that even an attempt at a definition a little more strict would only be to add to the difficulties of intellection."[105] This is why, in treating of the "one," one begins right away by dividing; one does the same thing for the term "identical."

Note also what he says of the reduction of change to a spatial displacement. This is an example of identification in mathematical physics. Further on, in the same paragraph, Meyerson says strongly that it is a "pure illusion" to believe that quantity can take priority over quality.[106] It remains, however, that, in mathematical physics, one must make abstraction from whatever cannot be expressed in terms of measures. However, wisdom requires that one take into account the fact that it is not here a matter of abstraction, however fruitful the abstraction might be.[107]

¶¶ 18–20. Paragraph 19 presents some difficulties. One can indeed ask whether it is not possible to classify all the sorts of identification that the intellect effects in its effort to conform itself to the real with the means of knowing that

105 Ibid., 215.

106 Ibid., 216.

107 In following the winding paths of this text of Meyerson, we risk separating ourselves from the principal path on which our prolegomenon engaged us.

it disposes.[108] The entire *Organon* of Aristotle is ordered to this end. We find in it, however, only the branches of general logic. But as St. Thomas explains in his commentary on the *Metaphysics*, "the mode proper to the individual sciences should be treated at the beginning of those individual sciences."[109] Now, these particular methods were developed in the course of history. For example, it was not so long ago that it was realized what the physicist means by "simultaneity at a distance." Its definition, by Einstein, does nothing but see how the physicist should define in terms of number measures. Now, this particular definition is at the base of a physical theory quite radically new. If I understand him rightly, Meyerson means that the known modalities of identification do not permit predicting what turn physical theories will take in the future. What will be the theory that one day surpasses relativity? Knowledge only of the methods employed in physics does not permit us to predict it.

Is this to say that science progresses by chance? Even though a good number of scientific discoveries have been strictly fortuitous, it does not follow that science progresses blindly. If we want to know nature following a concretion always more exhaustive, we must without doubt very often anticipate on the basis of provisional acquisitions, by generalizations, hypotheses, theories susceptible of being put to the proof. But this activity, sometimes called "creative,"[110] does not have the liberty that certain thinkers would accord to it. If it is indeed reality that we want to know, and to know better and better, this liberty should rather be defined by the capacity of progressing in knowledge of nature, of leaving theories that no longer suffice to give an account of phenomena that they have, however, permitted us

108 See "The Notion of the Identical," 218.

109 *In II Metaphys.*, lec. 5, n. 335: "Modus autem proprius singularum scientiarum, in scientiis singulis circa principium tradi debet."

110 "The Notion of the Identical," 218.

to discover. The point is that when all is said, a theory is only physical in the measure that it is conformed to sensible experience. Meyerson has therefore good reason to say:

> For us, on the contrary, this liberty is indeed less [than that of which Gaston Milhaud speaks]; the activity of the intellect is squeezed between barriers that are constituted by the point of departure in the diverse things of sensation and the point of result in the identical of pure reason.[111]

Now, it is precisely this point of departure that renders inaccessible for us the point of result.

> Since this East point is found invariably situated in the infinite, what limits the arbitrariness of the effort of reason is the fact that it is inevitably directed toward this inaccessible goal.[112]

What Meyerson says is literally true. Here, however, is how we understand it concretely. In order to have a perfectly adequate knowledge of the world, it is necessary to see it in one sole intelligible species, universal *in repraesentando et rerum factiva.* One can ask in what measure our manner of seeing accords with that of Meyerson. Although his goal is never expressed in a well determined fashion in his works—certainly not in the terms with which we formulate it—his writings, from the very first, call constantly to mind a superior mode of knowing, which we call divine, a mode inaccessible to human intelligence (that which we know, at least), but to which the latter must constantly compare itself. One could easily say that I am forcing the point. To which I respond that my goal is not merely historical. But I cannot help but see in this diffuse effort of Meyerson a sort of proof,

111 Ibid.
112 Ibid., 218–19.

more and more concrete, always tentative but very significant, of the measure in which we decline from the ideal of intelligence.

Take note of the two following phrases:

> Sometimes, we are going to say, it is only a matter of a direction *grosso modo*, and the precise path [from the point of departure toward the point of outcome] remains indeterminate. It is there, in the choice of this way, that reason manifests its free judgment.[113]

Should this liberty be opposed to what he called above (¶ 5) "metaphysical tendency"? In light of the rest of this paragraph, it seems to me that he means that the path in question is not traced in advance and that nothing permits us to trace it surely. In other words, there is no substitute, human and adequate, for the inaccessible limit toward which our intellect tends. One thinks here of Raymond Lull, of Leibniz, and of Hegel, who searched for or who believed they had found a purely logical method that would of itself put us before the *rerum universalitas*. They thought

> that the way by which the reason must be attached to the real was henceforth all traced out. One knows in what feeble measure the real evolution of wisdom has responded to this attempt. The problem is truly insoluble and will remain without doubt such for all eternity.[114]

113 Ibid., 219.

114 Ibid. The attempt in which the human intelligence is engaged to draw from its own proper font the whole of the knowable world appears often in the course of history. One would say that this intelligence sometimes permits itself to protest against its dependence on "givens." These ineffective enterprises result, however, in a sort of especially sophisticated nihilism. Here is what I want to say. Logic has for subject the *intellecta secunda*, second intentions. Now, second intentions only have objective being in the very limits (*limites mêmes*) of reason. It would be contradictory that they should exist in reality, as contradictory as a real relation of identity. Second intentions, relations of pure reason, have, however, their efficacy in the sense that logic is an indispensable tool for putting order in the reason. The need of logic, on the other hand, the

The reference to Plato[115] is quite relevant: to compel the phenomena to return to the framework of the identical, accommodating it through violence, according to the expression of Plato, "the nature of the Other, rebellious nature, to that of the Same."[116] In *The Path of Thought*, Meyerson says, in a footnote referring to this same citation:

> It is thus that, as we have tried to show elsewhere, the ensemble of scientific theories, by a progress unconscious but irresistible, results infallibly in dissolving the real in visual space of all material content: the sphere of

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necessity of an artificial rectification, is characteristic of human intelligence—that is to say, of the reason to which discourse is proper. Now, Hegel, for example, does not distinguish between second intention and first intention. In place of seeing second intentions as founded on first intentions, and the first—that is to say, objects as known, in the intelligence—as founded on things in themselves, he accords absolute priority to second intentions, which in this way become first. Hegel is trying to take first intentions from what we call second intentions, and from the first intentions he wants to deduce things all the way into their historicity. It is thus that his "the real is rational" should be understood. Note now that the need for second intentions is that of an intelligence at the lower limit of intellectuality. Such relations are only possible in the weakest intelligence, that of man. It is therefore from this order that reason produces beyond itself an order to rectify itself that Hegel seems to want to infer the order of things in its entirety.

Furthermore, compared to the real, the relation of reason is nothing at all; it is nothing of reality. If we say that it exists, it should be understood that it does not exist the way that what exists exists (*qu'elle n'existe qu'à l'instar de se qui existe*). Therefore, in the attempt of Hegel, which in fact was never able to be other than verbal, one tries to draw the real from a denial of reality (*d'un néant de réalité*). We have seen above that if Hegel misunderstood nature, it is because the latter shows itself to be stubborn and does not cease to proclaim its priority at the same time as our dependence. Certainly we accord to the agent intellect something of the divine to the extent that it illuminates and renders sensible objects intelligible in act. It remains, however, that we depend on sensible things in their intelligibility in potency—that is to say, on the most inferior reality that there be.

115 See Ibid., 220.

116 Ibid., quoting *Timaeus* 35a.

> Parmenides.—Doubtless this resolution is never complete; space is replaced with a subsistent thing, the ether, endowed with mysterious and contradictory properties, or else there is introduced a differentiation to aid purely mathematical concepts, as in the theory of relativity. But can one say that, in this progress, one has reasoned in a *system*, in the sense of Bosanquet? Can one affirm that the nature of the remaining diverse was traced in advance? Is it not evident, entirely to the contrary, that what scientific reason tends to is the destruction of the *whole* of the diverse, and that what it leaves to subsist is the manifestation of the resistance that the real has opposed to it.[117]

How should "the nature of the Other, rebellious nature, to that of the Same" be understood? Recall what we have seen about the knowledge that the separate substances have in comparison with ours. For the pure intellect, the means of knowing is prior to the known, since the means of knowing is either the first cause of all things or is derived from this cause, and the latter is prior to the proper being of the things that it produces. Envisaged under this precise relation, the Other is not therefore rebellious to the pure intellect. It is in some way assimilated before being in itself. On the other hand, an intelligence that depends on the Other for knowing can never be assimilated except by approaching it obliquely, by a makeshift oblique approach, such as abstraction, the passage from the confused whole to the definition, the truth expressed by way of composition or division, and so on. Our intelligence cannot ever regard things directly. On the contrary, it comes up against things that do not cease to resist it, things that are rebels by reason of their priority relative to reason. Finally, it is only in God that the Other, such as we mean it here, is entirely preconceived and totally lacks its rebellious nature. As for created separated substances, neither is the Other rebellious

117 *Du cheminement de la pensée,* 489.

in itself, because if a plurality of means of knowing is necessary for them, that is not due to the plurality of things to be known, but due rather to the plurality of means necessary for them to know things distinctly. In other words, the rebellious character of the Other must, from the point of view of knowability, have its source in the limitations of the created intellect.

One understands from this why Aristotle was so insistent in this, that God cannot know things in themselves—meaning to say by that that God can in no way depend on things other than himself in order to know them. He cannot know except in knowing himself. How superficial, then, is the interpretation that pretends that, according to Aristotle, God knows nothing other than himself. Such an anthropomorphic interpretation of the knowledge of God is a sign of *debilitas intellectus*, "weakness of intellect," to employ the expression of St. Thomas.[118] If one were to believe it, one would have to attribute to Aristotle the stupid thought that we are superior to his God by this, that we know God, however imperfect be this knowledge, and we know things other than him while God does not know them.

Certainly, the things other than God are truly other for God himself. The distinction between God and his creatures is the most profound and complete that there is, while already in his presence by immensity the first cause is more intimate to his work than the latter is to itself. This is because every creature "has something of itself outside itself."[119] What God's work does not have before God is the rebellious nature of the Other, which his work puts on before a limited intelligence—that is to say, an intelligence that is not at the limit of absolute sameness.

Note, following Meyerson's text, his remark on "the history of the sciences." The history of sciences, do not forget, occurs principally in the minds of men. Doubtless, the experimental

118 See *ST* I, q. 1, a. 5, ad 1.

119 *In I Sent.*, d. 8, q. 1, a. 1, c.: "habet aliquid sui extra se."

sciences especially require exterior activity, fabrication, and displacements. But all that is in the order of means for making things speak, as if we must agitate them in order to wake them up. It is evidently not the things that have need of being awakened; on the contrary, we agitate them in order that they might awaken *us*. The apparatus, vast and intricate, is a physical tool, the indispensable organs of natural science. Even mathematics can profit from electronic calculating machines. But all this exterior apparatus is destined, in the beginning and at the end, to serve the life of intelligence, of its immanent activity of wisdom. If science has a history, it is by reason of its painful path. This path is sinuous and laborious for two reasons, which are, moreover, connected. The first is found in the abstractive, compositive, divisive, and discursive character of reason. Second, the things on which our knowledge first depends have within themselves a fundamentally historical character. If we had the time, we would be able to show whence this historical character comes, in explicating in what consists the *potentia simul contradictionis*, the potency of simultaneous contradiction, such as we find in nature and which finds its expression in the contingency of generable and corruptible things. It is because of this particular genus of "possibility" that the existence and activity of natural things are laborious.[120] Neither the becoming nor the being of an individual in nature finds itself assured. Natural things are not surely there except when they are in fact. If we had to ignore what our intelligence is and what it did before knowing, we would have to say, with Hume, that things are contingent to the point that science is impossible. Our position, faced with that of Hume, is the following: Even though all the beings that compose our cosmos are intrinsically contingent, with natural science never bearing directly on natural beings in their individuality and contingency, there is even so still natural science. It is necessary to distinguish,

120 See *In IX Metaphys*., lec. 9, n. 1878.

indeed, between a given man and "what is" a man. If our strictly scientific knowledge depends on the existence of the individual, it does not concern the individual as such, but the *ratio universalis*, which we discover in the individual, but which is not the individual. As Parmenides already saw, science can only concern the universal and the immutable. That evidently poses a difficulty.[121] How can one have a strictly scientific knowledge of mobile things, of contingent things? It is because natural science concerns "what a mobile being is," "what movement is," "what contingency is." Now, "what movement is" is not in movement. "What contingency is" is not contingent. Just the same, "what a man is" can neither be born nor die, although every man is born and dies.[122]

X – Two Obstacles to Pure Sameness: Reality and Our Intellect

¶ 21. We have, despite ourselves, anticipated Meyerson in a distinction that he makes in the present paragraph, and which is capital. We are now prepared to know the importance of it. Meyerson speaks therefore of a *double* obstacle that reason faces, and he makes precise that it concerns "prediction"[123]—that is to say, a prediction of the very concrete turnings that thought will make in its future path. Note the distinction that he makes at the beginning regarding the real: it is at once accessible and rebellious to reason. As accessible, one calls it "rational or rationalizable."[124] We would say that the sensible real is in itself only intelligible in potency, that we ourselves must render it intelli-

121 See *In De Trin*., q. 5, a. 2.

122 I do not see very well how Hume differs in this respect from Cratylus. It is again entirely natural that Hume should finish by not doing more than history.

123 "The Notion of the Identical," 220.

124 Ibid.

gible in act, and in this measure it is "rationalizable." But this rationality remains inexhaustible.

It is a little further on in this paragraph that we encounter the distinction that we ourselves have made. Meyerson says:

> However, this mystery of the fundamental opacity of the real is not the only one that the scientist (*savant*) finds before the real. Because there is also, on the other hand, this other mystery, just as profound, of our intellect.[125]

In other words, there is obscurity both in the known and in the knower, more precisely in our intelligence. This is just what we have seen in the prolegomenon. With regard to our reason, it is obscure to itself in its dependence on the sensible real in order to know itself. We are only able to discover its nature in considering sensible objects, and then the fashion in which we know these objects, and from there we go toward the power that knows an object in such or such a manner. Meyerson says quite justly:

> Reason, it is certain, does not know itself—because of the simple fact that it does not observe itself. Everything that it knows of its proper functioning it can only *conclude*, by analysis of what it produces—in an unconscious manner, that goes without saying—in language (as Aristotle did and the long centuries that have followed him, in posing the foundations of classical logic) or in science.[126]

I admit that I do not see very well the relation between the last phrase ("Now, in examining . . .")[127] and the preceding lines that I have cited. The following paragraph will perhaps be able to help us.

125 Ibid., 221.
126 Ibid.
127 Ibid.

¶ 22. This passage apparently explicates what Meyerson wanted to say in the last phrase of the preceding paragraph. His idea appears to me to be the following. He manifests it by example of physical explications taken from non-Euclidean geometry, which had been at first declared "impossibles of essence."[128] What is here declared impossible is to establish a relation between the constructions that the intelligence makes within itself and the physical phenomena to be explained. It is with Einstein that the bridge has been made. There was, therefore, previously a light in the intelligence, but one of which one did not see the rational character in relation to reality. The real was itself obscure to the extent that one did not see how one could give an account of non-Euclidean geometry.

¶ 23. This paragraph adds nothing essential to what precedes. Note, however, a phrase that could lead to equivocation.

> Wanting to squeeze this perpetual effort of reason between barricades constituted by strict rules would be to expose the intimate secret of the creative intellect, and it would render in some sort mechanical the progress of thought.[129]

Meyerson thinks without doubt of what we call "logicism," since he makes allusion yet again to the *ars inveniendi* of the Middle Ages.[130] It was in effect an art, absolutely universal, that would be substituted for all sciences and that should be able to lead to every possible conclusion in whatever genus it might be, in an *a priori* fashion. It is supposed somehow that the *ens naturae* would be adequately capable of inference from the *ens rationis*.[131] Of course such an enterprise is impossible. But that does

128 Ibid., 222.
129 Ibid., 223.
130 Ibid.
131 On this subject, see St. Thomas *In IV Metaphys.*, lec. 4, n. 574; *In I Post an.*, lec. 20, n. 5.

not mean that one cannot establish rules of reasoning that would be definitive.

¶ 24. This final paragraph adds nothing new to what we have seen in the preceding ones. It will permit us, however, to make a paraphrase in guise of a conclusion. Here is what we would say. Man differs from all the other animals by his vivid knowledge of being ignorant. He is able to realize the enormous detours that he must make in order to acquire a little knowledge. He can know many things quite easily, but the difficulty of linking them distinctly, the ones to the others, in relation to few principles, and even in relation to one, is difficult in the same proportion. Man is able to set himself to analyzing the fashion in which he knows—this is what he begins to do in the *De anima*, an inquiry that is continued in experimental psychology. He then realizes the unbelievable complexity of his mode of knowing and the means, often largely fictive, of which he must make use. But once, by way of demonstration, he reaches knowledge of the cause of which he says *Tu autem idem ipse es*—"You, however, are the very same"—and by way of negation he begins to understand that this Same is pure intellection, man can compare his own intelligence to that of Pure Act, glimpsing thus the measure in which human reason declines from subsistent thought. Man, being endowed with an intelligence—however imperfect it be, a blank slate to begin with—attempts naturally to approach as much as possible to perfect sameness. How does he attain to a better knowledge of this sameness? He does not attain it in grasping simply that God is the being of which all the other beings are but distant participations, nor in grasping that God is infinitely wise, infinitely good, and so on. It is especially in examining the things that are within our reach, those of the sensible world, the works of the divine art, that we are able to form an idea more and more determinate of the Art that created and fashioned them. Here is why the study of nature is of such

great importance. It procures for us the matter to deny, and the negations will be to this extent more fecund as our knowledge of what we are denying is more determined, more distinct, because the negative way demands that the things that we deny be increasingly better known. And it is in heaping up, so to speak, the negations that we, in backing up, approach more and more to God.[132] As far as knowledge of divine things, St. Thomas says:

> The more negations we know of them, the less confused for us is the knowledge of them; for by following through the negations, the prior negation is contracted and made determinate, just as a remote genus is through differences.[133]

According to Aristotle, the goal of the study of natural things is none other than that of better knowing the Art that has fashioned them. That does not mean that the goal of the knowledge of nature is not speculative. But as soon as one seeks wisdom, nature and the knowledge that we acquire of it become a "means" (in a large sense) of better knowing God.

> The scanty conceptions to which we can attain of celestial things give us, from their excellence, more pleasure than all our knowledge of the world in which we live; just as a half glimpse of persons that we love is more delightful than a leisurely view of other things, whatever their number and dimensions. On the other hand, in certitude and in completeness our knowledge of terrestrial things has the advantage. Moreover, their greater nearness and affinity to us balances somewhat the loftier interest of the heavenly things that are the objects of the higher

132 See the myth of the cave in *The Republic* VII, 514a–21d.

133 *In De Trin.*, q. 6, a. 3, c.: "quanto plures negationes de eis cognoscimus, tanto minus confusa est earum cognition nobis, eo quod per negationes sequentes prior negatio contrahitur et determinatur, sicut genus remotum per differentias." See also *In I Sent*., d. 22, q. 1, a. 3.

philosophy. . . . For if some have no graces to charm the sense, yet even these, by disclosing to intellectual perception the artistic spirit that designed them, give immense pleasure to all who can trace links of causation, and are inclined to philosophy. Indeed, it would be strange if mimetic representations of them were attractive, because they disclose the mimetic skill of the painter or sculptor, and the original realities themselves were not more interesting, to all at any rate who have eyes to discern the reasons that determined their formation.

We therefore must not recoil with childish aversion from the examination of the humbler animals. Every realm of nature is marvelous; and as Heraclitus, when the strangers who came to visit him found him warming himself at the furnace in the kitchen and hesitated to go in, is reported to have bidden them not to be afraid to enter, as even in that kitchen divinities were present, so we should venture on the study of every kind of animal without distaste; for each and all will reveal to us something natural and something beautiful. Absence of chance and conduciveness of everything to an end are to be found in nature's works in the highest degree, and the resultant end of her generations and combinations is a form of the beautiful.

If any person thinks the examination of the rest of the animal kingdom an unworthy task, he must hold in like disesteem the study of man. For no one can look at the primordia of the human frame—blood, flesh, bones, vessels, and the like—without much repugnance. Moreover, when any one of the parts or structures, be it which it may, is under discussion, it must not be supposed that it is its material composition to which attention is being directed or which is the object of the discussion, but the relation of such part to the total form. Similarly, the true object of architecture is not bricks, mortar, or timber, but the house; and so, the principal object of natural

> philosophy is not the material elements, but their composition, and the totality of the form, independently of which they have no existence.[134]

The passage that we read here must be interpreted in the light of a definition of nature, which St. Thomas composes in his commentary on *Physics* 2.8:

> Nature is nothing other than the notion of a certain art—that is, the divine art—implanted within things, that whereby the things themselves are moved to a determinate end, just as if an artisan, the maker of a ship, could bestow it upon lumber that it might be moved by its very self so as to bring about the form of a ship.[135]

Natures are nothing other than works of the divine art, but which differ from the productions of created art by this, that they contain in themselves intrinsic and primary principles of their movement. The *exemplum* of Aristotle is that of the builder of vessels who would put in the wood the principles that would permit the wood to change itself into vessels. And he reinforces this *exemplum* by another: "One sees this the better in the case of the man who heals himself; nature resembles him."[136]

In brief, the study of nature, considered in this respect, is an attempt to know better and better the divine art, art absolutely indivisible and universal. In each part of his investigation of nature, the philosopher must realize that the multiplicity and variety of natural things are only a diffraction of the

134 Aristotle, *Parts of Animals* 1.5, 644b30–45b1.

135 *In II Phys.*, lec. 14, n. 8 (on 199b26): "Natura nihil est aliud quam ratio cuiusdam artis, scilicet divinae, indita rebus, qua ipsae res moventur ad finem determinatum: sicut si artifex factor navis posset lignis tribuere, quod ex se ipsis moverentur ad navis formam inducendam."

136 *Physics* 2.8, 199b30.

superabundant sameness of this art. Meyerson appears to have understood that of this sameness we can have no knowledge save by negation.

> In nature's infinite book of secrecy
> A little I can read.[137]

Although our written words are dead letters, those of the book of nature are fecund, being nothing other thing than the living *logoi* that call us to bless the Word who utters them.

137 *Antony and Cleopatra*, I.2, ln. 9.

APPENDICES

Note on pantheism

If by pantheism is meant a doctrine according to which all is God, God and the world are one, certain thinkers would be inclined to believe that this teaching renders God more intimate to things than our metaphysics does. It is, however, entirely the contrary that is true. Because it is precisely in his absolute otherness, in his pure sameness, that God is more intimate to his work than that work is to itself. He is more with the latter than it is in its own proper sameness. If God were confounded with what is not God, he would be, as a result, to that extent less other than other things, less identical with himself. He would have *aliquid sui extra se*.[138]

Thought and Moving

Alongside this course, you will be interested in reading, in *Thought and Moving* by Bergson, the chapter entitled, "Introduction to Metaphysics." One can see what is just and profound in the thought of Bergson, provided that one distinguishes the problem of the real one and many from that of the one and the many in the order of means of knowing. What Bergson calls metaphysics is at the extreme opposite of what Hegel calls by that name.[139]

138 See on this subject *ST* I, q. 8, on the existence of God in things, and Disp. 8 of the *Cursus Theologicus* of John of St. Thomas.

139 See, about this last, *The Logic of the Encyclopedia*, chapter 6.

HOW TO DEDUCE A COSMOS: CHARLES DE KONINCK'S HIERARCHY ARGUMENT

John G. Brungardt

Ratio oritur in umbra intelligentiae.[1]

In his book on the cosmos in the economy of salvation, the French Oratorian theologian Louis Bouyer writes that "there is at the edge of the so-called material world a fringe or reflection of an essentially spiritual and personal universe."[2] This reflection includes the effects, upon the physical echelons of reality, of the angels and of men; it includes the similarities of non-human animal cognition and desire to our own. Yet it is more:

> At least from the time of St. Basil's commentary on the *Hexaemeron* (the six days of creation) to St. Augustine and his followers in the high Middle Ages, a kind of consensus developed that creation is primarily of the angelic

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1 St. Thomas Aquinas, *De ver.*, q. 8, a. 3, ad 3; see also *In I Sent.*, d. 25 q. 1, a. 1 ad 4; *In II Sent.*, d. 3, q. 1, a. 2, c.; ibid., d. 7, q. 1, a. 2, c.; *In III Sent.*, d. 14, q. 1, a. 3, qc. 2, obj. 3; *In IV Sent.*, d. 49, q. 2, a. 6, ad 4. Aquinas borrows this phrase from Isaac ben Solomon Israeli; on this connection, see Jozef Matula, "Thomas Aquinas and His Reading of Isaac Ben Solomon Israeli," in *Universality of Reason: Plurality of Philosophies in the Middle Ages*, ed. Alessandro Musco (Palermo: Officina di Studi Medievali, 2012), 239–46.

2 Louis Bouyer, *Cosmos: The World and the Glory of God*, trans. by Pierre De Fontnouvelle (Peterscham, MA: St. Bede's Publications, 1988), 106. Consider also Keith Lemna, *The Apocalypse of Wisdom: Louis Bouyer's Theological Recovery of the Cosmos* (Brooklyn, NY: Angelico Press, 2019), 303–41.

> world, of the pure spirits as such. This does not mean that the first universe was immaterial, but indicates that its materiality is but the tissue of angelic thoughts, just as they themselves are a projection of the divine thoughts forever unified in the eternal Wisdom.[3]

Such a line of thinking, Bouyer notes, is a Platonizing one. It might remind some of the Arabic schemata of emanation of the lower orders of things from higher, separate substances. A theologian in his more mystical moments or a priest in a sermon might rhapsodize about "the invisible world" as much more real than our own.[4] But is it sound philosophical thinking to view the material universe and the human person from such a vantage? Is this not a sophiological excess? It seems out of step with the hard-nosed empirical bent of the Aristotelian approach to think of the material world in such a way. How could the cosmos, in any literal sense, be "a fringe or reflection" of immaterial essences, the "tissue" of their thoughts, "the external clothing of a wholly spiritual world"?

The Thomistic philosopher and theologian Charles De Koninck, in various of his writings, takes up kindred lines of inquiry. In works written in the 1930s and 1940s, he attempts to "deduce" the physical universe—or cosmos—by a comparison with an overall ontological hierarchy:

> In the universal hierarchy of creation, our spatio-temporal universe—the Cosmos—is the last universe. It

3 Bouyer, *Cosmos*, 106; see also 194–225, and at 195: "In fact [the physical world's] material aspect is but the envelope, the external clothing of a wholly spiritual world, without which the existence of matter becomes incomprehensible, for the essence of the cosmos then falls back into nothingness."

4 See St. John Henry Cardinal Newman, "The Invisible World," in *Parochial and Plain Sermons*, vol. 4 (London: Longman, Green, & Co., 1909), 200–13; see also Bouyer, *Cosmos*, 203–05.

> is basically nothing but an oblique prolongation of the hierarchy of angelic universes.[5]

Among the various published versions, one finds a common pattern. The argument is metaphysically dense. Since it proceeds by way of what is prior in the order of being, it is an innately difficult argument; it assumes much along the order of discovery, from what is better known to us at first.

One worries that such a method of argument is a curious way of begging the question. Do we not already know of our own existence, our own complex composition of parts existing in space and in time, in a cosmos? What does such a "deduction" really accomplish, philosophically speaking? Or again, one might object that De Koninck's hierarchy argument strays too far from firm philosophical ground. Would his intellectual master, St. Thomas, propose such a fancy? Perhaps this sort of talk impresses the metaphysical imaginations of poets, but not the minds of hard-headed thinkers. Nonetheless—what if his argument is sound? What might we gain from entering such a contemplative attitude?

In this essay, I argue that De Koninck's hierarchy argument is fundamentally sound and rooted in Thomistic principles. We

5 The quotation is from the opening of an unpublished and untitled draft, which I reproduce in its entirety in the Appendix to this essay; it appears to be the first of an intended series of lectures. Similar lines of thought also appear in the unpublished lecture notes "Philosophical Biology," a course given in 1935–36 (which, despite its title, is unusually preoccupied with angels). For the published versions, discussed below, see "Thomism and Scientific Indeterminism," *Proceedings of the American Catholic Philosophical Association* 12 (1937): 58–76; in *The Writings of Charles De Koninck: Volume One* (below, *Writings*, vol. 1), ed. and trans. Ralph McInerny (Notre Dame, IN: University of Notre Dame Press, 2008): "The Problem of Indeterminism," 355–400 (published 1935), "Reflections on the Problem of Indeterminism," 401–42 (published 1937); and in *Ego Sapientia* (published in 1943), in *The Writings of Charles De Koninck: Volume Two* (below, *Writings*, vol. 2), ed. and trans. Ralph McInerny (Notre Dame, IN: University of Notre Dame Press, 2009), especially 23–26.

will examine the overarching pattern of the hierarchy argument in its unpublished and published versions (emphasizing the latter). Based upon this examination of the texts, I then confirm that the method argument De Koninck employs is, in fact, a Thomistic one, as its metaphysical strategy matches those of arguments found in certain texts of St. Thomas. Following the example of such texts and their principles, a formal assessment of the hierarchy argument shows it to be fundamentally sound. What De Koninck's hierarchy argument allows us to contemplate—especially in its later and more temperately argued versions—is the truth that the created universe is, most of all, a communion of persons.

I. Distinguishing Two Arguments

Before we begin the examination of De Koninck's hierarchy argument, I must distinguish it from the "futility" argument. The futility argument is offered in full form in De Koninck's book *The Cosmos*, although he frequently links the hierarchy argument to it.[6] De Koninck claims that "God could not create

6 De Koninck, *The Cosmos*, in *Writings*, vol. 1, 320; see 263–64, where De Koninck states the mode of proceeding in the hierarchy argument in comparison to that of the futility argument: "The inorganic world and the human species are alone part of the ultimate perfection of our cosmos. But their specific difference is not sufficiently profound to be of the essence of the universe. In corporeity they have a common natural genus. It is this insufficiency of unity of essential order that enables St. Thomas to formulate an argument for the existence of the angels who are specifically different from one another and exist outside any natural genus. Our cosmic universe is only the bottom rung of the whole of creation, of the universe in the full sense, where a pure and essential unity of order reigns. Like an isolated angelic species, our whole cosmos is only a degree, the lowest, of the universal hierarchy. It is only in the ensemble of the created universe, that is, in the ensemble constituted by all the specific universes that are the angels and the cosmos, that we find that pure hierarchy which is of the very essence of the work of God."

a cosmos which was not essentially ordered to an intra-cosmic intelligence."[7] This statement is in accord with the conclusion of the hierarchy argument. By contrast, however, the futility argument can be summarized as follows:

> 1. The cosmic end must be an immobile and intra-cosmic being.
> 2. The only immobile and intra-cosmic being is the human being.
> C: The cosmic end is the human being.

The support for the first premise relies upon notions of matter and motion, and it reasons *modus tollens*. Given a possible cosmos composed only of inorganic physical substances, such a cosmos would consist entirely of mobile beings, things whose existence can be manifested only through motion and change. Yet if mobile beings existed only in order to have the existence found in motion, "their reason for being would be impossible: their existence would even be contradictory."[8] This is because a sheer material multitude is unrealizable as an end, because it tends of its nature to the infinite. Thus, if a purely material cosmos of mobile beings were all that existed, the cosmos would be teleologically self-contradictory—it would be a being that sought perfection in a terminus both imperfect and

7 Ibid., 295. In note 101, De Koninck argues that what is abstractly within the realm of God's power is not necessarily consonant with God's wisdom. This claim is also made as part of the hierarchy argument in its draft version.

8 Ibid., 263–64. At this point, the McInerny edition is missing the following two sentences: "Furthermore, no movement properly speaking can be an end. For movement consists essentially in a tendency towards some other thing. And if this other is found at infinity, it is unrealizable, and movement itself become contradictory." (My translation.) See *Le Cosmos*, manuscript proofs (Québec: Imprimerie Franciscaine Missionnaire, 1936), as well as *Oeuvres de Charles de Koninck: Tome I, 1. Philosophie de la nature et des sciences*, ed. by Yves Larochelles and Thomas De Koninck (Québec: Presses de l'Université Laval, 2009).

interminable. But nature does nothing in vain. A cosmos of pure matter-and-motion would be aimed at an unachievable end. De Koninck supplements this approach from the futility of motion with the natural inclination or "desire" of primary matter for form. Its desire is satiated only in a form which is a sort of rest or "immobility" (a substance and its operations).[9] The support for premise (2) is a disjunctive syllogism. De Koninck claims that the cosmic end found in a type of immobile being is either found in an entirely immobile being or one that is partly immobile and partly mobile. It cannot be the former, because such a purely immobile being is in its essence extrinsic to the cosmos, for the cosmos is the unity of order amongst physical substances, and "the particular end of the cosmos ought to be interior to the cosmos," and material objects "cannot be useful for a pure spirit"[10] such that a pure spirit would depend upon material objects in order to exist. The completion needed would be interior to the cosmos only if it were something achieved within the order of the cosmos by one of the parts of its very order. This being that is at once immobile and cosmic is the human being: "Man is manifestly the raison d'être of the whole of nature."[11]

The argument, as stated, involves more details that can be examined here. The futility argument, De Koninck claimed at one time, was a "demonstration" of a "philosophical fact."[12] Determining the cogency of such a claim is precisely what I

9 See ibid., 265–66 and 268. One wonders whether there is too much equivocation here.

10 Ibid., 264.

11 Ibid.

12 De Koninck, "Reflections on the Problem of Indeterminism," 435. This language of "philosophical fact" is from Maritain, although De Koninck gives no references, most likely because Maritain's famous work involving this idea was of recent appearance. See Jacques Maritain, *Distinguish to Unite, Or, The Degrees of Knowledge*, ed. Ralph M. McInerny, trans. Gerald B. Phelan, *The Collected Works of Jacques Maritain*, vol. 7 (Notre Dame, IN: University of Notre Dame Press, 1995), 60–62.

mean to set aside in this essay, and I have outlined the argument only to be able to compare it to the hierarchy argument.

II. De Koninck Drafts the "Deduction"

A draft of the hierarchy argument can be found in De Koninck's unpublished work in the 1930s. (A translation of this draft is printed in the Appendix, from which all quotations in this section are taken.) It begins by announcing the outline of the idea, that our cosmos "is the last universe," the "oblique prolongation of the hierarchy of angelic universes." This involves De Koninck in a comparison of the intensity of angelic being with our own. The comparative infinity of the angelic essence is a more intensive sort of being than all the creatures in the physical universe.

De Koninck then continues this comparison between the angelic universes and our own. Generally, such intellectual life characterizes creation because, De Koninck claims, intellect "is essential to every possible universe." The angelic "universe" of one angelic essence is "determined in itself" and "there is nothing of becoming in it." Thus, "the life of an angel is not diffused through time." Analogous to the eternal now, "in the substance of an angelic universe there is nothing beside an endless 'today.'" This angelic day is punctuated, in its mornings and evenings, with acts of thought and volition.

Like these angelic universes, De Koninck continues, "our cosmos is also made for the sake of the life of the intellect." But our cosmos, "thus profoundly ordered to man" so as to make "an explicit return to its Creator," is, unlike the angelic universes, shot through with becoming and time: "Our universe is incessantly 'formerly.'" Unlike the angel, we cannot fulfill ourselves as knowers through connatural ideas but must know the outside world and thus "make a detour so that I can take hold of me,

an incursion into the sensible world." Our desire for knowledge, our desire to erase our ignorance and "to absorb the whole universe, to be *quodammodo omnia*," is proportionate to the cosmos itself, existing in time, "a universe in the state of construction. We are in a world which is being made."

In the draft, De Koninck, apparently, makes a new beginning (if we are not to treat the sequel as purely redundant), noting "a comparison between our universe of space and time and an angelic universe." Since he has already been doing this in the previous passages of the text, perhaps he means that he will attempt a more rigorous explanation. He notes his reason for doing so: "For in philosophy we do not profoundly understand the inferior except from the perspective of the superior."

De Koninck returns to the various steps of comparison he had just noted. The angelic hierarchy is, in each angelic species, a "universe infinitely more perfect" than the cosmos. Such universes are not spatiotemporal, and they exist by the determinate essence of the angel as principle through discrete moments of thought. De Koninck adds here not just further explication regarding why angelic essences are this way, but also why they are in a hierarchy. This is, first and foremost, because of their essences, but also because of the operations of which those essences are the principles. He claims:

> As one descends down the ladder of angelic universes, their knowledge becomes more and more complex: they have a need of more and more ideas to make present the things which they are not. There is, therefore, in their life more and more succession.

This increasing complexity, or decreasing intensity and simplicity of pure intellection, means that "the angels begin to resemble each other more and more." They are each still distinct species, but not quite as distinct. In order "to pass beyond the final

echelon of this hierarchy and make two minds of the same species, we must forcibly decompose the essence." Two minds of the same species cannot exist unless a new principle is introduced: a principle of indetermination or matter. Again, De Koninck rehearses a key background principle:

> The mind, indeed, is essential to the universe. A universe which were not made in view of a mind would be impossible. For it is necessary that each creature be able to make an explicit return to its principle, the [Creator].

We return to this rather strong claim below.

What De Koninck sees "in looking upon the angelic hierarchy in this sense of its degradation" is that "in deducing an infra-angelic universe we have implicitly deduced space and time: any infra-angelic universe is bound to be spatio-temporal." This is because, he argues, matter is the principle of change and hence of time; also, matter as the principle of individuation means that "this universe is bound to be spatial," for things the same in species but different in number are homogeneously outside each other, but "homogenous exteriority is essentially spatial: it causes one thing to be here and the other to be there." Lastly, this spatiotemporal universe must contain intellect "to bring back the entire ensemble to its principle, and that the world become a type of canticle." De Koninck ends by suggesting this is where evolution enters in—a "process of maturation of our universe" that is the subject of sequel lectures to the draft. In De Koninck's thinking, there is a connection between the hierarchy argument and the futility argument.

There are not a few claims that might give even a well-disposed hearer pause as De Koninck deploys them to complete the declension of angelic essences into a spatiotemporal cosmos. Notably, De Koninck does not use the idea of the perfection of the universe in this argument. Rather, he uses a certain notion

of *redditus* to one's origin alongside a sequence of increasing imperfection in a greater series. One suspects that there are many other suppressed premises, possibly even unnecessary premises, and there are various underdeveloped points. We must determine whether these rough edges are smoothed out and roughed-in parts are filled out in the published versions of the hierarchy argument.

III. The Published "Deductions"

De Koninck did not forget about this hierarchy argument, as one can find it in at least four of his published works. Thus, he evidently did not consider this sort of argument to be unserious or unsound. The first three instances are found in philosophical essays; the fourth is in his theological work *Ego Sapientia*. We examine these in two separate groups, as the context of the latter is distinctive.

A. The Hierarchy Argument in De Koninck's Essays on Indeterminism

The three essays on indeterminism De Koninck published in the 1930s—"Thomism and Scientific Indeterminism,"[13] "The Problem of Indeterminism,"[14] and "Reflections on the Problem of Indeterminism"[15]—each contain a version of this argument in close but not exact parallel to each other and with clear ties to the draft. At first sight, a use for the hierarchy argument is not exactly obvious if the main point of consideration is contingency

13 See the beginning of the essay, 59–61. In this section, this essay is cited parenthetically as "Thomism."

14 See *Writings*, vol. 1, 390–93. In this section, cited parenthetically as "Problem."

15 See *Writings*, vol. 1, 404–07. In this section, cited parenthetically as "Reflections."

in nature.[16] De Koninck calls it "a considerable, and perhaps disconcerting, detour" at the outset of one essay ("Thomism," 59) and "a view of the whole" at the end of another ("Problem," 390). All written within the span of a few years, "Thomism" is the most underdeveloped of the versions, while "Problem" and "Reflections" run in close parallel and are clearer presentations of the argument. All three, however, are more complete than the unpublished draft.

The argument seems to have five steps. First, De Koninck distinguishes between positive and negative indetermination, that is, "that of freedom, and that of contingency" ("Thomism," 59). Positive indetermination simply speaking belongs only to God and belongs to him because of the absolute necessity of his essence. De Koninck calls this freedom a "positive indetermination" in the sense that nothing other than or outside of God limits the divine being or the divine will. Creatures participate in positive indetermination to the degree that they are intellectual and thus share in freedom. Even "the plant and animal participate in this positive indetermination" to a certain degree through their "spontaneity" ("Reflections," 404).[17] All creatures, however, can be characterized by a negative indetermination that is rooted in the finitude of their essences and the real distinction between that essence and its act of existence. Creatures do not possess existence determinately but only contingently, although this contingency or negative indeterminism is distinguishable depending upon the sort of essence involved.

16 Concerning this main point, see Anthony Andres, "Charles De Koninck on Contingency in the Natural World," *The Aquinas Review* 24 (2021): 1–20.

17 This distinction between types of indeterminism is, of course, the reason why De Koninck includes the hierarchy argument in these essays. The metaphysically vertiginous mode of the argument might also motivate his *apologia* for introducing it while, at the same time, substantiating his insistence in these essays that we treat of things from a more natural philosophical approach.

Second, De Koninck notes that there is "a constant relation between the degree of essential determination and the degree of positive indetermination" ("Thomism," 59; "Problem" 391; "Reflections," 405). The more determined one's essence is to being, the more positive indetermination is possessed. An inverse relationship thus obtains: There is "an inverse proportion between the degree of positive indetermination and the degree of negative indetermination" ("Problem," 391). Both the direct and inverse proportions are explained by form as a principle of determination: "quantum unicuique inest de forma, tantum inest ei de virtute essendi"—as much as anything is possessed of form, so much is it possessed of the power of being.[18] One might also relate this proportion between essential determination and positive indetermination to matter, for "quanto forma magis vincit materiam, tanto ex ea et materia magis efficitur unum"—as much as form more overcomes matter, so much is something all the more one brought about from it and matter.[19] A third principle in the governing background of the argument is a text from St. Thomas's *Sentences* commentary that De Koninck quotes or paraphrases in all three texts: "Ipsa natura vel quidditas angeli

18 See St. Thomas, *De pot.*, q. 5, a. 4, ad 1. For the expression "*virtus essendi*" elsewhere in the Thomistic corpus, see *SCG* II, c. 20, n. 22; II, c. 28, n. 2; II, c. 30, n. 11; *De malo*, q. 16, a. 9, ad 5; *In De causis*, lec. 4; *In De div. nom.*, c. 5, lec. 1). It is frequently used in connection to the duration of a being: *SCG* II, c. 20, n. 23; II, c. 33, n. 3; II, c. 36, n. 3; II, c. 83, n. 2; *In I De caelo*, lec. 6, n. 5; *In De causis*, lec. 16. The passages in *SCG* II, c. 20 speaks of this *virtus essendi* in connection to form, as does *Q. D. de anima*, a. 1, ad 5. See also Lawrence Dewan, O.P., "A Note on Thomas Aquinas and *Virtus Essendi*," *The Thomist* 75 (2011): 637–51, who addresses Etienne Gilson, "Virtus Essendi," *Mediaeval Studies* 26 (1964): 1–11. Consider also Fran O'Rourke, "Virtus Essendi: Intensive Being in Pseudo-Dionysius and Aquinas," *Dionysius* 15 (1991): 31–80, and Liliana Irizar, "Thomas Aquinas and *Virtus Essendi*: Different Meanings? Lawrence Dewan's Probable Answer," *Science et Esprit* 71 (2019): 29–40.

19 See *SCG* II, c. 68, n. 6, and De Koninck, *The Cosmos*, 298–99.

est possibilis respectu esse quod a Deo habet"[20]—the very nature or quiddity of an angel is possible with respect to the existence which it has from God. The connection between this idea and a potential hierarchy of essences in comparison to God's perfection is clear from the line's context, a question in which St. Thomas is asking whether there exist a number of angels. In this text, we find *in nuce* De Koninck's hierarchy argument.[21]

The third step of the argument is to inspect the "degradation" of the angelic hierarchy or "the hierarchy of the angelic universes" ("Problem," 391) in the direction of a plurality of substances that are not only different from each other in kind but that also share in common a physical genus due to their common materiality. It is a "degradation" both in the sense of proceeding downwards in an order as well as a "breaking down" of perfections of being and activity. There is no upper limit to

20 De Koninck quotes this in "Thomism," 59, note 1, and paraphrases it in "Problem," 391, and "Reflections," 405, by dropping "*angeli*." This elision, however, does not falsify the idea.

21 St. Thomas, *In II Sent*., d. 2, q. 1, a. 3, c. (Aquinas Institute translation: www.aquinas.cc): "But we can take the manner in which [angels] are distinguished with regard to one another from the words of the Commentator on *On the Soul* 3, where he says that if the nature of the potential intellect were unknown to us, we would not be able to assign a number to the separated substances. Hence I say that distinction between the angels follows on the degree of potentiality mixed in with the angelic nature. For it has been said above that the nature or 'whatness' of the angels is possible with respect to the existence that they have from God. For as a nature mixed with potentiality withdraws from likeness to the divine nature, which is only act, the more and more distant from act we find it to be. Therefore, that whatness is complete act whose being is not apart from it, namely the divine nature. And the simple whatness that is closer in likeness to the divine being partakes less of potency and more of act and is nearer to God, more perfect, and so forth, until we arrive at the nature that is in the last rank of potentiality among spiritual substances to the point that it only acquires being in another, even though its being does not depend on it—namely the human intellect, which, according to the Commentator, is last in the order of intellectual natures, just as prime matter is last in the order of corporeal natures."

the hierarchy of angels, De Koninck briefly notes ("Problem," 391; "Reflections," 406). In order to reach a lower limit in a species or kind that is not another angel, one must introduce "not only indetermination of the essence relative to its existence: there is a negative indetermination within the very essence" ("Thomism," 60).

In both the draft of this argument and its version in "Thomism," De Koninck briefly sketches what this degradation is like. In "Problem" and "Reflection," however, he more clearly delineates and emphasizes certain conceptual paths in this degradation. Furthermore, in the latter two essays only does he describe the tendency among angelic species towards the envisioned limit as a certain "prefigur[ing]" or "prefiguration of the spatio-temporal world" or "prefiguration of the cosmos" (see "Problem," 392–93; "Reflection," 406). Again, only in these latter texts does he say that this prefiguration is "analogous to that of the circle toward which tends an inscribed polygon whose sides are multiplied" ("Problem," 393; see "Reflection," 406).[22] The immaterial mode of being of the angel is as the discretely countable polygon's sides, the material matrix from which the substances of the cosmos are drawn as if along the continuous circumference of the circle. We inhabit, as it were, that circum-

22 In "Problem," 400, note 41, De Koninck notes how the analogy limps: "Lest this image arouse a scruple, it might be useful to add that the more imperfect the spiritual species are, the less numerous they are within determined limits. Beginning with the last lower degree, the progression is so to say spiroidal. This complexity is inversely proportional to the multitude of species within the given limits." That is, the angelic hierarchy becomes less discretely dense as one progresses down the hierarchy, and as one goes up, the reverse occurs. The greater imperfection and complexity is not matched, in other words, by greater numbers of angelic species. Rather, De Koninck is saying, there are relatively more and more angelic species the closer one approaches to God. His image of a spiral calls to mind a hyperbolic spiral, with a polar equation of $r = a/\theta$, where a is constant and θ is the polar variable, given in radians. As θ increases, the radius r becomes smaller and thus the whorls of the spiral wind tighter and tighter about the origin but never reach it.

ference; our intellectual souls are "the last rank of potentiality among spiritual substances to the point that it only acquires being in another," namely, in matter, "even though its being does not depend on it."[23] We are "the first outside which one finds none of the thing and the first within which one can find all," namely, intellectual substances.[24]

In the fourth step of the hierarchy argument, De Koninck constructs, as it were, the series of polygons along four routes or "points of view," namely, "that of essence, that of duration, of understanding, [and] of individuation" ("Reflections," 406). First, in comparison to the pure act of the divine essence, angelic essences are more distant likeness of God by their degree of potentiality and thus approach, but do not reach, "a real and intra-essential indetermination" ("Reflections," 406); this intra-essential indetermination is matter. Second, in the order of duration, in comparison to the eternity of the divine essence, angelic essences are measured by a duration proportionate to their mode of being and action. De Koninck asserts that the angelic

> present tends to disintegrate. This degradation of spiritual durations prefigures the existence of the physical and composed essence; it prefigures the successive and continuous duration that is time properly speaking. In other words, it prefigures the true future. ("Reflections," 406; compare "Problem," 392)

This is the future due to motion, which requires as a principle the materiality of mobile beings.

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23 St. Thomas, *In II Sent.*, d. 3, q. 1, a. 3, c.: "in ultimo gradu possibilitatis in substantiis spiritualibus; adeo quod non acquiritur sibi esse nisi in altero, quamvis esse suum ad illud non dependeat."

24 This is the definition of a limit in Aristotle's Metaphysics 5.17, 1022a4–5, as translated in John Francis Nieto, "What Is a Limit?" *The Aquinas Review* 13 (2006): 81–92, at 92: "τό τε ἔσχατον ἑκάστου καὶ οὗ ἔξω μηδὲν ἔστι λαβεῖν πρώτου, καὶ οὗ ἔσω πάντα πρώτου."

Third, in the order of understanding or angelic intuition, the angel's concepts become more numerous, as do its acts of understanding, its proper function as an intelligence.

> The intuition of the essence in the angels is impoverished according to the imperfection of the essence and understanding; in order to know other beings, it has need of more and more numerous ideas, its activity is more and more fragmented; the discrete duration constituted by the continuous suite of thoughts and acts of will is more and more dispersed, there is, so to say, more and more of a future. The angels are more and more removed from themselves and from what is outside themselves. All this prefigures an intelligence turned outside itself, a blank slate, and which will have need of the passive experience of the subject. ("Reflections," 406; compare "Problem," 392)

This passive experience of a mind that is like prime matter reveals "the deep sense of *rational animal*" ("Problem," 392): that, as rational, we must discursively search through time and in exterior sources for our intelligible objects, while angelic minds possess these innately, for the angelic intellect is "like a painted tablet [*tabula picta*],"[25] full of thought. Lastly, in the order of individuation, De Koninck argues that

> to the degree that the perfection of the pure spirits diminishes, their heterogeneity is attenuated, they resemble one another more and more: they give an intimation in this way of a plurality of individuals of the same species and quantitative and spatial homogeneity. ("Reflections," 406; compare "Problem," 393)

One recognizes here the same sort of reasoning already present in the draft version of the argument. Real homogeneity demands

25 St. Thomas, *De ver.*, q. 8, a. 5, s.c. 3.

a principle distinct from form, as form is a principle of otherness insofar as this being is not that being in kind; the same kind is a *this* one and not a *that* one due to a different principle, namely, matter.

The fifth and final step concludes the argument:

> This perspective reveals in the angelic hierarchy a prefiguration of the cosmos, analogous to that of the circle toward which the inscribed polygon whose sides are multiplied tends. Whichever of the points of view just suggested be chosen—that of essence, that of duration, of understanding, of individuation—it enables us to foresee matter, pure negative indetermination. It is by this that the individuation of non-subsistent forms is explained, passive experience, time, space, etc. But it also entails a new species of contingency unknown in the spiritual universes, [one] which is proper to the nature which results from the hylomorphic composition of essences. ("Reflections," 406–07; compare "Problem," 393)

Having reached this terminus in the cosmos and the goal of the argument, De Koninck then discusses the cosmos and man's place in it from the perspective of the futility argument ("Thomism," 61–66; "Problem," 393–96; "Reflections," 407–11), although without the full scope that this argument is given in *The Cosmos*. Note the emphasis in the conclusion, however, upon "prefiguration" and "foresee[ing] matter." This language is more measured than the "deduction" proposed by the draft, and it is more amenable to proper method.

B. The Hierarchy Argument in Ego Sapientia

De Koninck reprises the hierarchy argument in *Ego Sapientia*, where he places it at the service not of the philosophy of science but as a handmaiden to aid in contemplating the

person of Our Lady, who from the depths of human nature was raised to the height of divine maternity:

> In order to gauge the height and depth of what God has chosen to make manifest outside Himself, we must see the baseness of the nature He has elevated above all other creatures.[26]

This is in the broader context of his interpretation of the verse "Nigra sum, sed formosa"—"I am black but beautiful" (Song 1:5). God's mercy is manifested in the Incarnation that comes to such a cosmos through such a lowly means.[27] To this end, De Koninck considers the created hierarchy in its natural perfection:

> The cosmos and its most perfect interior term, humanity, are only a remote echo of the spiritual universe—*quaedam resonantia*. One can show this by considering in a dialectical manner the angelic hierarchy in the sense of its inferior limit. (*Ego*, 23)

By "dialectical manner," De Koninck means the mode of consideration that is adopted, the vertiginous metaphysical perspective that relates the angelic hierarchy to our own nature.[28]

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26 De Koninck, *Ego Sapientia*, 23; quoted as *Ego* parenthetically in this section.

27 See also Katherine M. Gardner, "The Lord Possessed Me in the Beginning of His Ways: Mary and the Trinitarian Order of the Universe (A Commentary on Charles De Koninck's Ego Sapientia: The Wisdom That Is Mary)," Ph.D. Diss. (Ave Maria University, 2013), 208–21, as well as Susan Waldstein, "Mercy and Self-Gift: Exploring the Implicit Connections between Charles De Koninck's Evolutionary Biology and Theological Principles," Ph.D. Diss. (Université de Fribourg, 2013), 232–42.

28 De Koninck discusses this method in essays published shortly after *Ego Sapientia*; see "The Dialectic of Limits as Critique of Reason" (1945), in *Writings*, vol. 2, 365–77, as well as "Concept, Process, and Reality" (1946), in *Writings*, vol. 2, 405–15. The "resonantia" here is a reference to St. Thomas's commentary on the Divine Names of pseudo-Dionysius; see St. Thomas, *In De div. nom.*, c. 7, lec. 2, n. 714 (Aquinas Institute translation: www.aquinas.cc): "Even sensitive

While he does not rehearse the distinction between positive and negative indeterminism at the outset, De Koninck does note the perfection of the angels in "substance and operation" and retains the ideas, from previous versions, that each angel "constitutes by himself a universe incommensurably more perfect than the cosmos and humanity combined" (*Ego*, 23). De Koninck then provides the overall argument in one paragraph:

> In proportion as the angels are distant from Pure Act, the simplicity of their essence diminishes. The limit of this departure from the note of simplicity is an essence composed of matter, form, and privation. While pure spirits are immutable in their substance and absolutely necessary, in the sense that they do not contain in themselves any principle of non-being, essences which include privation entail so to speak their own negation. At this level, the species, diffused in individuals, is only maintained by their generation and corruption. It is to matter, insofar as it is deprived of form, that the existence of chance and disorder here below must be attributed, privation which expresses our distance from the first principle who is in Himself always uniform—*semper eodem modo se habente*. And chance only doubles the fortuitous. We live at the confines of

knowledge is derived from the divine wisdom; and he says that someone will not sin, as though diverting from the intention proposed according to which we intend to assign the procession of the divine wisdom, if he should have said that even those senses are a certain resonance of the divine wisdom. For the lowest of whatever procession is named resonance unto the likeness of that which cannot be sensed from sound on account of distance: for just as the ultimate of life is in plants, so the lowest of knowledge is in sense. For the divine wisdom is above all knowledge: the first effect of which is the knowledge of the angelic intellect, the whole of which consists in uniformity; the second effect is the knowledge of reason, which rolls many things together into one; yet the third effect is sensitive knowledge, which is diffused around many things, but does not prevail to know uniformity." Again, as in the *Sentences* text, we find here the hierarchy argument in nuce.

> the universe where we are diffused both according to substance and to quantity and according to temporal duration. (*Ego*, 23–24)

We are truly "at the confines of being" (*Ego*, 24). After this comparison of the angelic substance to our own, De Koninck illustrates "the limit of this declension" of angelic beings by considering angelic knowledge and action.[29] Unlike the argument in the indeterminism essays, the route via individuation is not considered. He summarizes all three paths as follows:

> Considering ourselves in our natural condition compared with pure spirits, who are always in act, immutable, and incapable of error or fault in the natural order, we are already black enough: in substance, because of matter and privation; in knowledge, because of the nocturnal potentiality of intellect and the opacity of sense; in the order of action, because of the contrariety of our composed nature. (*Ego*, 25–26)

Unlike the draft version of the hierarchy argument, or the versions in the indeterminism essays, De Koninck does not place emphasis upon the material cosmos as the terminus of the argument so as much as upon human nature. Nonetheless, he does note the need our sort of intellect has for a material cosmos in which we find objects for contemplation to flourish as intellectual creatures: "The necessity of the shadows of the sensible world has its origin in the weakness of our intelligence" (*Ego*, 25).

29 This comparison of angelic freedom to our own is not present in the earlier versions, but De Koninck does not use such action as a mode of progression to the limit. It would seem that De Koninck added this point in view of his working out his contemporaneously written and published *The Primacy of the Common Good against the Personalists*. See *Writings*, vol. 2, 73, 107–08.

C. Summary Consideration of the Versions

Let us briefly take stock of De Koninck's argument. First, the overarching pattern of argument is clearly the same in each case. However, the later, published versions of the argument more clearly emphasize key principles involved—especially the distinction between essence and existence, the proportion of these to potency and act, and essence as a principle of other points of comparison, such as duration and intellectual operation. The notes of "deduction" in the draft give way to a gentler contemplation of order, a "dialectical" proceeding in our thoughts that attempts to track formal similarities in a hierarchy that "prefigures" at its limit a wholly distinct form of intellect. Lacking in the published versions, as opposed to the draft, is De Koninck's appeal to an *exitus–redditus* schema as well as any insistence on the "impossibility" of a created universe without intellectual creatures.

IV. St. Thomas and a "Deduction" of the Universe?

One concern with the hierarchy argument is that, despite its appeals to principles taught by St. Thomas, the method De Koninck uses is inapposite, and Aquinas himself might find the use of such principles rather an abuse. However, Aquinas does determine such a method: *secundum viam compositionis*. What is more, as we have already briefly noted, he does argue in ways similar to De Koninck's hierarchy argument. In what follows, we establish these contentions on firmer ground.

A. Metaphysical Method

First, as to method. In *Super Boetium De Trinitate*, q. 6, a. 1, St. Thomas discusses the methods of the speculative sciences.[30] He shows in what sense the philosophy of nature proceeds according to the mode of reason (*rationabiliter*), which is most apt to discover causes beginning from effects; how mathematics proceeds according to the mode of discipline (*disciplinaliter*), which is most apt for a student; and how divine science proceeds according to the mode of intellect (*intellectualiter*), which is most apt for contemplating immaterial realities. While these three ways of proceeding in our reasoning and understanding are not exclusive to those three speculative sciences, those three exhibit those modes most of all.

The way of proceeding *intellectualiter* contains two complementary ways within itself. Since we are not pure intellects, this twofold character of intellectual activity must be distinguished by a comparison to reasoning, which in its thinking discursively proceeds from one thought to another or from one thing to another.

> It is clear, then, that rational thinking ends in intellectual thinking, following the process of analysis [*secundum*

30 Consider Jean-Baptiste Échivard, André Clément, and Pierre Magnard, *Un nouveau Discours de la Méthode?* Vol. 5 of 5 vols.: *Une introduction a la philosophie. Les proemes des lectures de saint Thomas d'Aquin aux oeuvres principales d'Aristote* (Paris: François-Xavier de Guibert, 2008). Also, see S. Edmund Dolan, "Resolution and Composition in Speculative and Practical Discourse," *Laval théologique et philosophique* 6 (1950): 9–62; Sheila O'Flynn, "The First Meaning of 'Rational Process' According to the *Expositio in Boethium de Trinitate*," *Laval théologique et philosophique* 10 (1954): 167–88; Jan A. Aertsen, "Method and Metaphysics: The *Via Resolutionis* in Thomas Aquinas," *New Scholasticism* 63 (1989): 405–18; Michael Tavuzzi, "Aquinas on Resolution in Metaphysics," *The Thomist* 55 (1991): 199–227; Eileen C. Sweeney, "Three Notions of *Resolutio* and the Structure of Reasoning in Aquinas," *The Thomist* 58 (1994): 197–243.

> *viam resolutionis*], in which reason gathers one simple truth from many things. And again, intellectual thinking is the beginning of rational thinking, following the process of synthesis [*secundum viam compositionis vel inventionis*], in which the intellect comprehends a multiplicity in unity. So, the thinking that is the terminus of all human reasoning is supremely intellectual.[31]

Aquinas contrasts these two "ways" by noting that reasoning ends in understanding "when a demonstration is made through external causes or effects," while understanding is the beginning of reasoning "by synthesis when we go from causes to effects," as opposed to reasoning "by analysis when we proceed from effects to causes, for causes are more simple, unchangeable, and uniformly constant than their effects."[32] Aquinas concludes:

> Consequently, the ultimate end of analysis in this process [*ultimus ergo terminus resolutionis in hac via*] is attainment of the highest and most simple causes, which are the separate substances. At other times, however, reason advances from one item to another distinct in the mental order, as when we proceed according to intrinsic causes, by synthesis when we go from the most universal forms

31 St. Thomas, *In De Trin.*, q. 6, a. 1, c. (Aquinas Institute translation: www.aquinas.cc): "Sic ergo patet quod rationalis consideratio ad intellectualem terminatur secundum viam resolutionis, in quantum ratio ex multis colligit unam et simplicem veritatem; et rursum intellectualis consideratio est principium rationalis secundum viam compositionis vel inventionis, in quantum intellectus in uno multitudinem comprehendit. Illa ergo consideratio quae est terminus totius humanae ratiocinationis, maxime est intellectualis consideratio."

32 Ibid.: "Tota autem consideratio rationis resolventis in omnibus scientiis ad considerationem divinae scientiae terminatur. Ratio enim, ut prius dictum est, procedit quandoque de uno in aliud secundum rem, ut quando est demonstratio per causas vel effectus extrinsecos; componendo quidem cum proceditur a causis ad effectus, quasi resolvendo cum proceditur ab effectibus ad causas, eo quod causae sunt effectibus simpliciores et magis immobiliter et uniformiter permanentes."

> to the more particular ones, by analysis when we proceed conversely, because what is more universal is more simple.[33]

An example of the *via resolutionis*, then, can be found in any of St. Thomas's Five Ways.[34] We might also resolve more specific concepts to more universal ones. However, the *via compositionis* or metaphysical "synthesis" proceeds in the opposite direction. Beginning with "the most universal forms," we proceed to less universal ones.

This mode of proceeding according to the way of synthesis or composition (*via compositionis*) is what De Koninck proposes in his hierarchy argument. As he states in the draft version, "in philosophy we do not profoundly understand the inferior except from the perspective of the superior." The entire argument adopts a disconcerting view of the whole. What De Koninck adds to St. Thomas's method of metaphysical synthesis—if he is not, in fact, drawing it out as an implication of that method—is that our conception of the natures along such a *via* can resemble an approach to a limit. This approach is not an arbitrary or extrinsic imposition, because the essences and operations of the natures thereby contemplated truly do stand to each other in this way, for the entire hierarchy is fundamentally ordered by participation and a declension of similarity from its First Principle.

33 Ibid.: "ultimus ergo terminus resolutionis in hac via est cum pervenitur ad causas supremas maxime simplices, quae sunt substantiae separatae. Quandoque vero procedit de uno in aliud secundum rationem, ut quando est processus secundum causas intrinsecas; componendo quidem quando a formis maxime universalibus in magis particulata proceditur, resolvendo autem quando e converso, eo quod universalius est simplicius."

34 See Jason A. Mitchell, "The Method of *Resolutio* and the Structure of the Five Ways," *Alpha Omega* 15 (2012): 339–80.

B. Thomistic Texts (I): De Ente et Essentia, Chapter 4

Second, there are also texts in the Thomistic corpus that resemble De Koninck's thinking in the hierarchy argument. There are two passages that I will consider. The first is from the fourth chapter of *De ente et essentia*, in which Aquinas is considering the essence of separate substances, "namely, in the soul, the intelligences, and the First Cause."[35] Unlike God, the human soul and the essences of the intelligences, or angels, are composed with an act of existence, and this composition of essence and existence is to be compared to a composition of potency and act. This general relationship of act to potency, which finds its highest reason in the simple being of God, leads Aquinas to conclude the chapter with a reflection upon the hierarchy of the universe as a whole. Since there is a distinction of potency and act even in the angels, "it will not be difficult to find a multitude of intelligences," which "would be impossible if there were no potency in them."[36] This leads to a gradation—a unity of formal order—among these separate substances, for

> there is a distinction of them amongst themselves according to degrees of potency and act, such that a superior intelligence—which is nearer to the first—has more act and less potency, and so on with the rest.[37]

This series is transcended by the divine being, which is pure act, *ipsum esse per se subsistens*. As De Koninck notes, there is no upper limit within the series of intellectual substances.

35 St. Thomas, *De ente et essentia*, c. 4 (my translation): "scilicet in anima, intelligentia et causa prima."

36 Ibid.: "non erit difficile invenire multitudinem intelligentiarum, quod esset impossibile si nulla potentia in eis esset."

37 Ibid.: "Est ergo distinctio earum ad invicem secundum gradum potentiae et actus, ita quod intelligentia superior quae magis propinqua est primo habet plus de actu et minus de potentia, et sic de aliis."

What limits this series in the "downward" direction? After the ranks of angels, this series of potency-act composition

> is finished in the human soul, which occupies the lowest rank among the intellectual substances. Whence, its possible intellect is related to intelligible forms just as prime matter—which occupies the lowest rank among sensible existence—is related to sensible forms, as the Commentator says in *De anima*, Book III. For that reason, the Philosopher compares it to a tablet in which nothing is written. It is on account of this that, among the other intellectual substances, [the human soul] has more to do with potency; thus, it is brought so close to material things that a material thing is drawn to participate its own existence [*ideo efficitur in tantum propinqua rebus materialibus ut res materialis trahatur ad participandum esse suum*], namely, such that out of soul and body there results one existence in one composite, although that existence is not dependent upon the body, as it belongs to the soul. Thus, after such a form, which the [human] soul is, other forms are found having more to do with potency and are closer to matter, so much so that their existence is not without matter.[38]

38 Ibid.; my emphasis: "Et hoc completur in anima humana, quae tenet ultimum gradum in substantiis intellectualibus. Unde intellectus possibilis eius se habet ad formas intelligibiles sicut materia prima, quae tenet ultimum gradum in esse sensibili, ad formas sensibiles, ut Commentator in III de Anima dicit; et ideo Philosophus comparat eam tabulae in qua nihil est scriptum. Et propter hoc quod inter alias substantias intellectuales plus habet de potentia, ideo efficitur in tantum propinqua rebus materialibus ut res materialis trahatur ad participandum esse suum: ita scilicet quod ex anima et corpore resultat unum esse in uno composito, quamvis illud esse prout est animae non sit dependens a corpore. Et ideo post istam formam quae est anima inveniuntur aliae formae plus de potentia habentes et magis propinquae materiae, in tantum quod esse earum sine materia non est."

Here we find De Koninck's hierarchy argument, in embryonic form, that somehow "reason emerges in the shadow of intelligence [*ratio oritur in umbra intelligentiae*]."[39] De Koninck notes this connection also in lines that recall the *De ente* passage:

> At the limit of this declension [among intellectual creatures] there arises an intelligence turned outside himself, in pure potency, similar to prime matter, a blank slate, a non-intuitive intelligence which can only be awakened to its proper act by means of a sensible singular, intelligible only potentially. *Ratio oritur in umbra intelligentiae*—human reason emerges in the shadow of intelligence.[40]

De Koninck's exposition of the hierarchy argument would seem to supply more detail to Aquinas's lapidary statement of this declension of intellectual substances, along with some clarifying reasons why it must terminate as it does. The "shadow" of the intelligences one finds in the pure contingency of prime matter composing the human person and the pure immaterial possibility of the human intellect, a substance that requires a cosmos in order to flourish as an intellectual creature. Still, Aquinas is too brief: What does it mean, beyond a metaphor, that a material thing "is drawn" (*trahatur*) to partake of the very being (*esse*) of the human soul?

We should note that the argument in *De ente* is a clear reprise of St. Thomas's argument to the same effect in the historically earlier *Sentences* passage, even down to the parallel citation of Averroes.[41] Furthermore, if we appeal to a historically later text, we will find St. Thomas providing the basis for De Koninck's various points of comparison, especially when it comes to the increasing diffusivity of angelic intuition. In a pas-

39 *De ver.*, q. 8, a. 3, ad 3.

40 De Koninck, *Ego Sapientia*, 24–25.

41 See above, note 22.

sage from *De malo* concerning the first moment of angelic sin, Aquinas contrasts material time to the duration of the angelic activity of thought, noting that

> the angels' thoughts and desires have a temporal succession, as Augustine says in his *Literal Commentary on Genesis* that God moves spiritual creatures through time. For angels do not actually understand everything at once, since angels understand different things by different forms, not everything by one form, and the higher an angel, the more things it naturally knows by fewer forms. And so Dionysius says in his work *On the Celestial Hierarchy* that higher angels have more universal knowledge, and the *Book of Causes* says that higher, purely intelligent beings possess more universal forms, that is, forms that encompass a greater number of knowable things. Just so, we perceive regarding human beings that the more superior a person's intellect, the more things the person can know from fewer principles. But only God knows everything by knowing one thing, namely, his essence.[42]

42 St. Thomas, *De malo*, q. 16, a. 4, c.; translation from *On Evil*, ed. Brian Davies, trans. Richard J. Regan (Oxford: Oxford University Press, 2003), 464: "Est autem considerandum, quod in conceptionibus et affectionibus Angelorum est quaedam temporalis successio: dicit enim Augustinus in VIII super Genes. ad litteram, quod Deus movet creaturam spiritualem per tempus. Non enim Angeli omnia simul actu intelligunt: quia non omnia intelligit unus Angelus per unam speciem, sed diversa diversis speciebus: tanto enim unusquisque Angelus naturaliter per pauciores species plura cognoscit, quanto superior est. Unde Dionysius dicit XII cap. caelestis hierarchiae, quod superiores Angeli habent scientiam magis universalem; et in libro de causis dicitur, quod superiores intelligentiae habent formas magis universales, id est ad plura cognoscibilia se extendentes; sicut etiam in hominibus videmus quod quanto aliquis est altioris intellectus, tanto ex paucioribus plura cognoscere potest. Solus autem Deus, una scilicet sua essentia, omnia cognoscit." Cognate passages can be found in *SCG* II, c. 98 and I, cc. 50–54; *In II Sent*., d. 3, q. 3, a. 2; *De ver*., q. 8, a. 10; *ST* I, q. 14, a. 6, and q. 55, a. 3, as well as *In De causis*, lec. 10. We also note in passing the heavy dependence upon Dionysius and other sources

As Ronald McArthur explains,

> The closer the angel approaches the simplicity of the Divine Nature, the fewer are his species and the more perfect is his science, for the fewer species of the superior intellect attain all the objects the more numerous species of the inferior intellect attain, and attain them more perfectly.[43]

This universality in representation is precisely because the angelic mode of knowledge is not abstractive, not drawn from material individuals. An abstractive representation becomes conceptually poorer the more general it is; by contrast, what is universal in representation as an intuition is conceptually richer the more general it is. Had we such concepts, it would be akin to grasping the beauty of all Rembrandt's paintings by simply knowing "the Dutch Golden Age."

C. Thomistic Texts (II): Summa Contra Gentiles III, c. 97

The second passage to be considered is *Summa Contra Gentiles* III, c. 97, in which St. Thomas asks in what way the disposition of God's providence can be said to have a *ratio*.[44] Here

more Platonic. This connection between Aquinas and his Platonic sources we cannot consider here, given the scope of explaining De Koninck's argument itself and its foundations in his master, St. Thomas's, thought. Consider Sebastian Morello, *The World As God's Icon: Creator and Creation in the Platonic Thought of Thomas Aquinas* (Brooklyn, NY: Angelico Press, 2020).

43 Ronald McArthur, "Universal *in Praedicando*, Universal *in Causando*," *Laval théologique et philosophique* 18 (1962): 59–95, at 69.

44 Of this chapter, L. B. Geiger, O.P., observes in *La participation dans la philosophie de S. Thomas d'Aquin*, 2nd ed. (Paris: J. Vrin, 1953), 397, that in it "on trouvera un exposé synthétique d'une quasi-déduction de l'universe à partir de la Perfection de Dieu" ("one finds a synthetic exposition of a quasi-deduction of the universe beginning from the perfection of God"), a brief description that encapsulates the method and substance of both the chapter in Aquinas's work as well as the hierarchy argument.

is how Francesco Silvestri, O.P., summarizes a key portion of the argument in that chapter, which is of interest for our purposes:

> From the end is taken the *ratio* of the diversity of forms; from the diversity of forms is taken the *ratio* of the order of things, that is, the diverse grades in the natures of things; from the diversity of forms follows the differences of operations and of ends, and the diverse relationships of matter to things; from these diverse relationships of matter a diversity of agents and patients [follows]; from the diversity of forms and matters and agents follows the diversity of properties and accidents.[45]

The end is that the universe be a complete representation of God's goodness. There follows the need for a diversity of kinds of things to achieve extensively (not intensively) the end of perfect likeness of God's goodness in creation.[46] Consequently, this principle of hypothetical necessity gives rise to six general levels of diversity (arising due to material necessity, but all governed by hypothetical necessity for the stated end). Such forms are other from each other in what they are, and are thus causes of the being of substances in different ways, which means that as to their very being substances approach in degrees of likeness to the divine essence. The diversity of forms necessitates a hierarchy of being that constitutes the form of the universe itself, for "the form of the universe consists in the distinction and order

45 Francesco Silvestri, *In SCG* (Leon.14.301; my translation): "Ex fine sumitur ratio diversitatis formarum; ex diversitate formarum sumitur ratio ordinis rerum, id est diversitas graduum in naturis rerum; ex diversitate formarum sequitur operationum differentia ac finium, et diversa habitudo materiae ad res; ex hac diversa materiae habitudine sequitur diversitas agentium et patientium; ex diversitate formarum et materiarum et agentium sequitur diversitas proprietatum et accidentium."

46 See *SCG* II, c. 45; compare *ST* I, q. 93, a. 2, ad 3.

of its parts."[47] The diversity of forms necessitates by a certain absolute necessity: 1) a diversity of operations (for everything acts insofar as it is in act, and things are in act by their forms); 2) a diversity of proximate ends (for everything is constituted in a species with an order to an end by its form); 3) a diversity of material causes ("for there is a different material for a different species");[48] 4) a diversity among agent causes (for interaction depends upon capacities of acting and receiving co-principled by form and matter); and 5) a diversity of properties and accidents (for all such are ontologically posterior to the four causes just listed as causes of substances).

V. De Koninck's Hierarchy Argument—A Formal Restatement

We are now able to propose a formal version of De Koninck's hierarchy argument, having sifted through its various iterations in his own work as well as finding its substance in passages of the Thomistic corpus. From this argument, we can draw a corollary. I present the argument, explain and defend its premises, and offer some comments and address some objections.

The hierarchy argument, stated more formally, is as follows:

> 1. Whatever is the limit of the hierarchy of intellectual substances (according to essence, duration, intellectuality, and individuality) is prefigured in the hierarchy as the completion of that hierarchy.
> 2. The human person (and, consequently, the cosmos) is such a limit.
> C: Therefore, the human person (and, consequently, the cosmos) is prefigured in the hierarchy as the completion of the angelic hierarchy.

47 St. Thomas, *SCG* II, c. 39 (Leon.13.358): "Forma autem universi consistit in distinctione et ordine partium eius."

48 Aristotle, *Physics* 2.2, 194b9: "ἄλλῳ γὰρ εἴδει ἄλλη ὕλη."

This statement of the argument contains virtually the context and metaphysical principles that De Koninck uses in his versions.

A. The First Premise

The first premise assumes as a given the existence of a hierarchy of intellectual substances, a genus that is one only by analogy. Indeed, in the later versions of the argument, De Koninck makes no use of unnecessarily strong claim, floated in the draft version, that "the mind, indeed, is essential to the universe." These essences are understood in comparison to the absolute determination or perfection of God's essence. These essences approach God "more or less" insofar as they are intellectual, which is to say insofar as those essences are gradations of spiritual potency. Because the divine essence is imitable in indefinitely many ways, there is no intellectual being by nature maximally like unto God; in the reverse direction, however, there is a limit. The comparison we can make along this descending order of formal difference is more moderately called a "prefiguration" to avoid the aprioristic connotations of "deduction." This term also emphasizes the way in which a comparison with respect to essence or form is operative in the argument.

The first premise also includes the ways in which the hierarchy of angels tends to something as to a limit: according to orders among essence, duration, intellectuality, and individuality. The essence of an angel, because it is not limited "from below" by matter, is infinite in this respect compared to the essences of composite substances.[49] Yet they still differ from each other in

49 For this reason, it seems, De Koninck calls each angelic species a "universe." For, in comparison with our cosmos, in which all composite substances have a common material principle (prime matter) and thus a common genus, the angels have no real common principle of reception of act. They are each set off from the other and each must imitate God as image in a unique way; see "Problem," 381, and "Reflections," 406. By contrast, the cosmos only finds

degree of potentiality.[50] For a simple substance, this degree of potentiality must be an immaterial or spiritual potentiality that is wholly other in kind. Our own—very limited—insight into the nature of the possible intellect is crucial here: "If the nature of the potential intellect were unknown to us, we would not be able to assign a number to the separated substances."[51] We can know *that* the angels must differ in this way, even though we cannot naturally discern the specific differences involved. Comparability along this gradation of ontological intensity due to each essence's likeness unto God is, however, the basis for further comparison and the reason why this *compositio* can be termed a *formal* one (as opposed to, say, a *compositio* in view of the final cause, as found in *SCG* III, c. 97).

The prefiguration in the order of individuality is, in a way, the inverse of the prefiguration in the order of essence. For the distinction in the latter order is one of heterogeneity in species, while the former is an increasing homogeneity in which the "tendency toward a homogeneity of persons symbolizes a plurality of individuals of the same species."[52] That is, as the immaterial potentiality of one essence "increases" in comparison to a higher essence, successive species of angel become less formally unique and more formally similar. The reason why De Koninck can assert this, however, is unclear unless we consider the next order.

We must pause to consider why the prefiguration in the order of intellectuality is sound, for it is crucial to the argument. This is because—as hidden in the divine darkness of metaphysics

its image of God in humanity as formal part in its unity of order of various species.

50 See the *Sentences* passage quoted above, note 22.

51 St. Thomas, *In II Sent.*, d. 3, q. 1, a. 3, c.: "si natura intellectus possibilis esset nobis ignota, non possemus assignare numerum substantiarum separatarum." See also the *De ente* passage quoted above, note 38.

52 De Koninck, "Problem," 393.

as such an argument may be—the comparison of angelic concepts is what we grasp as if it were a property that tells us about their essences. As we noted above, "angels understand different things by different forms, not everything by one form, and the higher an angel, the more things it naturally knows by fewer forms."[53] Indeed, "higher, purely intelligent beings possess more universal forms, that is, forms that encompass a greater number of knowable things."[54] In other words, in order to imitate God as intellectual creatures, but as creatures unable to glean concepts from sensation and by abstraction from matter, the angels must intellectually flourish through innate cognitive resources. Precisely as intellectual, they differ from each other in the gradation of those resources; this is all the more evident since their gradations find their origin in proximity or remoteness to God's essence as their exemplar cause. Did two or more angels not differ by nature in their innate concepts, then they, as intellects, would naturally possess the same principles and mode of intellectual operation. However, such principles of intellectual operation (concepts universal in representation) would arise from their natures. One would be forced to conclude that, since identical effects have identical causes, these angelic natures were also identical. Since this is impossible, we must conclude that, because angels differ in essence, they must also differ in the intensity of the innate conceptual means through which they contemplate the truth. Those more like God imitate God in this way by having fewer concepts, for "God knows everything by knowing one thing, namely, his essence."[55]

53 St. Thomas, *De malo*, q. 16, a. 4, c.: "non omnia intelligit unus Angelus per unam speciem, sed diversa diversis speciebus: tanto enim unusquisque Angelus naturaliter per pauciores species plura cognoscit, quanto superior est."

54 Ibid.: "superiores intelligentiae habent formas magis universales, id est ad plura cognoscibilia se extendentes."

55 Ibid.: "Deus, una scilicet sua essentia, omnia cognoscit."

Thus, in the third order, prefiguration according to intellectuality, the lower intellects have more and more concepts that are universally representative. However, this is not a strength, for such concepts are perforce less and less insightful as representative concepts. They depict fewer and fewer truths about being. Thus, De Koninck rightfully concludes, they prefigure, at their limit, those concepts that we have. Angelic concepts never become human concepts, of course: The members of the series approach the limit but cannot become the limit without self-contradiction.[56] What the argument claims is that the multiplicity of concepts upon which the lower angels rely prefigures—that is, *imitates in advance* by *extrinsic comparison*—that multiplicity of concepts upon which we rely.

In turn, this variation among the intellectual lives of angels tells us about their homogeneity. This is because the ways in which their concepts represent the truth about being, being greater in multitude, would necessarily become a more similar multitude of representative likenesses. Since their concepts are innately infused, this means their essences as principles of such conceptual habits would likewise be more similar and thus prefigure in their limit the homogeneity found among a multitude of substances that differ in number but not in species.

Likewise, the fourth order, the path to prefiguration in duration, relies upon our grasp, limited as it is, of angelic intellectuality. If angels do not think all that they know at once—even though they know all that they know through given representative concepts when they so think each one—then their intellectual lives and, consequently, their free acts principled by such concepts are measured in like fashion, since the angels are mutable "as regards choice; moreover, they have changeableness

56 De Koninck, *Writings*, vol. 2, "The Dialectic of Limits," 369, 372; and "Concept, Process, and Reality," 409, 411.

of intelligence, of affections, and of places in their own degree."[57] Now, the lower angels require more concepts to carry out such a life, and "the discrete duration constituted by the continuous suite of thoughts and acts of will is more and more dispersed, [and] there is, so to say, more and more of a future."[58] The comparison of durations of intellectual substances along the hierarchy prefigures that relationship and interaction between our own conceptual lives and the continuous motions of a cosmos from which those thoughts are abstracted.

The key term that we have not thus far considered in the first premise is "completion" or perfection. What is complete or perfect is "that outside which it is not possible to find any, even one, of its parts,"[59] or "that which in respect of excellence and goodness cannot be excelled in its kind."[60] Now, God wills the perfection of the universe, a premise upon which Aquinas relies in many places.[61] This perfection is the perfection of a likeness, and thus, as Aquinas notes in many places, it must include intellectual creatures, even man.[62] This "must" must be taken in the sense of God's ordered power, or what God does in wisdom.[63] If

57 *ST* I, q. 10, a. 5, c.: "Et similiter patet de angelis, quod habent esse intransmutabile cum transmutabilitate secundum electionem, quantum ad eorum naturam pertinet; et cum transmutabilitate intelligentiarum et affectionum, et locorum suo modo."

58 De Koninck, "Reflections," 406.

59 Aristotle, *Metaphysics* 5.16, 1021b13–14: "τέλειον λέγεται ἓν μὲν οὗ μὴ ἔστιν ἔξω τι λαβεῖν μηδὲ ἓν μόριον."

60 Ibid., 1021b15–16: "τὸ κατ' ἀρετὴν καὶ τὸ εὖ μὴ ἔχον ὑπερβολὴν πρὸς τὸ γένος."

61 For instance, *ST* I, q. 50, a. 3, c.: "Perfectio universi sit illud quod praecipue Deus intendit in creatione rerum."

62 See *SCG* II, c. 46, and III, c. 112; also, *ST* I, q. 50, aa. 1 and 2; q. 93, a. 2.

63 See Louis-Albert Vachon, "Les Preuves naturelles de l'existence des substances séparées," Ph.D. Diss. (Université Laval, 1947); see cc. 5–6; also at 26 (my translation): "Divine omnipotence works only as an ordered power. It produces nothing which is not determined according to the dispositions of His wisdom." Vachon cites *De pot*., q. 1, a. 5, ad 5.

the universe must be complete, and be complete in its hierarchy of intellectual substances, and such substances prefigure a limit case, then that hierarchy cannot be complete without that limit.

B. The Second Premise

Just as we consider the intellectual hierarchy "dialectically" by comparison of their formal likenesses amongst themselves as towards a limit, so too is the human person considered as limit of the intellectual hierarchy. We know ourselves more immediately in those points of essence, individuality, intellectuality, and duration that are used by the first premise to constitute the *ratio* of the limit. Since we already take as a given the existence of angels and of men at the outset, the argument proceeds *secundum viam compositionis*. What we are attending to is the very prefiguration of the human species as a limit case of intellectual form.

Why the parenthetical, "and, consequently, the cosmos"? This is because an intellect such as ours needs the means by which it can succeed as an intellect. It needs an extrinsic source from which it can draw intellectual information (abstracting from matter), for ours is not an intuitive intellect but stands to pure intellectual substances in the order of intellectuality as prime matter in the order of physicality. If we need this material environment, we also need the causes requisite for sustaining that environment, bringing it about, and maintaining it. Such, if there be one at all, is the Thomistic version of the anthropic cosmological principle. Now, this is far from "deducing" the parameters of cosmology or biology or human physiology. However, that is not what the argument claims to do. Rather, we are seeing the demands made of matter by mind. This is what we should take St. Thomas to mean when he says that the human intellectual soul "is brought so close to material things that a material

thing is drawn to participate its own existence."[64] This "drawing" is that causality proper to a final cause. The final cause "moves" something else only metaphorically, but, for all that, the final cause is not metaphorically a cause.[65] Thus, De Koninck can adduce as by material necessity the existence of quantity, space, and time. We see the formal and final necessitation of these features of the cosmos in the light of humanity contemplated in the angelic limit.

C. The Conclusion of the Hierarchy Argument

The formal comparison between intellects results, in this last step, in a relationship of final causality between cosmos and man. Again, this is not the "futility" argument; it is, rather, a teleological mode of contemplation, the necessity called hypothetical, akin to that which St. Thomas engages in when he asks whether our bodies are apt and fitting instruments for our intellectual souls.[66] In this also, the hierarchy argument sheds the connotations of a purely neo-Platonic *exitus–redditus* for a more limited and sober Aristotelian consideration of the fit between matter and form in light of the created order. Nor are the angels

64 *De ente*, ch. 4: "efficitur in tantum propinqua rebus materialibus ut res materialis trahatur ad participandum esse suum." See note 38.

65 See John of St. Thomas, *Cursus Philosophicus*, *Physica*, I, q. 13, a. 2, (Reiser ed., 282): "causalitas finis est metaphorice actio, ut dicit Philosophus, . . . sed non metaphorice est causalitas, sicut iam supra dictum est" ("final causality is metaphorically [called] action, as the Philosopher says, . . . but it is not metaphorically [called] causality, as was already said above"). See also Aristotle, *On Generation and Corruption* 1.7, 324b14–16: "The active power is a 'cause' in the sense of that from which the process originates: but the end, for the sake of which it takes place, is not 'active.' (That is why health is not 'active,' except metaphorically.)" From Aristotle, *The Basic Works of Aristotle*, ed. Richard McKeon (New York: Modern Library, 2001).

66 See St. Thomas, *Q. D. de anima*, a. 8: "Utrum anima rationalis tali corpori debuerit uniri quale est corpus humanum."

given the job of sub-creation in the argument.[67] Rather, we contemplate in their forms, as in a mirror, those forms by which our own cosmos and we, the microcosmos, are composed.

This is the "circularity" of reason as espoused by St. Thomas:

> The circularity [of reason] is observed in this, that reason arrives at conclusions from principles according to the way of discovery, and examines discovered conclusions according to the way of judgment, resolving them back into principles.[68]

Our intellectual poverty means we cannot grasp simultaneously the whole and its parts. We must turn from one to the other, scurrying along various ways better known to us and, from a greater height, look back again as if in a circle. This mode of our reasoning, as Eileen Sweeney puts it,

> is for Aquinas the human imitation of the *intellectus* of God and the angels, who comprehend immediately and intuitively a multiplicity in unity and a unity in multiplicity. Ultimately and in all senses the need for resolution and composition, the movements describing and circumscribing the dialectical structure of our reasoning, is a mark of the imperfection of our imitation of the divine *intellectus*, of human reason as sequential rather than synoptic, as discursive rather than intuitive, in short, as incomplete yet directed from and toward principles.[69]

67 Pace, Tolkien in his Ainulindalë; also, the various contentions of Bouyer, mentioned at the outset of this essay, should be understood in like fashion; see Lemna, *Apocalypse of Wisdom*, 313–14.

68 St. Thomas, *De ver.*, q. 10, a. 8, ad 10 (translation by Sweeney, "Three Notions of *Resolutio*," 238): "Haec autem circulatio attenditur in hoc quod ratio ex principiis secundum viam inveniendi in conclusiones pervenit, et conclusiones inventas in principia resolvendo examinat secundum viam iudicandi."

69 Sweeney, "Three Notions of *Resolutio*," 243.

Thus, the very modality of the hierarchy argument attempts to imitate the mode of knowledge of the substances that it contemplates; the argument is an image of itself.

In this way, it becomes clear that the argument is not circular. Neither is it metaphorical, as we have carefully transposed some of the more poetic or excessive of De Koninck's expressions into terms cognate with the causal texture of the order of creation discussed in a sounder and more sober key. Nor must we rely upon the absolute impossibility of a creation without intellectual creatures as a background premise. Indeed, as noted, the hierarchy argument does not integrally rely upon this idea, since it takes a universe with a hierarchy of intellectual substances as a given. Still, it could appeal to Aquinas's arguments from the hypothesis of God's wisdom to substantiate the idea.[70]

D. The Universe is a Communion of Persons

A corollary to the hierarchy argument is that the universe is most of all a communion of persons. By grasping the prefiguration of the human person and, consequently, the cosmos as a limit of the angelic hierarchy, we see in light of that limit-concept how the perfection of the universe is found at all levels in persons. The universe, in order to be a universe at all, and to be one universe and thus perfect in its kind, needs not only the union according to diverse subjects (a subjective union) but a union according to knowledge and love (an objective union).[71] This objective union is found only in persons.

70 In such a way, too, can we ameliorate and qualify such claims as this: "Since God is the quintessential personal being, the only world He could conceivably create is a world of persons." Bouyer, *Cosmos*, 194; see Lemna, *Apocalypse of Wisdom*, 309.

71 See De Koninck, *The Cosmos*, 295–96 and 318; consider also *De ver.*, q. 2, a. 2 and *SCG* III, c. 112. See also John C. McCarthy, "How Knowing the

This does not deny the reality of material, non-intellectual substances nor exclude them from the overarching perfection of the cosmic whole, but, rather, it shows their importance in relation to the highest order of things.

VII. Conclusion: The Way Up and the Way Down

De Koninck's hierarchy argument reasons from the eternal perfection of the divine essence to our own cosmos. Since creation can only participate in God's perfection, created essences must all fall short of it by varying degrees. The order of the universe of created individual substances demands a proportional and decreasing distribution of perfection. This hierarchy is primarily intellectual. As one descends the universal hierarchy of intellectual beings, a limit is prefigured in the various formalities of such beings, a comparison amongst themselves in the order of essence, individuality, intellectuality, and duration. This limit as prefigured must exist if the universe is to be complete. But God does will the universe to be complete.

This limit, the lowest intellectual being, so as to be the lowest, demands an essential part that is pure indetermination, the pure potency of matter. Thus, the lowest intellectual being of the universal hierarchy requires matter as an essential part, and all the necessary conditions required for or attendant to such essences. Such a mark, as a limit approached from above, is what De Koninck's considerations of evolution try to attain from below, from the desire of matter and the futility of a putatively endless existence of a cosmos of inorganic and non-intellectual mutable substances. However, this reverse *compositio* argument one might think futile, since an argument that takes matter as

World Completes the World: A Note on Aquinas and Husserl," *Proceedings of the American Catholic Philosophical Association* 67 (1993): 71–85.

its starting point instead of form (as the hierarchy argument) or finality (*SCG* III, c. 97) is all the more obscure and unsure of itself. But it is not the purpose of this essay to adjudicate such a question.

A final objection: Even if the hierarchy argument avoids circularity and even if it is sound, surely it is not a very serious argument. It must either be proposed in a serious mode, in which case it requires far more consideration than I have given it in this essay, or it must take too seriously a point incidental to those truths harder to attain and more worthy of attention. For what is gained by seeing humanity, that little formal part of the cosmos, approached as a limit from above and defined relative to what is formally superior to it? Or is it still worthy of the true philosophical spirits to run ahead, childlike, and hope for deeper insight when, once more adult, we retrace the thoughts of our teachers? Again, is it not worthy of philosophy to delight at such details, to play in the dialectic of *circulatio* amongst causes whose thoughts are indeed more serious than our own because more beautiful, yet for the same reason more joyful?[72] Are we not a bit laughable? Must we not laugh at ourselves, thinking such thoughts, "since we're not an earthly but a heavenly plant"?[73]

* * *

72 Éric Trelut, "Circularité et causalité dans le Cosmos de Charles De Koninck," in *Le discernement des habitus: Autour de Charles De Koninck*, ed. Michel Boyancé and Bernard Guéry (Paris: Les Presses Universitaires de l'IPC, 2023), 67–88, at 84: "Enfin, il est sage de rire, écrit De Koninck, de s'éclater de rire en jouant avec la raison pousser à ses limites. C'est un jeu sérieux et l'humour est signe de Sagesse" ("Lastly, it is wise to laugh, De Koninck writes, to delight in the play of reason pushed to its limits. This is a serious play, and humor is a sign of Wisdom").

73 Plato, *Timaeus*, trans. Peter Kalkavage, 2nd ed. (Newburyport, MA: Focus, 2016), 90A: "ὡς ὄντας φυτὸν οὐκ
ἔγγειον ἀλλ' οὐράνιον." See also Aristotle, De anima 2.4, 416a1–6.

APPENDIX: "OUR UNIVERSE IS THE LAST OF THE CREATED UNIVERSES"

Charles De Koninck[74]

(translated by John G. Brungardt)

In the universal hierarchy of creation, our spatio-temporal universe—the Cosmos—is the last universe. It is basically nothing but an oblique prolongation of the hierarchy of angelic universes. For each angel constitutes by himself a universe infinitely more perfect than the ensemble of beings that compose our own. If we could collect in one single individual all the diffused things in our world, all that is contained in the limits of space and time, the billions of nebulae of which our gigantic Milky Way is but one, all the life teeming upon the earth and in the seas and which flows into innumerable species and individuals, adding to this all the possible human individuals—we would never manage to reach the lowest of the angels. If, *per impossibile*, the last of the

74 Translator's note: The following is a translation from the undated and untitled French typescript of unpublished lecture notes containing De Koninck's "deduction" of the universe (The Charles De Koninck Project Archives, Folder 20, part 7, pp. 3–12). The title has been selected by the translator. Given the published parallel texts, as well as content near the end, the date is probably around 1935–36. De Koninck use of "nebulae" instead of "galaxies" also suggests this earlier date.

angels could disintegrate, its fragments would constitute a universe infinitely richer than our own.

The highest form of life, that of intellect, is essential to every possible universe. In an angelic universe, that life is realized whole from the very beginning. Because the essence of the angel is entirely determined in itself, and because it is entirely pure and there does not exist in it any obscure corner, this essence is entirely present to its intellect. The angel is naturally complete in itself as soon as it exists; there is nothing of becoming in it. In the dawn of its life God infuses it with ideas of all the things outside of itself through the perfection of its own essence.

The life of an angel is not diffused through time. In its substance everything exists at once; its duration does not flow. It is, so to speak, all concentrated in an instant. But this instant is so intense and comprehensive that it contains in itself infinitely more in intensity and in extension than the temporal duration of our entire universe. Due to the simplicity of its essence, it is capable of receiving its existence all together and undivided. In the substance of an angelic universe there is nothing beside an endless 'today'. There exists, however, in its life of thought and of love a certain discontinuous succession insofar as it thinks successively upon such and such a thing or it converses at times with one angel and at times with another, but all these acts flow from a substance that is always the same from the point of view of duration. These thoughts and these acts of love always fall in the same 'today.'

Our cosmos is also made for the sake of the life of the intellect. Indeed, each creature must be capable of an explicit return to its Creator, a return which assumes an intellect capable of knowing Him. If there exist irrational creatures, it is because they are essentially a function of this intellect. Now, this intellect is realized here below in man. The entire cosmos is thus profoundly ordered to man.

We live in a universe where all things are profoundly separated from themselves. I am separated from myself already in the way in which I endure. My yesterday is no longer my today. My existence flows. I have a past, a present, and a future. I cannot exist without expending time; I cannot exist without pursuing existence. And the existence which I receive immediately becomes the past. Our universe is incessantly 'formerly.'

But we are yet more profoundly separated from ourselves by ignorance. I barely know myself. And in order to know myself, it is necessary first of all that I go outside of myself. If I had no contact with the external world through sensation, I would not know that I exist. I am so profoundly separated from myself that I must make a detour so that I can take hold of me, an incursion into the sensible world.

We are so habituated to ignorance that we cease to notice it. But it is real nonetheless.

There are moments in the life of the average intellect where all things appear strange to us. We are the strangers in a world that is essentially ours. To not understand the world is a way of being separated from it.

This separation is all the more strange since our intellect has an intense desire to fathom it. It is made so as to possess the world. Our very ignorance is the decisive proof of this, for there is ignorance only where there is a capacity. We do not say that a rock is ignorant, and it is not a defect in an animal that it does not know geometry. The human mind is made to absorb the whole universe, to be *quodammodo omnia*, as the philosophers say, to be in a way all things.

What, then, would be the ideal state that we would pursue in time and in thought? I would like to exist all at once. I would like that all things were present to me all at once. I would like to contemplate them in an immobile and indivisible instant. I

would like to have a present that is never a past and that is never separated from the future.

And by the same thinking I know that the world, such as it is today, is but a universe in the state of construction. We are in a world that is being made. Time such as I know it is essentially provisory, and I know that my intellect is not made so as to remain separated from things by ignorance.

In order to better grasp this idea, permit me to make a comparison between our universe of space and time and an angelic universe. For in philosophy we do not profoundly understand the inferior except from the perspective of the superior.

Our universe is the last of the created universes. It is at bottom but a prolongation of the angelic hierarchy. I speak of "an" angelic universe. For each angel constitutes in itself alone a universe infinitely more perfect than the ensemble of beings which compose our own. If we could gather into a single being all those diffuse things in our world—all the nebulae, all that is contained in the limits of space and time, all life that teems in the universe and flows into innumerable species and individuals, and add to this all the possible human individuals, we would never manage to reach the lowest of the angels. If, *per impossibile*, an angel could scatter itself about, its fragments would constitute a universe infinitely richer than our own.

An angelic universe is not spatio-temporal. In its substance it exists all at once. Its duration does not flow. It is, so to speak, all concentrated at an instant. But this instant is so intense and comprehensive that it contains in itself infinitely more in intensity and in extension than the temporal duration of our entire universe. The reason is that the essence of an angel is simple and entirely determined in itself, and thus it is capable of receiving its existence all together and undivided. In the substance of an angelic universe there is nothing except an interminable 'today.'

However, there exists in its life of thought and love a certain discontinuous succession, discrete time, but these acts flow from a substance ever the same. These thoughts and these acts of love always remain in its 'today.'

Because the essence of an angel is entirely determined in itself, and because it is wholly pure and there exists in it no dark corners, it is perfectly present to its intellect. The angel is complete in itself as soon as it exists. There is no becoming in it: There cannot be a question of evolution. An angelic universe is thus given once and for all. And it is entirely present to itself in the measure in which it is.

In spiritual creation, then, there is as much 'universe' as there is of the individual. The ensemble of these individuals constitutes a veritable hierarchy of universes more and more perfect and specifically different among themselves, such that a single individual totally exhausts the species, whereas in our world the individuals are indefinitely multipliable within a single species. We could compare the hierarchy of angelic species to that of natural species. But between natural species there is always a common natural genus. Thus the inorganic and the plant are really bodies, the man and the animal are truly vegetative and sensitive. There is between them a physical genus in which they really share. But the angelic species are all pure and one cannot bring them together except in a logical genus.

Where there is specific difference there is hierarchy: there are degrees of perfection. One angelic universe differs from another by its simplicity. The more an angel is perfect, the more its essence is pure and determined, and the more powerful are the intellect and will that flow from it. That also means that their existence, proportional to essence, is more and more simple.

The more the intellect is perfect, the fewer ideas it has, or rather, the more it grasps in one idea. One sees this already among men. The more intelligent and wise are those who see

more of things in some general ideas that make present the individual cases.

As one descends down the ladder of angelic universes, their knowledge becomes more and more complex: They have a need of more and more ideas to make present the things that they are not. There is, therefore, in their life more and more succession.

In looking upon the angelic hierarchy in this sense of its degradation, we note a tendency towards increasing complexity: the essence is less and less simple, and existence also tends to diffuse itself; ideas become more and more numerous.

In this growing complexity there is a tendency towards confusion, and indeed to the degree that one descends the ladder, the angels begin to resemble each other more and more.

If, now, we wish to pass beyond the final echelon of this hierarchy and make two minds of the same species, we must forcibly decompose the essence. If the essence were always simple, it would always be specifically different: it would be an angel again.

Now, an essence cannot be decomposed except on the condition that one of two principles be a determination and the other indetermination. In order to have an essence there must be determination: it must be only one such thing and not another. But the second principle cannot be determination, for two determinations would give us two essences. These two principles we call, in the philosophy of nature, matter and form. You see by this that they have nothing in common with the everyday terms of matter and form.

I was saying the whole time that we were to pass beyond the final echelon of the angelic hierarchy in order to make minds. The mind, indeed, is essential to the universe. A universe that were not made in view of a mind would be impossible. For it is necessary that each creature be able to make an explicit return

to its principle, the [Creator].[75] Now, this return cannot be made except in the knowledge of the principle. Knowledge of this principle requires knowledge of being, and knowledge of being presupposes intellect.

Thus, the intrinsic end of the universe that we realize on this side of the angelic hierarchy is always intellect.

In deducing an infra-angelic universe, we have implicitly deduced space and time: any infra-angelic universe is bound to be spatio-temporal. Why? Because henceforth it is a matter of a complex essence. Indeed, a complex essence cannot help but receive a complex existence; complex existence means existence successively received; and since this existence successively received must be always that of the same being, it must be successively and continuously received. Now, this is precisely the notion of time. We are in a universe where things will always be separated from themselves in duration.

This universe is bound to be spatial, for we have there a manifold of things which are specifically identical and individually diverse; that is to say, one thing will be exterior to another in homogenous fashion. Now, homogenous exteriority is essentially spatial: it causes one thing to be here and the other to be there. Our universe is therefore essentially a universe disintegrated and fragmented in space and time.

Now, a world cannot exist so as to be indefinitely separated from its own existence, and indefinitely separated from itself spatially. By the very fact that it is made for intellect, it is necessary that it be able to be present to itself; it is necessary that an intellect be able to bring back the entire ensemble to its principle, and that the world become a type of canticle. To arrive at this, it is necessary that time be checked and immobilized, and that space be entirely penetrated and present. Now, this cannot be except in an intellect, which is as such above space and above

75 De Koninck's draft has the erratum "le créature."

time. And our universe will be immobilized in the moment when intellect has made its conquest.

We are in a world which is moving towards a term, and which must enrich itself without ceasing. And it is precisely in this process of maturation that evolution consists.

And this is the process of maturation of our universe that I would like to describe in this series of lectures.

REFLECTIONS ON "RANDOM REFLECTIONS ON SCIENCE AND CALCULATION"

Glen Coughlin

In his essay "Random Reflections on Science and Calculation,"[1] published in 1956, Charles De Koninck addresses certain questions on which he had reflected for many years. In the first paragraph he refers to a book that he was then writing and that was due to be published soon thereafter, *Introduction to the Philosophy of Nature*. This book was never finished, though an incomplete draft does exist. He remarks, both in "Random Reflections" and in the unpublished draft, that the word "science" and other connected terms are almost entirely equivocal.[2] The greater part of the essay is devoted to two objectives: first, to explaining the differences between the Aristotelian and the modern uses of these terms; second, to suggesting that one

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1 Charles De Koninck, "Random Reflections on Science and Calculation," *Laval théologique et philosophique* 12 (1956): 84–119; https://doi.org/10.7202/1019938ar. Hereafter, "Random Reflections."

2 "Random Reflections," 85; 88–89.

ought to maintain an interest in the preoccupations of the old natural philosophy, even if one thinks that its details, as developed by Aristotle, are wrong.

In this paper, I will explain at greater length two terms that play a large role in De Koninck's discussion, namely, *symbol* and *calculation*. To do so I will oppose them, as De Koninck himself does, to what look to be their equivalents in ancient science: *word* and *argument*. Both the results of the very refined use of words and arguments arrived at, for example, in the *Elements* of Euclid or in the *Physics* of Aristotle, and the results of the use of symbols and calculations in a way peculiar to modern thinkers are called "science." One can never make room for anything along the lines of ancient natural philosophy or, better, succeed in developing a natural philosophy that would be valid now without first dissipating the deep confusion tied to the double use of the term "science," as well as of related terms. In broaching these questions, I will rely not only on "Random Reflections" but also on the further examination given in the form of a series of lectures De Koninck delivered a few years later, in 1959, under the title *The Hollow Universe*.[3]

Symbols and Words

We begin with symbols. Most people are surprised to hear that symbols are not simply very short words, that that the "*t*" found in the equations of modern physics does not have exactly the same significance as the word "time." But, De Koninck insisted, the two

3 Charles De Koninck, *The Hollow Universe* (Toronto/New York: Oxford University Press, 1960); hereafter, *Hollow Universe*. Also helpful for understanding De Koninck's position is *Noms et symboles*, which is a set of course notes, some by De Koninck himself and some by a student, published privately by Michel Doyon in 1955. Sean Collins's article, "The Heritage of Analytic Philosophy," *The Aquinas Review* 10 (2003): 51–88, is also very helpful.

share only their genus, "conventional signs."[4] An indication of this is that we can manipulate symbols, but we cannot manipulate words. For example, given an equation such as $F = ma$, I can write instead, $F/a = m$ or even square both sides, $F^2 = m^2a^2$. I can operate on these letters as on the measurements for which they stand. I cannot do this sort of thing with words—I cannot square either the word "force" or what it stands for, unless that word is taken to be a mere substitute for the symbol *F* or for a measurement of force. But then it is just a particularly clumsy symbol.

De Koninck presents a different argument to show that symbols and words are distinct, one that has some important consequences. He notes that the "old science" is presented in words, while the new science is presented in symbols. He then observes that every defense and explanation of the use of symbols is made in words and not in symbols.[5] For example, if I say, $F = ma$, and you ask me what *F* is, I will use words to explain it. This fact implies that we understand what is signified by words more readily than what is signified by symbols like *F*; otherwise, I would not use words to explain symbols. This fact itself shows that symbols are not the same sorts of things as words and even points to a further fact: a natural priority of words over symbols. If we always explain symbols by words and not words by symbols, words must be prior to symbols, at least in the order of understanding.

This priority implies that there is a fundamental difference between them, for nothing is prior to itself. The priority must be rooted in some *per se* difference of their genus, "conventional

4 There are other uses of the word "symbol" more remote from these than these are from each other, as, e.g., the "symbols" of poetry and the "Symbol" of faith. These further uses are, to my mind, of only secondary interest to us. The etymology of the word "symbol" does indicate something all these uses have in common—the putting together of things not otherwise united, for the word means, etymologically, "thrown together."

5 "Random Reflections," 85–87; *Hollow Universe*, 31–32; 59–60.

sign," and *per se* differences within a genus are based on what is essential to the genus. Just as we divide the genus "triangle" into equilateral, scalene, and isosceles, and not into red, white, and blue, in the same way, every time we divide a genus, we ought, if possible, to do so on the basis of what is intrinsic to the genus. A triangle is a figure with three sides, so it is reasonable to divide it by the relations of the sides and not by their colors, which are completely accidental to what they are. So too, living beings are those which, in some way, move themselves; consequently, we will also divide the genus "living beings" by the sorts of self-movement the species present. In the case of symbols and words, the common genus is "conventional sign," so we ought to look to this genus to find the essential differences that distinguish them.

Now, if we can say that "conventional" simply signifies "agreed upon," it is hard to see how we will find here hidden differences of any importance; words and symbols are both conventional in the same way, it seems. But are symbols and words different kinds of *sign*?

The imposition of a sign, whether a symbol or a word or any other sort of sign, is, perhaps among other things, an attempt to find a means of communicating some thought. As Augustine says, a sign is a sensible thing that brings to mind *another* thing.[6] A horse is not a sign of a horse even if it makes me think of a horse, for a horse is a horse and not some other thing. Bringing to mind another thing is part (or perhaps all) of what it is for a sign to have "meaning." Both words and symbols have this sort of meaning by convention.

Further, in both cases, the things signified are given either in experience or as elements of a system of thought, taking

6 *De doctrina christiana*, II.1.

this expression very loosely.[7] The *F* of *F* = *ma* is in some way grounded in experience, as is the word "force," which in some way clearly corresponds to it. One could invent a purely abstract system, a system in which the symbols or words have no basis in reality at all and are defined entirely by other elements of the system. But while this might be amusing, it cannot be much of a step toward knowledge of the real world. Such a sterile system would be in some sense like a game of chess. The shapes of the chess pieces signify, in a way, the moves they can make, but they have no bearing on reality. However interesting, chess remains a game. Nevertheless, this lack of bearing would not preclude the symbols from forming a coherent system.

But if modern physics and mathematics are in some sense getting at reality (and it seems silly to deny this at least with regard to the natural sciences, even if the case of mathematics is less clear), there must be, in the initial institution of symbols or signs, a reference to some reality that is known before that institution.[8] Though *F* as defined by a physicist must be a quantity (or else it cannot be put into an equation), it is still conceived of as the quantity of something in our experience, proximately or remotely, namely, some sort of power to move things or accelerate them, and so on, something we experience in our everyday life. Even the much more abstract symbol "μ" (for the mu particle) must be related to some experience or other in order to have any role to play in physical science. De Koninck quotes Bertrand

7 I mean something like the definition of the product of multiplication in Descartes's *Géometrie* in terms of the unit, the numbers to be multiplied, and the process of finding a fourth proportional, all of which are parts of the system in terms of which the "product" is defined.

8 In any case, the touchstone of experience must be present somewhere in the system if it is going to illuminate the natural world, even if in a probable way only. See *Hollow Universe*, 48–49. See also Werner Heisenberg, *Physics and Philosophy: The Revolution in Modern Science* (New York: Harper and Row, 1958), 172.

Russell as saying that if we cannot tie our astronomical theories back to the sun we all know in our everyday experience, we have cannot have advanced in our search for the truth.[9] Heisenberg, too, even more explicitly insists on the stability of the contact of natural language with the world and on the consequent necessity of the touchstone of common experience, an experience foundational for that natural language.[10] That a theory of natural science be meaningful, it must contact the world of common experience, however esoteric the science eventually becomes.

Here, in the articulation of the everyday world, symbols and science, words and natural philosophy, part ways. We are confronted in experience with some natural phenomenon, for example, time. We have some sense of what time is; the very fact that we are able to say that it exists demands that we have at least a rudimentary grasp on what it is. But that grasp can be elaborated in different directions. We can investigate what the thing in question is.[11] We could instead ask how it is measured and how its measure relates to the measures of other quantities. We can say, for example, that $s = vt$, or by implication, that $t = s/v$. The equation abstracts from what time really is, contenting itself in this regard with, at most, the *quid nominis* we all share before we ever decide to pursue philosophy or natural science.

If we choose to go the route of investigating what time or motion or whatever is, we will continue to use words; but if we choose to approach our subject by way of a metrical system, we will soon enough find ourselves using symbols. It is apparent to everyone that the pursuit of natural science by formally

9 "Random Reflections," 88, note 1.

10 "We know that any understanding must be based finally upon the natural language, because it is only there that we can be certain to touch reality, and hence we must be skeptical about any skepticism with regard to this natural language and its essential concepts." *Physics and Philosophy,* 201–02.

11 Aristotle pursues the question of what time is in *Physics* 4.10–14, concluding that time is the number of motion according to before and after.

mathematical means would be extraordinarily cumbersome if we continued to use words. Just to express in words the full content of the simple equation given above, $s = vt$, would be a lengthy process.[12] To describe experiments, laws, theories, and so on, without the use of symbols would be an endless task. The fact that symbols greatly facilitate our communication of physical speculations and that, though it would be onerous, we could in fact say in words what our symbolic system says, is probably one reason we often think of symbols as simply shorthand for natural language.[13]

Are these two modes of procedure just different or is one prior to the other?[14] We have already seen one reason for putting natural philosophy first, namely, the fact that the symbols of science are always explained in words and not vice-versa, and the language of traditional natural philosophy is words. But St. Thomas gives a more fundamental reason when he points out that the proper object of the human intellect, the object that defines this power, is the whatness of a material thing.[15] The

12 Each symbol (s, $=$, v, and t) would have to be explicated—that is, not only named, but the standards of measurements, such as the meter-stick in Paris, and the conditions under which they are standards (0° C) would have to be included, along with the canonical way of using the standards. See "Random Reflections," 85–86; *Hollow Universe*, 53.

13 It seems to me that the "translation" of a symbolic construction into a linguistic one is not, in any case, a completely faithful re–expression. A sign of this, again, is that the linguistic description cannot be manipulated in the ways symbols are. Symbols are very like things, material objects that we can see and fashion. I will come back to this shortly. Moreover, if the two ways of expression were identical, we could as easily explain words by symbols and symbols by words.

14 For further discussion of the priority of natural philosophy to modern science, see the "Introduction" and the "First Appendix" to my translation of the *Physics* of Aristotle: Aristotle, *Physics or Natural Hearing*, trans. Glen Coughlin (South Bend, IN: St. Augustine Press, 2005), x–xv; 209–20.

15 See *ST* I, q. 84, a. 7, c.

proper object of any power is also the *first* object it reaches. Sight, for example, has as its proper object color, and color is the first object it receives. If sight could attain some object of sight before color, for example, shape, then color would not be the proper object after all, since sight would have perceived shape without being moved by its proper object—but then the operation would not have been that of sight, since the latter is *defined* by the proper object, color. The proper and the first object are therefore identical.

Consequently, the first thing we grasp about anything is its nature or essence or "whatness." This grasp certainly does not need to be very penetrating. I recognize that a horse is a living thing—that is a grasp of what it is, even if it is very imperfect and even if I am incapable of developing it further. Because the concepts we form of things are immaterial (even if they are concepts of what is material), and because we rational animals need to have sensible objects to keep things in mind, we give sensible signs to these concepts and the first such signs are words. And note this: The first words are expressions of what is presented to us in our experience, that is, of what we apprehend about reality. Due to our particular intellectual character as rational animals, then, the word is the first sort of sign we use, and it names things as first known, which is by their whatness. Symbols, on the other hand, do not name things as to what they are, or at least, to do so is entirely accidental to the symbol as such. One can easily assign to the nature "triangle" the symbol "T," but there is no important difference between doing this and assigning "T" to anything else, at least insofar as we are considering the imposition of a symbol as such.

To underline the difference between what symbols and what words signify, De Koninck notes the use of the word "when" in the definition of the symbol "L," called "length." He cites Arthur Eddington:

> By length, for instance, . . . a mathematical physicist, means "when we take a reasonably fair copy of a certain platinum-iridium bar kept in Paris . . . and apply it, once or more, successively or by division, to know the distance between A and B, the result of the operation may be expressed by Lx."[16]

In short, the symbol *L* has an operational definition, that is, a definition that does not look to the nature of that which we signify, but which looks to a practical process by which we can *identify* instances of the thing signified, and, in the case of mathematical physics, by which we can measure it so as to be able to put it into an equation. So too, in mathematics, we can use symbols such as "3" or "+" without worrying about the real nature of the number three or of the action called addition. In fact, as De Koninck notes, treating such things in mathematics from a purely operational point of view can greatly increase the ease of our calculations, so much so that we can have machines do our calculations for us.[17]

I do not think that De Koninck means to say that symbols always signify operations, nor that symbols alone can signify operations—it certainly seems that the word "operation" can signify an operation, at least.[18] We are able to give operational definitions to words, as Eddington did for the word "length" when used to name the symbol *L*. So too, when we define a "pure substance" in chemistry as "a material body the parts of which cannot be separated into parts different in kind by way of filtration or evaporation or certain other methods," we are giving an operational definition. In fact, we do not use symbols to signify

16 "Random Reflections," 85–86; *Hollow Universe*, 53.

17 "Random Reflections," 105–06.

18 The word "operation" does not describe an operation and is not defined by some algorithm of operations; rather, it names the essence of operations in a general way.

what we understand by the expression "pure substance," even though species of pure substances or individual pure substances can be so signified, as when we signify hydrogen by H or we signify that famous meter stick in Paris by *m*. Nor is it true that symbols are always defined by operations. A heap of scrap can be easily signified by the letter *s*. I think it more probable that De Koninck wanted to say that the definitions of the new physics are operational and that the symbol is in some way well suited to the signification of such definitions. Still, there must be a reason that we so often use symbols when we wish to use operational definitions.

What, then, is the fundamental difference between symbols and words such that words precede symbols in understanding and symbols are so apt for signifying the operational definitions of modern science? We can begin to see the answer by noticing that a symbol is not, properly speaking, *predicated of* or *said of* things that satisfy its definition, while a word is. Having determined the *F* in $F = ma$, by measurement or by calculation, we have a number and a unit, for example, 7 newtons. But we do not then say, "7 newtons is *F*" but rather, "*F* is 7 newtons." In contrast, we do say, "Socrates is a man" and not, "man is Socrates." The word "man" is attributed to or said of Socrates, whereas in saying "x is 5," the manner of speaking indicates that something is attributed to the symbol, not the symbol to something else. Moreover, even if we did predicate *F* of 7 newtons, we would not be saying what 7 newtons is, but rather that 7 newtons is the result of following a canonical mode of measurement.

Note that what is attributed to something always determines that subject. When we form a proposition, we say something about something. The something about which we speak is the subject of our sentence, and the thing we say about this subject is the attribute. If I say, "My car is grey," the word "grey" is the attribute of the word "car." The word "grey" further

determines what I think about my car. What I wanted to make more determinate is what is in the subject position, and what I use to make my thought about that thing more determinate is in the predicate or attribute position. The attribute can be called "formal" with respect to the subject precisely because the subject is relatively indeterminate and is determined, or formed, by the attribute. Thus, our manner of speech when we speak of symbols, when we say, "*F* is 7 newtons," for example, indicates that the symbol was indeterminate and is determined by the value that we have discovered: The *F* was something unknown, at least with regard to its particular value, and has been determined by measurement or calculation as being a certain concrete quantity (in our example, 7 newtons).

This is a puzzling fact. How can what is most concrete and material be formal relative to anything? A symbol in an equation of pure mathematics or of science stands to the particulars it signifies as a material to be determined by something formal, yet those things that it signifies are themselves the least formal and most concrete things possible, that is, individuals. This is possible if symbols *stand in* for what they signify, rather than *signifying what sort* the thing signified is, as do words. Words, when predicated of something, determine that something either essentially (as when we say, "Socrates is a man") or accidentally (as when we say, "Socrates is a philosopher"). We can pile up predicates so that there is only one thing that has all the qualifications we add, for example, "Socrates is a Greek, five-foot six-inch tall, snub-nosed, non-uxorious philosopher," but these words still do not, either separately or together, *stand for* the subject; rather, they define it in the sense of determining it. On the other hand, in the examples given above, the symbol just stands for what is predicated and so determines it. Because it is an undefined stand-in, *what it stands in for* defines or determines it.

Both words and symbols have meanings in some sense, for both point the mind to something beyond themselves, but the ways in which they do this are different. When we speak a word, what is brought to mind is a concept of something: "Man" brings to mind a certain kind of animal, and even "Socrates" brings to mind something with a nature, even if the nature is more faintly summoned by the word. But a symbol *replaces* what it signifies. The *t* is a token that we use to keep track of the placement of, and operations performed upon, an unknown value.[19] A word, in contrast, does not stand for what it signifies. The word "time" does not substitute for a particular value of time; it names particular times as to what kind of thing they are. This is why symbols take the subject position, and particular values for the symbols take the predicate position, while general words take the predicate position and more particular things that receive the predication of those general words take the subject position.

Symbols, then, do not merely signify something different; they also signify differently. De Koninck quotes James Newman as saying that symbols "*directly* signify the thing talked about," and develops this thought in saying that

> They need no interpretation, and the operations upon them are entirely mechanical; whereas names and verbs signify the things named, not absolutely, but only as we know them.[20]

19 Note that not all symbols are variables to be determined. But even constants such as *c* (the speed of light) are treated like tokens that stand for some value—in these cases, though, the value is determined not by calculations performed on variables but by observation or the needs of theory. We use symbols even here, I suppose, for convenience: It is much easier to write c^2 than 34,596,000,000 miles per hour. But the latter does determine the former.

20 "Random Reflections," 88, note 1. See also Collins, "Heritage of Analytic Philosophy," 63–70.

Words, at least the principal parts of speech—nouns, adjectives, verbs, and adverbs—name things (taking "things" very broadly) according to what they are. The other parts of speech are more or less auxiliary words that help us form the syntax of our sentences. The word "dog" signifies *what* Fido is, even if we cannot explain what a dog is very well; the word "runs" names an action with regard to what it is, as the adjective "brown" names a quality. "The brown dog runs" has nothing symbolic about it, for none of its signs signify by merely substituting for that which they signify. But the *x* or *c* in an algebraic equation does not say what a value is nor what *this* value is; it only replaces a certain value until such time as that value is determined, whether by measurement or calculation or the demands of theory. Thus, the symbol differs essentially from the word, constituting a different sort of sign: rather than making more precise that which it signifies, it *represents*[21] or *replaces* it.[22]

This characteristic of symbols is reminiscent of the tokens used to keep track of things like economic value or cows. A farmer, for example, might use a certain number of pebbles to verify that none of his cows have gone missing. The pebbles do not *signify* the nature "cow," nor do they *name* the individual cows; they simply replace each of the individual cows to make counting them easier. Paper money or coins also work this way. A certain coin does not mean "a value of two euros"; it physically replaces two euros, any two euros. I can give you that value simply by giving you the coin. Creditors do not want to be told what

21 The symbol represents the signified in the sense that it presents it again as if it were materially present. That is why it can be manipulated as though it were the thing it stands for.

22 It is worth noting that universal words also do not signify classes. If they did do so, they could not be predicated of the members of the class. For example, if "animal" meant the class of animals, then we could not say "Fido is an animal" because Fido is not the class of animals. Symbols, on the other hand, are well suited to treating sets or classes.

value is; they want the cash. By convention, we let coins replace value and treat them as if they were that value.

It may be that when these tokens are used as substitutes for what they signify, the latter is something quite real even apart from the mind, like a cow. But having hit upon the idea of a sign that substitutes for the signified, symbols were poised to become the powerful tool we know them to be precisely because such signification does not require any grasp of what things are. In fact, rather than signifying what is apprehended (as words do), they come to be tools that in a sense *create* the signified. They are in the order of art rather than in the order of apprehension.[23] Any odd assortment of things, a cow and a cosine and an uneasy feeling can be grouped together in a set (which set we can signify by, for example, λ). Such a set has no unity, no real being but that conferred by the mind in the very act of forming the set and assigning to it a symbol. Not all symbols stand for such arbitrary groups, of course, but the point is that symbols are fitted for doing so. The mind imposes on what is gathered a unity completed by the imposition of the symbol. In fact, the very indetermination of what a symbol signifies arises from the fact that the symbol merely stands for the signified—this demands no particular sort of signified; the latter can be the nature of man, the set λ, both taken together, or anything else you please.

So the symbol has this advantage over the word: Because it does nothing but replace what it represents, it can even replace accidental conglomerates.[24] Consequently, it is perfectly adapted for representing every combination of things that the mathematician or the physicist finds useful to include in his definitions. Since his definitions include not only the final values but also the means of producing these values, and since this whole

23 For a more complete discussion of this aspect of symbols, see Collins, "Heritage of Analytic Philosophy," 63–74.

24 *Hollow Universe*, 9–12.

assemblage need not have a real nature but is more an artifact, and since, further, we wish to manipulate in an equation what is expressed by the symbol, we find in the symbol and not in the word the appropriate tool or instrument. In other words, the word is too tied to the nature of the thing signified, to what is apprehended by the mind, rather than to what is made or ordered by the mind itself, since in reality it does not signify the thing directly but does so by way of the nature.[25]

To take an example from mathematics, when Dedekind invents the irrational numbers, he does so by creating a logical fiction, a symbol that gathers in one set the series of rational numbers that have as their limit the "cut" that corresponds to that which an incommensurable line produces, for example, $\sqrt{2}$. In Dedekind's system, this symbol represents the limit of a certain well-defined set of "rational numbers." This "number" does not have a nature; it is only what follows from taking a set of integers and stipulating that every operation that can be performed on any member of the set must be equally performable on every member of the set. For example, if I can subtract 3 from 5 to obtain 2, I specify that it will also be permitted to subtract 5 from 3, and I posit that the result is also a member of the set, and I call it "–2." The latter is defined simply as the result of the operation in question (and other related operations). Further, if I define the operation of extracting a square root so that $\sqrt{4}$ is 2, it will be equally permitted that I take $\sqrt{2}$. The resultant is not definable in terms of whole numbers, so I invent a "number" to be the result of the operation—that is, $\sqrt{2}$. How do I define the place of $\sqrt{2}$ in the series of numbers? By a set of rational numbers, rational numbers being those that can be expressed as integers or as a fraction of which both the denominators and the numerators are integers. Which such set can I use? The set that

25 For nominalists, the word must signify things directly. It is not surprising, then, that they often are purveyors of symbolic logic.

has as a limit that which corresponds to the length of a diagonal of a square with a side equal to 1. I have created, by an operational definition, a new entity, and it is entirely defined by this operation, and it is symbolized by "$\sqrt{2}$," which I posit to be a number. The so-called number is only a symbol that represents the whole operation and is nothing other than a logical fiction.[26]

Now, I can certainly operate on this symbol. Since I have defined it by operations, I can at least perform the inverse operations on it.[27] And if I further stipulate that every operation that can be performed on any member of the set of "numbers" can be performed on every member, then I will insist that I can even take the square root of $\sqrt{2}$.[28] I can then operate on $\sqrt{2}$ as I can on 2, and in such a way that I can define it as belonging to the same class of "numbers." In fact, I can replace the x or the y in my equation as easily by $\sqrt{2}$ as by 2. Thus, x or y is nothing other than a stand-in for that upon which I can perform a certain set of operations.[29] In the same way, I can define a circle not in relation to what it is, "a figure bounded by one line all the points of which are equidistant from a point inside called the center."[30] I

26 On all this, see Richard Dedekind, *Continuity and Irrational Numbers*, in *Essays on the Theory of Numbers* (Chicago: Open Court, 1901), 6–10. Tellingly, Dedekind titles the section in which he produces irrational numbers "Creation of Irrational Numbers" (p. 6).

27 That is, if I define, say, –2 as the result of subtracting from an integer another integer two units larger than it, then I can add to –2 an integer and the result is defined: It is the integer two units less than the one added. Obviously, something more complex might be needed if I am going to make a complete system, but the basic idea is the same. Similarly, if $\sqrt{2}$ is the result of taking the square root of 2, 2 will be the result of squaring $\sqrt{2}$.

28 I do not mean to diminish the achievement of Dedekind and other practitioners of symbolic mathematics in their production of logically consistent symbolic mathematical systems. The result of taking the square root of $\sqrt{2}$ may be require extraordinary ingenuity to define. Still, the basic process is as I have suggested.

29 "Random Reflections," 92–94; *Hollow Universe*, 6–7.

30 See Euclid, *Elements*, Bk. I, Def. 15–16.

can define it by how I get it: "A circle is what I get when I rotate a line around a point" or "a circle is what you get when you solve for y in the equation $y = \sqrt{r^2 - x^2}$ for every value of x." These latter expressions do tell us how to obtain the figure Euclid defines, that is, a circle, but not what a circle is. In this sense, they are like the numbers that we treat in symbolic mathematics, simple constructs that maintain their unity in our minds by means of the symbols, sometimes by symbols disguised as names.[31]

The predominance of symbols in modern mathematics and natural science avoids the need for understanding what things are[32] and permits us to treat as one thing some constellation of factors and operations. t does not signify the nature of time; it is a measurement made by canonical means and consciously designed to be fitted into an equation. The symbol, with its direct representation of the signified, even of a complex, artful construction, is free of commitments to natures.[33] But any man must think in terms of natures, even if they are not much considered, for the first object of the mind is the "what" of things. The remarkable fecundity of an approach that avoids this fact is something a little mysterious—and is something to which we will return shortly. To the unbiased mind, the power of this method for understanding and manipulating nature is astonishing; the fact that to most of us it is not so is merely due to the indolence of custom and its sleepy acceptance of common thought.

Calculation and Rigor

Let us look now at the rigor of calculation that symbols afford us. In symbolic mathematics as in modern physics, "variables" are

31 "Random Reflections," 90–91; *Hollow Universe*, 13; 47.

32 For Russell, this is its cardinal virtue. See *Hollow Universe*, 13–14.

33 *Hollow Universe*, 7–8.

symbols for which we seek values.[34] When we say, "F is 7 newtons," it is as if we were to say, "F was 7 newtons all along but now we realize that fact; so we will substitute 7 newtons for F in our equation." The same thing goes for pure symbolic mathematics. The x's in $y = 5x^2 + 3x - 6$ do not *name* the values we find for them; they replace or are substituted for any value at all until we choose to determine those values—x represents any value indeterminately and we choose whichever one we please. Once we have done so, the corresponding y is determined by means of the equation. We must determine the value of y after having chosen the x, but it is in itself already determined by that choice, at least if our equation is already determined.

We should note that there is a kind of indeterminacy that unites universal names and variables. The word "dog," for example, does not distinguish this dog Fido from that dog Rex. The word is indifferent with regard to these individuals; it can be attributed to the one or to the other, but only because it does not signify one or the other in a determinate way. The word signifies something common to the two dogs while ignoring what makes them different and individual. As for the symbol y, it is also indifferent to all the possible values that it can take. All the possible values, which are determined by the possible values of x and by the equation, are indifferently signified by the letter y. In other words, y can replace any such value indifferently. But there is a very important difference. The word is attributed to many individuals without determination because it abstracts from that which individuates each individual even while signifying what all have in common, but the symbol is attributed to nothing,

34 This is as opposed to constants such as c for the speed of light *in vacuo* or $\hbar$ for Plank's constant. As we saw above, these too are symbols. Though they are not determined by the other elements of the equations in which they are found, they do stand for what they signify and are thus rightly considered symbols.

abstracts nothing, and simply takes the place of what it signifies in an equation or in another form of expression.

We can now see why symbols are so well adapted to calculation.[35] The very name "calculation" comes from the Latin "calculus," which means "pebble" and refers to pebbles that are used as tokens to keep in mind, for example, a number of cows or sheep, as in the example given earlier. The operations of calculation (addition, subtraction, and the like) are performed on these individuals, the pebbles or some similar thing, *not* on the universals. If the latter were the case, *3 + 3* would make no sense, since we have here two individual threes, and cannot have two universal natures of three. As De Koninck says, there is only one number between two and four, but there can be any number of individual instances of this number.[36] On the other hand, although the calculator can make an individual three, even two individual threes, what it is to be three does not depend on him. He takes advantage of the difference between the universal nature of three and the individual threes. He ignores the one and seizes upon the other. The individual instances are the only things that interests the calculator; the nature of the number is of no use to him.[37] And so, that there even is such a thing as "the nature of the number two" has no bearing on this process; let *2* be simply a symbol for *1 + 1* and the mathematician has all he needs, if by "mathematics" we understand the type of manipulation of symbols in which Russell and others are interested.[38] By using symbols, the calculator can leave aside the thorny questions of what things are. He treats the symbol as if it were the very thing it represents, whether it is a question of a single thing or of an accidental collection. By inventing symbolic represen-

35 "Random Reflections," 105–06.
36 "Random Reflections," 98.
37 *Hollow Universe*, 25.
38 *Hollow Universe*, 12–16.

tations of the operations of calculation, he can produce a sort of symbolic representation of the calculation, of the things that enter into the calculation, and of the results of the calculation: $y = x^2 + x$ wonderfully condenses the operations, operands, and results into one single, visible, material icon.

De Koninck notes that the motivation for pursuing this symbolic method is the fear of error. Its proponents speak of "security," of "rigor," and they reject the "metaphysical" notion of the number two, for it leads, they think, to uncertainty.[39] For this reason they insist on a mathematics deprived of that which might be a cause of error, restricted to purely mechanical processes and to symbols susceptible to such processes. How does symbolic mathematics achieve such rigor?

The fact that the manipulation of symbols boils down to substituting one group of symbols for another group equivalent to the first—as if I were to write $1 + 1 = 2$ and mean by the symbol 2 nothing but $1 + 1$—this fact grounds the absolute rigor of the method.[40] What can go wrong when we are simply acknowledging an identity expressed in various ways? Russell reports that he "had thought of mathematics with reverence and suffered when Wittgenstein led [him] to regard it as nothing but tautologies."[41] The calculations that we perform on symbols have the certitude of $x = x$ because we do nothing more than substitute one symbol for another and the symbols are themselves most often defined by means of these very substitutions. 2 is nothing more than a practical symbol for $1 + 1$.[42]

This claim must be qualified, however. We may well say that 2 is just a symbol for the collection that is also represented by $1 + 1$, but we still have to ask about the symbols 1 and $+$. In

39 "Random Reflections," 90–91; 94, note 2; 103–5; *Hollow Universe*, 13–14.
40 *Hollow Universe*, 46–47.
41 Cited in *Hollow Universe*, 5.
42 *Hollow Universe*, 16–17.

the case of the most primitive symbols in the system (perhaps *1* and + are such), definitions must make some reference to things known or created beforehand, as Dedekind, for example, refers the integers to the repetition of thought.[43] It seems that we have to account for these most basic symbols by reference to some experience, such as the experience of thinking one thing after another and noticing that we can think of those in a collection. This reference seems indispensable if our symbolic system is going to be more than a sterile intellectual game, though one might choose to ignore it and focus only on the resultant symbolic system.[44]

And if the physicist defines *F* as the product of *m* and *a*, then, when he multiplies these factors, he will, of course, by definition, obtain an *F.* But if he can define *F* independently of the measurements and multiplication of *m* and *a*, he will do so, and then he has a sort of test of his equation. If he were to multiply *m* and *a* and get a result that differed enough from the *F* that he gets from more or less direct measurement, then he would say the equation $F = ma$ is false. He has what De Koninck calls "the test of experience" to fall back on as a criterion, whereas if he could only define the symbols in terms of operations on other symbols, he would not have any such alternative criterion.[45]

In the case of mathematics, there seems to be something akin to this, but still quite different. The mathematician simply will not use a definition of a symbol that leads him to contradict some other part of his system. If he defines multiplication in such a way that it leads to saying that $2 \times 2 = 5$, he will change his definition. Thus, the preexistent parts of his system play for him something like the role that experiment and observation play for the physicist.

43 Dedekind, op. cit., 2.

44 *Hollow Universe*, 20–28.

45 *Hollow Universe*, 50–51.

Symbols, then, are subject to calculation in the same way as the pebbles of the farmer. Because symbols represent what they signify, they are, like tokens or coins, treated simply as material objects that replace what they are the symbols of. Just as we can arrange our pebbles according to a certain rule and thus indirectly or symbolically dispose our cows, so we can define a set of rules that will allow us to manipulate our symbols in a way that closely reflects the manipulation of the number-measures that they represent. For example, I can square the number 7 and I can also square the symbol *F*. I certainly cannot square a letter as such or a word or its signification. And the way that we raise *F* to a power is enlightening, for it is completely symbolic and mechanical. To square the symbol *F*, I only have to write a superscript 2 to the right of *F*: F^2. If I know that the rules of the symbolic system tell me that $F \times F$ can be written as F^2, in order to manipulate them correctly I have no need to reflect on what all these symbols signify, nor to know the natures of the things symbolized. To interpret F^2, I have but to use the rule that I substitute for it the result of multiplying the number 7, for example, by itself. This is very like the example given by De Koninck, citing Whitehead: We can see "almost mechanically by the eye" that $x + y = y + x$. It's almost as if the simple appearance of the symbols reveals the truth to our senses.[46] The inventor of modern algebra, François Viète, said at one point that

> the numeral reckoning operates with numbers; the reckoning by species [*logistice speciosa*, that is, algebra]

46 *Hollow Universe*, 29. The original French version of this paper erroneously attributed the quotation to Copi. Copi is cited on the page referred to as saying, "From this point of view, paradoxically enough, logic is not concerned with our powers of developing thought but with developing techniques that enable us to get along without thinking."

> operates with species or forms of things, as, for example, with the letters of the alphabet.[47]

While there is room for questioning why he calls the things he operates on "species," it is clear that they are, in some cases at least, letters.

Ancient and Modern Science: Equivocals

As we said before, De Koninck's concern is to make room for the approach to the natural world illustrated in the *Physics* of Aristotle. To do so, he explains the nature of science as it is understood by certain principal proponents of modern mathematical logic and of modern physics, showing how much of the old physics and mathematics they leave aside. The modern notion of science is, as he underscores, completely different from the Aristotelian notion of science; in fact, he says that the word "science" does not even mean the same thing when it is used in these two disciplines.

To better understand this fact, I will contrast what goes on in modern science with what goes on in Aristotelian science. First of all, I will take note of two of Aristotle's fundamental statements about science and reasoning, and then I will discuss very briefly the character of natural philosophy in particular.

De Koninck, as he so often does, puts his finger on the most fundamental points. For Aristotle, science is an explanation of what is implicit in the nature of the subject of the science.[48] The "what it is," to adopt Aristotle's vocabulary, is the beginning of the whole enterprise of Aristotelian science. If, for example, we look to the *Elements* of Euclid, we see that its author

47 Francois Viète, "Introduction to the Analytic Art," trans. J. Winfree Smith, in Jacob Klein, *Greek Mathematical Thought and the Origin of Algebra* (New York: Dover, 1966), 328.

48 "Random Reflections," 87.

begins with the definitions of triangles, circles, lines, points, and so on, and that these definitions are not operational; they are rather definitions of the natures of these things. A triangle is a plane figure with three sides, a line is a length without breadth. Euclid does not define the triangle as "what you get when you do this and that." His definitions instead refer to essences.

Further, in Aristotelian science, we do not proceed by calculation but by reasoning, notably, by demonstrations.[49] The middle term of a demonstration is the definition of the subject, and the goal of the science is to see that another attribute belongs to the subject because of this middle term, that is, that it belongs to it because of what it is. Euclid shows that a triangle has its three angles equal to two right angles by arguments that begin from what triangles, angles, lines, and points are essentially. And since what a thing is can also be present in another thing, the subjects of Aristotelian science are universals. Calculation, on the contrary, does not necessitate any knowledge of what things are. The calculator simply follows mechanically the rules for substituting and reorganizing symbols and finding new ways to signify, that is, new things to substitute for the same things.[50]

The difference from the modern notion of science could not be more striking. The old science is interested in what things are and in the properties that things have in virtue of what they are, while modern science completely avoids the question of what things are. Modern science is only interested in those aspects of things that we can grasp in the net of its method, and this leaves aside pretty much everything that the old science sought. If the old knowledge is worth pursuit, modern science certainly leaves a lot of room for it.

Because De Koninck was particularly concerned with knowledge of the natural world, we ought to examine a little

49 Aristotle, *Posterior Analytics* 1.2, 71b9–72a7.

50 "Random Reflections," 95, note 3.

further the effect that the new vision of science has on natural philosophy.

Modern mathematics is a tool of modern physics, and just as the tools of the carpenter limit what the carpenter can construct, so the tool of the modern physicist limits that which can be comprehended by his discipline. As he is interested in an entirely quantitative study of nature, he needs to measure things, and the means of measurement will form part of the definitions of the subjects of his science.[51] When Einstein defines time, he does not try to tell us what it is in itself; he is really only interested in the way in which we are going to measure it, so that he can submit it to measurement and representation by symbols. Eddington notes that the genius of Einstein rests in his understanding of the fact that not only force, mass, and acceleration must be defined in terms of measurements, but so too time and space.[52] And Einstein in effect begins his discussion of relativity with such definitions.[53] Given, then, that the symbols of mathematical physics replace number-measures that are defined in terms of a complex of operations and instruments, these symbols will never be able to arrive at what a thing is or to a consideration of it as an essential unity, that is, a *per se* thing, but only as things always to be defined operationally.

Further, the physicist is not content merely to measure a lot of things; he wishes to see how the things measured are related. He must, then, put them into equations. And from the combinations of these equations, he will draw consequences that he will test with more measurements. He is not content to suppose that the consequences of his equations are true, for he is aware that

51 *Hollow Universe*, 51–52.

52 Sir Arthur Eddington, *The Philosophy of Physical Science* (Ann Arbor: University of Michigan Press, 1958), 71.

53 Albert Einstein, *Relativity: The Special and General Theories* (New York: Random House, 1961), 3–33.

his original equations are based only on fallible measures and on hypotheses about the relations of the number-measures. He will insist on experimental verification not only of his premises but also of his conclusions. For example, we have seen in the last few years the first measurements of gravitational waves, which are predicted by the equations of general relativity. The fact that the theory predicted a phenomenon and its precise measures is evidence in favor of the theory. These predictions of the measurements of natural phenomena constitute the primary method of verification in mathematical physics. However, none of its conclusions will ever go beyond the domain of number-measures. If we begin only with number-measures, we will end only with number-measures.

And finally, the physicist already uses, even before we take account of his dependence upon measurements and operational definitions, the tools of modern mathematics, the essential vacuity of which we saw earlier when we saw that even the notion of number and of circle—fundamental notions in arithmetic and of geometry respectively—are essentially without any essence, their unity and their existence being the result of a mind that chooses to assemble certain unrelated elements.

Now, if the physical world is not simply quantitative, something must be missing in the picture we have just sketched. In fact, even if the world were merely quantitative, it would still be missing something. For we have not mentioned what natural things are, even if that boils down to a question of what quantities are. Since what things are is what we know first of all, as we saw above, not only is modern science incomplete, but it is also a discipline that comes after natural philosophy in the order of knowing.

A sign of this is the fact that the scientists can never truly escape reflection on the nature of what they study. When they think about what the symbol F represents, even if while they are calculating they avoid everything except measurements and

means of measurement, they must still think that *F* is tied to this object that they have already encountered and named "force." Even in symbolic mathematics we are guided by an extrinsic criterion. Why do mathematicians define numbers and circles in a creative manner, and not, for example, apples? It is because they know, even before they begin their symbolic enterprise, what sorts of things mathematicians as such talk about, and this implies that they already know, confusedly, what we all know to some degree, namely, what circles and numbers are essentially. As Russell said, if we are not able to tie our astronomical theories to the sun and the stars, which we wanted to understand when we started, then we are really getting nowhere in our science.[54]

The Value of Modern Science

After all this, we must still admit that the surprising fecundity of this unpromising beginning is wonderful, even a little disconcerting.[55] It seems like magic that, starting with symbols and rules, even very well-chosen ones, and some observations and measurements that combine them into physical laws, one can prove, for example, that mass and energy are equivalent or that light is an electromagnetic wave. How can that be? It would perhaps be even more wonderful than the results if these results were only coincidentally related to the method of obtaining them!

Without delving too deeply into this question, we can pose it in the following manner: Why is such a creative and artistic approach necessary when we speak about the details of the concrete structure of the physical universe? The problem is that the human mind is not proportioned equally to all its objects. We can grasp mathematics with certitude and clarity, but the nature of subatomic particles is much harder to grasp. Things

54 *Hollow Universe*, 64–65, note 1.
55 *Hollow Universe*, 3.

outside our immediate reach, whether they are such because they are above us or because they are below us, are not known to us except by comparison to things on our level. Since the motion of modern science is toward the concrete and material, toward the details of the world, we use constructions and idealizations to make more intelligible what is otherwise beyond our reach. We introduce a little of the transparency of the artistic as a lens for the viewing of the natural.[56] Just as in theology we need to use metaphors in order to approach the understanding of things above our intellects,[57] so too in natural sciences, we need models and symbols to make intelligible the things below our intellects.

Still, modern science cannot be purely creative. Such a position would run counter to many proofs and to the very fact we are trying to explain, the success of the modern method. The truth is that we use artistic techniques to approach things as they are by way of idealizations and approximations, not that we just make things up until we hit upon something that works.[58] What Einstein said is largely true, that the creative aspect of modern science is in mathematics. De Koninck gives the example of Group Theory, which was invented long before it was found to be useful in Quantum Theory.[59] Still, the touchstone of success in physics is the correspondence with physical reality, a correspondence that provides whatever truth natural science as natural can claim. The method of modern science will never arrive at

56 A similar point is made by Kant. See Immanuel Kant, *Critique of Pure Reason*, 2nd Ed., trans. Norman Kemp Smith (London: Macmillan and Co., 1933), 20. Kant, though, would have it that all intelligibility is really imposed on things by our minds, whereas De Koninck and Aristotle are clearly more empirical in their outlook. The use of art is an aid to, not a substitute for, the intelligibility of nature.

57 St. Thomas Aquinas, *In I Sent.*, proem., q. 1, a. 5, c. and ad 3.

58 See Albert Einstein and Leopold Infeld, *The Evolution of Physics: From Early Concepts to Relativity and Quanta*, (New York: Simon and Schuster, 1938), 7–8.

59 "Random Reflections," 112.

the stability of the old physics, based as the latter is on our most fundamental notions, but it will allow us to obtain an ever-improving likeness of the world.[60]

But it does not seem reasonable that some pure creation should correspond so nicely with the natural world if there is really no connection between them except our imposing of the one upon the other. Of course, we can insist that we keep working until we find a theory that corresponds. But why *can* there be a likeness between a mathematical model and the universe? Why is mathematical physics a possibility at all? That we are dealing not with pure creations but with idealizations indicates that there is something derived from experience in our discipline. An idealization, for example, inertia, renders a real thing or action or whatever more perfect than it is in material reality, but it does not just invent it, despite Einstein's saying that "physical concepts are free creations of the human mind."[61] So there may be, at least in some cases, a basis in nature for the idealized entities of our physics.

Further, I suggest mathematical physics is successful because the accidents of a thing come to that thing in a certain order. Color cannot be in a body unless it has a surface; density cannot if it does not have weight and volume. The quantitative aspects of natural things are presupposed to the qualitative.[62] But the reasons why things move is not merely their quantitative aspects but their qualitative and, more particularly, their sensible qualities.[63] A pure quantity has no tendency to move; but a volume of steel or a hot surface does. It is the sensible qualities that are the source of motion, even if the motions are always found in things with quantity. Since the sensible qualities, like

60 Heisenberg, *Physics and Philosophy*, 201–02.

61 Einstein and Infeld, *Evolution of Physics*, 33.

62 St. Thomas Aquinas, *In De Trin.*, q. 5, a. 3, c.

63 See Aristotle, *Physics* 7.3 and St. Thomas's commentary thereon.

hot and cold, hard and soft, magnetic and electric, dense and rare, and so on, inhere in things through the quantities of those things, it is reasonable to think that the actions of those things are modified by the quantities in question. It is the substance that acts; but it acts by way of accidental qualities that are in some way determined by the presupposed quantities.

Conclusion: Physics Old and New

De Koninck certainly did not mean to reject modern physics; he tried rather to open up a place for Aristotelian natural philosophy.[64] This inquiry remains possible if we see that modern science is not at all science in the old sense and does not even pretend to discuss things from the point of view of what they are, which is the first and fundamental way to approach the world.[65] Beginning from our primitive knowledge of what things are, if we are prudent and reflective, we can discover at least some truths about the world as a whole. This knowledge is not perfect, and its lack of detail and of precision is exactly what modern science looks to supplement. Even though the two approaches are imperfect, they are both necessary for natural philosophy. And in any case, as Aristotle justly said, we ought to be grateful even for an imperfect perception of the most marvelous things.[66]

64 "Random Reflections," 100–02.

65 This is not to say that the findings of modern physics have no bearing on discussions of what natural things are.

66 Aristotle, *De partibus animalium* 1.5, 644b24–645a4.

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