

THREE

The Theological Point of View

The rational creature can know God in an explicit manner insofar as He is cause of all being, insofar as He is being in the full sense. But we also know that this knowledge is superficial, that God has properties which are absolutely His own, that the light in which He is seen and which is identified with Him surpasses absolutely the created light in which we know Him in the most inadequate way. We have thus a very confused knowledge of that which is hidden in God: we know of Him that we do not know. This ignorance does not apply only to the hidden life of God; there must be in created nature aspects, the most profound, which are only manifest to the sight of God and which remain hidden to every created light.

This very knowledge of our ignorance is nevertheless a sign of the amplitude of our intellect which extends to being where everything is confusedly given. But Revelation teaches us that, beside the gratuitous gift that the creation of nature already is, God has deigned to communicate another gift, infinitely more profound than the first, by which we can participate in His intimate and properly supernatural life. It is just the natural amplitude of intellect which makes it capable of receiving this gratuitous gift, whereas if God chose to make an irrational creature participate in His intimate life, He would first have to make it a rational creature. By contrast, the rational creature does not have to undergo any transformation of his nature to be capable of receiving grace: he is ready to receive it if God wishes to give it. By that gift the intellectual creature becomes capable of realizing an explicit return to God, not only under the general note of being, but under the proper notion of deity.

God can manifest Himself to creatures in three ways: He is manifested to us in the natural light of our intellect, in metaphysics which is a purely rational science; He manifests Himself to us in faith where we participate in God's own knowledge and will, but in an obscure fashion; and finally in the beatific vision of the blessed who see Him face to face.

Revealed truths are of three sorts: there are some which, absolutely speaking, can be known in the light of natural reason. "Even of that knowledge of God to which human reason can naturally attain it was needful that revelation come to our aid. Without revelation, knowledge of the truth on the subject of God would be had by a small number who would not themselves be able to arrive at it until after prolonged efforts and many errors."¹³⁵

There are others which concern nature itself as nature but that we could in no way know by the light of reason; thus the fact that every intellectual creature is made in the image of the Blessed Trinity and that because of that our soul is naturally capable of being raised to the state of grace and glory is a truth that in no wise entails the necessity of such an elevation. Thus nature hides riches and passive potencies which are only open to the gaze of their supreme cause.

There is finally a third sort of revealed truths, to which the preceding are ordered, and which bear on the fact of our elevation to the supernatural order and on the means of attaining the salvation that God wishes to give us over and above any demand of our nature. We are destined to effect a return to God, not only under the note of being (*sub ratione entis*), but also under the very note of deity (*sub ratione deitatis*).

At the end of this discussion of the cosmos it is fitting to take at least a glance at a perspective infinitely more profound on this same cosmos, namely that of Sacred Theology, which, basing itself on the revelation in which God gratuitously communicates knowledge which is proper to Himself, permits us to see certain aspects of the world as God Himself sees them, in the feeble measure to which the obscurity of faith and the deficiency of our intellect permits us to see. I say 'Sacred Theology' because there is also a purely natural and philosophical theology which is a part of metaphysics and which proceeds consequently in the light proper to the human intellect, that is, *sub ratione entis*. Sacred Theology, on the contrary, is as an impression of the divine science itself on our souls—*velut quaedam impressio divinae scientiae*.

The diversity of sciences is founded on the differences of intelligible lights under which they are developed. Some proceed in the light proper to them, thus metaphysics studies things under the note of being; others borrow their principles from a higher science, as the physicist accepts principles furnished by the mathematician. Sacred Theology is an example of

the latter, for it borrows its principles from a science which is proper to God and the blessed; it proceeds in the very light of deity, a light given us in the gift of faith.

In this brief part we will dwell on some revealed truths which concern the very nature of the cosmos, truths we could in no way know apart from faith. This does not mean that in nature considered as nature there are two different realities, one knowable by reason, the other by faith. It is the same nature that one studies in the two cases, but we regard it under absolutely different lights.

1. The Cosmos as the Work of the Trinity¹³⁶

To create is not proper to one of the Persons but is common to the whole Trinity. To create is properly to cause the being of things and because every agent produces a resemblance of himself, the principle of action can be judged from its effect. That is why creating belongs to God by reason of His being. But His being is not, as is the case in creatures, distinct from His essence: it is identical with His essence. But the divine essence is common to the three Persons. Therefore to create is not proper to one or the other of the Persons exclusively, but common to the whole Trinity.

Nonetheless, there is another angle under which we can view the thing. God is cause of the creature by His intellect, which conceives it, and by His will by means of which He puts the creature into existence. Thus we can compare Him to the artist who conceives a work and who exteriorizes this conceived work by means of his will. The artist works with a mental word¹³⁷ that he conceives—for example, the conception of a tableau or a musical poem—and then he effects it outside himself by love of existence which is a good, thus giving a being proper to what he has conceived. His work as an intelligible construction is a work of intellect; as realized in a concrete fashion, this work is a good which proceeds from the will's love. But we know that there are in God two distinct processions, that of the Word who proceeds from the Father, and that of Love which proceeds from the Father and from the Word conceived. The procession of the Word is appropriated to the operation of intellect, and the procession of the Holy Spirit is appropriated to the operation of will. Therefore, like an artist, God the Father has realized the

creature by His Word, who is the Son, and by His Love, which is the Holy Spirit. According to that, the processions of the divine Persons are the reason for the production of creatures, insofar as these processions include the essential attributes which are knowledge and will.

Without doubt the divine nature is common to the three Persons, but it belongs to them in a certain order, for the Son receives it from the Father and the Holy Spirit from them both. Just so then, the creative power, although common to the three Persons, belongs to them in a certain order, that is, that the Son has it from the Father and the Holy Spirit from them. So much so that the quality of creator is attributed to the Father as to him who does not receive his creative power from another. Of the Son, it is said in St. John that *by* him everything has been made, because even while possessing the same power, he has it from another, for the preposition *by* usually indicates a mediate cause, a principle which itself has a principle. As for the Holy Spirit, who has the same power from the others, one attributes the governance as master and vivifying the creations of Father and Son.

Also, there is a general reason for this attribution, drawn from the way in which the essential attributes of divinity are appropriated to the three Persons. As was said earlier, one attributes to the Father, by appropriation, the power which is manifested above all in creation, by reason of which he is called Creator. One appropriates wisdom to the Son by which the agent intellect acts, and that is why it is said of the Son that *by* him all things have been made. Finally, one attributes goodness to the Holy Spirit to whom belongs the governance conducting things to their fitting ends, and vivifying is attributed to him because life consists in a sort of inner movement, and because the prime mover of beings is the end or good.

It is quite true that every effect of God proceeds from all these attributes; moreover, one refers each effect to that attribute with which it has a relation of fittingness by reason of its proper nature. Thus the order established among created things is referred to wisdom, the justification of the impious to mercy and goodness which display themselves in superabundance. As for creation, which is the production of the very substances of things, it is referred to power.¹³⁸

2. The Vestige and Image of the Trinity in the Cosmos

Since every effect manifests in some way its cause, it is fitting to seek in creation traces of its higher cause insofar as this is the Trinity. But an effect can represent its cause in different ways. Thus smoke evokes fire, but although the smoke represents fire as cause, it does not represent the form of fire. When an effect represents only the causality and not the form of its cause, one calls it a *vestige*. A vestige (footprint) indeed shows that someone has passed by but without revealing his nature. But there are effects which represent their cause by offering a likeness of the very form of the cause, as the statue of Mercury represents Mercury, and the photograph the person photographed. In these cases there is an *image*.

"But the processions of the divine Persons relate to acts of intellect and of will, as has been said above; the Son proceeds as the intellectual Word, the Holy Spirit as the love of will. In consequence, in rational creatures endowed with intelligence and will, one will find a representation of the Trinity in the manner of an image, because one there finds a word conceived and a love which proceeds."¹³⁹

As in God, so in the rational creature there is a certain circular motion in the operations of intellect and will. Indeed, the rational creature knows himself as knowing, and loves himself as loving. His intellect which springs from substance knows this substance by reflection—I know that I know and by "I" I mean not only the intellect *by* which I know other things as well as myself, but I mean by that my entire person which chiefly comprises my substance—just so the will loves the substance from which it proceeds, and it loves the intellect which shows it the substance. *Est ergo tam in nobis quam in Deo circulatio quaedam in operibus intellectus et voluntatis.*¹⁴⁰ But while God conceives His Word in knowing Himself, and conceives all things in knowing Himself—such that the circular motion is perfectly closed on Himself (*in Deo iste circulus clauditur in seipso*)—in the rational creature on the contrary the circular motion is not entirely closed, for intellect and will are distinct from one another and from substance, and they are moved by an object distinct from themselves, so that their circular motion always terminates in that which is external to them. Moreover, the circular motion of our thought and of our love in no way finds its term in itself; it is only a precondition of union with its true term which is God and is achieved in

this union. By their natural desire created things love God more than themselves, and all knowers know God, at least implicitly, in any known object, for just as nothing is desirable save by its likeness to the supreme good, so nothing is knowable save by its likeness to the first truth.¹⁴¹ Thus our thought and our love are only truly closed when they are joined explicitly to God as principal term of the union.

Consequently, the representation of the Trinity is found in a more express manner in the soul insofar as it knows God than insofar as it knows itself; that is why the image of the Trinity is properly in the soul that knows God primarily and principally, and only in a secondary manner in the knowledge the soul has of itself, above all when it knows itself as an image of God and it is thus that this knowledge does not terminate in the soul itself but is raised up even to God.¹⁴²

Rational creatures are not made to attain knowledge of being in general and to be conscious of themselves, but principally to know God. That is why knowledge of God moves and commands all other knowledge. It is because the soul should be able to elevate itself to God that it should have knowledge of being in general and consciousness of itself. That is why intellect and will are above all faculties of the divine, since by them the universe rejoins its creator in an explicit manner, thus accomplishing the ultimate end of all creation; they are faculties of the divine, because they are also *formally* in God, and not just in a virtual manner. One cannot say this of animal knowledge or sensible affectivity, but we must say that God is formally intellect and will. What saves the image of the Trinity in us is intellect and will which are also essential and formal attributes of the divine nature. Since we are made in the image of God, we represent Him in His form and species—*secundum formam et secundum speciem*.

But in every creature there is a figuration of the Trinity in the form of vestige, for in all there is something which must be necessarily referred to the divine Persons as its cause. Indeed, every creature subsists in its being, has a form that places it in a species, and a relation to something else. Insofar as it is a created substance, it represents its cause, its principle, and thus reminds of the person of the Father, who is a principle

without principle. Insofar as it has a certain form, a certain species, it represents the Word, since the form of work comes from the conception of the worker. Finally, because it is ordered and oriented, it represents the Holy Spirit envisaged as love, for the orientation of an effect to another thing is the deed of a will that creates. That is what St. Augustine affirms when he says that a vestige of the Trinity is found in each creature insofar as it is some thing, is formed of a certain species, and has a certain order. To that too the three terms of the Book of Wisdom refer: the *number*, the *weight* and the *measure*; for measure refers to the substance of a thing limited to its proper elements and principles; number refers to the species, weight to the relation to order.—To that too are referred the three words employed by St. Augustine: the *manner*, *species* and *order*, besides those which he distinguishes in things ‘that which constitutes, that which distinguishes, and by which they agree,’ for each thing is constituted by its substance, is discerned by its form, and is fitting by its order.¹⁴³

In all creatures there exists a certain likeness to God; nonetheless, only in the intelligent creature can this likeness be called an *image*, as we have said earlier; there is only a trace or *vestige* in other creatures. It is by his intellect or soul that the rational creature is raised above the others. From which we must conclude that, in the intelligent creature himself, the image of God is found only in the soul or spiritual part, whereas in the other parts, if they exist in the creature endowed with intellect or reason, there is only the likeness of vestige, as in the other bodies to which, moreover, the rational creature should be likened with respect to his material parts. The reason for this is easily grasped if we attend to the different ways in which image and vestige represent an object: the image represents it according to the likeness of species, as we have said, and the vestige represents it as an effect represents its cause, which cannot rise to the resemblance in species. The prints left by the passage of animals are called vestiges, ashes are the vestige of fire, and the desolation of the countryside of an enemy army. That then is the difference one can mark between rational creatures and the others, because in rational creatures is found expressed either the likeness of the divine nature or the likeness of the uncreated Trinity. As for the likeness of the divine nature, rational creatures rise, in a fashion, to the

level of representation of species since they imitate God, not only under the aspect of being and life, but also under that of his intellectual nature. Other creatures are not endowed with intellect, although one sees a trace of the intellect that formed them if attention is paid to their structure. So too, just as in the Trinity the distinction of persons rests on this that the Word proceeds from Him who speaks, and Love from the one and other, one can say that rational creature in whom there is a procession of word according to intellect and procession of love according to will, is an image of the divine Trinity by the very representation of species. In the other creatures, there is neither the principle of a word, nor a word, nor love, but one can discover them there as an imprint of that which exists in the cause which produced them. By the simple fact that a creature has a molded and delimited substance, one cannot doubt that he comes from a principle, his species refers him to the Word that produced him, as the form of a house manifests the idea preconceived by the builder; the other that one notes there makes known love of which it is proper to order the effect with an eye to the good, as the use to which a building is destined makes known the will of the one who constructed it. Thus then the likeness of God, as image, is found in the soul, and it is as vestige in all the other parts of the human being.¹⁴⁴

Vestige and image as we have spoken of them to this point are naturally in the works of God, although we would not have known it without the revelation of the Trinity and the creative cause.

Man is made in the image of God even apart from his actual ordination to the supernatural order. This image is called the *imago creationis*. The rational and abstract knowledge that we have of God could not alone go beyond the limits of nature. It is by grace and the light of glory that the image of the Trinity is carried to its summit.

As it is by his intellectual nature that man is made in the image of God, this image is the more perfect in him as his intellectual nature imitates God the more. But intellectual nature imitates God above all in the knowledge and love that he has of himself. From which it follows that the image of God in man can be considered in a threefold way: first, in this that man has a natural aptitude to know and love God and

this aptitude is enclosed in the very nature of the soul, in that which, consequently, is common to all men. Second, insofar as man knows and loves God in act and in habit, but in an imperfect manner, and this image results from the conformity produced by grace. Third, finally, insofar as man knows and loves God actually in a perfect manner, and this image is what realizes in us the likeness coming from glory. That is why, on these words of the Psalmist, 'The light of the countenance has been sealed upon us, O my God,' the Gloss distinguishes a triple image, of *creation*, of *reconciliation*, and of *likeness*. The first is found in all men, the second only in the just, the third uniquely in the blessed.¹⁴⁵

3. Vestige as Tendency toward Image

In his treatise on the Trinity St. Augustine says that God is so One that He is a Trinity, and such a Trinity that He is One. This unity and trinity are reflected in every creature. The more perfect the creature, the more he is one and simple. Man is more simple than an animal and more one; the animal is more simple and one than the plant, etc. But the more perfect and one creatures are, the more they are vestiges or images of the Trinity. Just as angels are more in the image of the Trinity than men,¹⁴⁶ so even the animal is a more profound vestige than the plant and the inorganic. Hence, infrahuman beings, in the measure that they tend toward man, tend as well, insofar as they are more or less profound vestiges, toward the image of the Trinity that is the human soul. From this point of view, we can consider the evolution of the cosmos as a maturation of vestiges which will terminate in an image of the Trinity. In evolution, the Trinity draws the world to itself in order to imprint on it its image.

Boethius says of God: *Mundum mente gerens, similique in imagine formans* (Carrying the world in his thought, he fashions it to his likeness and image).¹⁴⁷

4. Generation of the Word and Natural Generation¹⁴⁸

The procession of the Word in God is a generation in the most rigorous sense: *origo viventis a vivente a principio vitae conjuncto in similitudinem naturae*: the procession of a living being from a living being which is joined to it as

principle of life assimilates it to its very nature in virtue of this very procession. This assimilation of the generator to the generated implies a perfect likeness of nature. Generation consists therefore in expressing a propagative likeness of its own nature.

Let us examine this distinction in the example of natural generation. The first part of the definition—the procession of a living thing from another living thing—designates the formation of one living being by another which is an efficient and living principle: thus the father is the efficient principle of his son. The second part—a living thing conjoined to it as principle of life—designates the material cause from which the engendered proceeds: the generator draws from his own substance the engendered in forming him. The third part—which assimilates him to his own nature in virtue of this very process—designating the likeness of nature between the generator and the engendered indicates both the final cause and the specifying formal cause of the generation. It designates the final cause, for the generator proposes to himself as end the propagation of his own nature. It designates the formal and specifying, for generation is specified by the form of the engendered insofar as that form is like that of the generator and expressive of it, such that the generative activity itself is essentially assimilating: it does not consist of similitude alone, but of the expression of the similitude and the very propagation of the nature.

The term 'generation' is not always taken in the strict sense. In a broad sense it can signify the passage from non-being to being, from the state of being potential to the state of being actual. Even when we use it to designate a process from a living being we do not always understand it in all its rigor, for there can be procession without similitude between the engendered and the generating principle. Thus the hair and beard are not the result of a generation properly speaking: a man is not a father because he grows a beard and his beard is not his child. Just any similitude won't do. The mutations by which evolution progresses are not generations in the strict sense, for the similarity between the mutant and the species from which he proceeds is not perfect. Mutations are equivocal generation where the terms do not communicate in the same species. In order for there to be generation in the strict sense, the being which proceeds must show in his very nature the likeness of the species from which he derives, as when a man proceeds from a man and a horse from a horse.

And thus the generation of beings which pass from potential life to actual life, like man and animal, is at once a generation in a broad sense and a generation in a strict sense: it is a passage from non-being to being, but there is a likeness between the generator which causes the engendered to come to be and the engendered himself. Natural generation departs from the perfect type of generation in the measure that it necessarily involves a passage from potency to act. In natural generation there are at bottom three elements: the generator who is the active principle; potentiality whence the engendered is drawn, potentiality which is a passive principle, a subject; and the engendered itself which is also an act, not as principle, but as term. The second element, the passive principle is consequently cause of imperfection: the assimilation of the generator and engendered will be defective in the measure that they are separated by the potentiality of an intermediate term.

But let us suppose a living being which does not proceed from potency to act, which proceeds immediately from the activity alone of the generating principle: he will have the second sort of generation without the first, that is, without the imperfection that an intermediate element introduces, namely, the potentiality from which the engendered is drawn. There will be a generation in the full sense: there will be perfect similitude in the very assimilation and in the source; there will be both propagation of nature and absolute identity of nature: the nature will be expressed in itself.

It is thus that the Word is enclosed in His procession from the Father, all the characteristics of generation taken in the full sense. He proceeds by an intelligible act which is a vital operation; He comes from a principle to which He is conjoined as principle of life: the divine nature with which He is identified; He contains a perfect likeness of His principle of which He is the conceived and consubstantial image; He shares the nature of principle from which He takes His origin, since essence and intellect in God are identical. So it is that the procession of the Word is called generation in the Holy Trinity, and the Word Himself takes the name of Son.

The generation of the Word is thus linked to the plenitude of the divine nature which is communicated to itself in expressing it in the Word's identity. It is the very perfection of knowledge to be manifestative and expressive of the thing known; this fecundity is essential to intellectual nature. The opposition between the Person of the Father and the Person of the Son is thus born from the fecundity of the divine nature. And this perfect distinction of Persons is

only possible in a perfect numerical identity of nature. Knowledge, in effect, has the property of drawing to itself the object known: it is thus a procession toward the inner: *processio ad intra*. Consequently, the more perfect knowledge is, the more the knower is united with the known. Since in God knowledge is absolutely perfect, the divine Word must be absolutely one with the principle from which He proceeds and without diversity of nature. The similitude of Father and Son is not a common similitude—like the similitude between a human father and son by reason of their common species which transcends them—but a similitude in the identity of one and the same form which entails the diversity of Persons.

This enables us to see the infinite distance that separates natural generation, even the most perfect, from divine generation, of which it is nonetheless a profound vestige. Divine generation, indeed, has its source in the absolute plenitude of the divine nature. Natural generation, on the contrary, makes up for the imperfection of cosmic natures. Such natures have to propagate in order to perpetuate and preserve the species: generation makes up for their corruptibility. Thus this propagation of nature is possible only by reason of prime matter which is pure potency. Cosmic natures express themselves by multiplying numerically. Natural generation cannot itself be a term, it is a pure means, for the pure multiplication is repugnant to the notion of end. Even pure resemblance cannot be the ideal in the propagation of cosmic natures. Humanity does not aim at the reproduction of perfectly similar and homogeneous individuals. Its imperfection is made up for by a certain variety. And we even see that the more perfect individuals are, the more they differ from one another.

And yet, it must not be thought that natural generation is a pure and simple imperfection. It, too, is a real fecundity, but a functional one; it is a means to attain the end, for nature a perfection to make use of this means. Matter, indeed, which makes natural generation possible, is not a pure negation: it is for the perfection of form. If the form were perfect in its species, natural generation would be impossible. The angels, naturally subsistent forms, cannot be engendered. Even human generation, because of the spirituality of the soul, requires the special intervention of a principle transcending nature: besides the father, the natural active principle and the potency of the matter, there must be a creative principle of the substantial form which is spiritual. Moreover, because generation must be judged by its term, the son

who is made in the likeness of the father, this generation is more perfect than that of infrahuman natures where the engendered are already given entirely in the potency of the created nature.

The term of the divine generation is a Word. We of course see that the mental word which is born in us by the intimate act of our thought is not a child and that its production is not a generation. Indeed, our mental word is not of the substance of our self; there is no similitude of nature. Intelligence in us, as in every intellectual creature, is distinct from our substance, and the mental word is not intelligence itself. If our knowledge of ourselves is in a sense consubstantial, substance is the root of intelligence and intelligence can know substance, yet, intelligence and substance are really distinct.



[Here the text breaks off. The page proofs and accompanying notes make it clear that De Koninck intended to advance the argument beyond the point that he had reached. For all that, *The Cosmos* shows a young philosopher already immersed in his sources and capable of taking them into areas undreamt of by the authors on whom he relies, chiefly St. Thomas Aquinas.—Ed.]

NOTES

1. Eddington gives a speed of 23,300 miles per second (*New Pathways in Science*, 209). Here is his humorous description of a nebula: "The following is a recipe for making galaxies: Take about ten thousand million stars. Spread them so that on the average light takes three or four years to pass from one to the next. Add about the same amount of matter in the form of diffused gas between the stars. Roll it out flat. Set it spinning in its own plane. Then you will obtain an object which viewed from a sufficient distance, will probably look more or less like the spiral nebula. . . ."

2. Georges Lemaître, *L'Univers en Expansion* (Louvain: Revue des Questions Scientifiques, 1935), 357–75.

3. 'Force' is a Newtonian term that one has to abandon in relativity physics, but that we use here for reasons of convenience.

4. A state that gives us an image of the universe as conceived by Einstein before the work of Lemaître.

5. Lemaître, *L'Expansion de l'espace* (Revue des Questions Scientifiques, 1931), 391–410.

6. Lemaître, *L'Univers en Expansion*, 369 ff.

7. Ibid., 371. See, too, Eddington, *The Expanding Universe* (Cambridge, 1935), chap. x.

8. See James Jeans, *The Universe around Us* (Cambridge, 1933).

9. "I feel inclined to claim that *at the present time* our race is supreme; and not one of the profusion of stars in their myriad clusters looks down on scenes comparable to those which are passing beneath the rays of the sun" (Eddington, *The Nature of the Physical World* [Cambridge, 1931], 178).

10. See *ibid.*, chap. iv.

11. Lemaître, *L'Expansion de l'espace*, 408.

12. This question has importance only in the debate between the determinist and the indeterminist. The indeterminist recognizes to a certain limit the objectivity of the statistic character of the second law of thermodynamics. It seems to me that a non-mechanist conception of life should maintain this objectivity.

13. This law is far from being universally true. Thus, mushrooms feed themselves like animals, that is to say from already formed organic substances. So, too, it is most often difficult to determine if one is dealing with a plant or an animal. But these exceptions and difficulties do not prevent us from tracing the grand characteristic lines. The number of deviations and failures of nature is moreover unlikely.

14. I know that this way of seeing the matter can only be justified by objective indeterminism. Every other conception is either mechanist or parallelist.

15. This is not to say that everything in man comes about freely. But the simple fact that I can raise my arm when I wish justifies this affirmation. It is equally true that the behavior of masses does not elude statistics. We will see later that liberty admits degrees.

16. That biology cannot attain to the rigor of experimental physics is perhaps seen in the fact that biological laws are far more statistical than physical laws.

17. *Flore Laurentienne* (Montreal, 1935), 63.

18. J.B.P.A. de Lamarck, *Histoire Naturelle des Animaux sans Vertèbres* (Paris, 1825), t. I, pp. 151–52.

19. "None of the facts cited in favor of this conception can resist an objective critique. Multiple causes of error: the heterogeneous nature of the population one studies, incertitude about what concerns the real action of the internal actors, retention more or less lasting of modifications wrongly taken as hereditary variations, account for the illusion to which have fallen victim those who thought themselves to have observed the heredity of non-congenital particularities" (Emile Guyénot, "Le mécanisme de l'évolution et l'expérience," *Première Semaine Internationale de Synthèse, Premier Fascicule, L'Évolution en Biologie* [Paris: Alcan, no date]).

20. Charles Darwin, *The Origin of Species* (New York: Harvard Classics, 1909), 79.

21. "... according to the theory of natural selection an interminable number of intermediate forms must have existed, linking together all the species in each group

by gradations as fine as are our existing varieties" (op. cit., p. 502). "If we look to long enough intervals of time, geology plainly declares that species have all changed; and they have changed in the manner required by the theory, for they have changed slowly and in a graduated manner" (p. 505).

22. Guyénot, "Le mecanisme de l'évolution," 41.

23. Ibid., 47 ff.

24. Marie-Victorin, *Flore Laurentienne*, 65.

25. Ibid., 64.

26. See the summary exposition in Guyénot (p. 39 ff.). By a general theory I mean one that extends to all vital phenomena. We will speak of spontaneous generation in Part Two.

27. Note to students of physics: I do not mean that the 'trail' in question is a continuous trajectory having always a value simultaneously spatio-temporal. Its identity is nonetheless safeguarded by the principle of conservation.

28. *Q.D. de potentia*, q. 4, a. 1, c.

29. We intentionally go around the considerable difficulties that the substance and accidents of mobile being imply. By *mobile being* we understand both the mobile substance and mobile accidents. (See Cajetan, *De subjecto philosophia naturalis*.) Nevertheless, I must make precise here that whatever be the mobility that one takes for point of departure, being is of the accidental or of the substantial order; one arrives at exactly the same conclusions. For mobility in the proper sense in the accidental order presupposes one in the substantial order. The whole mobile being necessarily composed of substance and accidents, and the substance being the root of accidents, it is in the substance that the two principles must be placed, and again it is the matter, an essential principle, which will explain mobility in the accidental order. One can therefore take as point of departure, to demonstrate the thesis of hylomorphism, any entity whatsoever that presents a mobile aspect, or any two real entities of the purely accidental order, providing that they are homogeneous: one must find the root in substance.

30. See Aristotle, *Metaphysics*, II, 2, 994b26.

31. Moreover, temporal duration is not considered as such, but only as implying a real successive continuity. One does extend *this* particular case to others—all the others are implied in advance.

32. If it is *natural* for the human form to inform matter, this is not natural in the strict sense, not have been *nata*, it was not generated. Nevertheless the human composite can be said to be generated, and in this respect the composite is a natural being.

33. "... appetitus formae non est aliqua actio materiae sed quaedam habitudo materiae ad formam, secundum quod est in potentia ad ipsam" (*Q.D. de potentia*, q. 4, a. 1, ad 2). But above all see *In I Physic.*, lectio 15, nn. 9–10, where it is shown that this is not a matter of metaphor.

34. "Est autem considerandum quod alio modo intentio naturae fertur ad corruptibiles et ad incorruptibiles creaturas. Id enim per se videtur esse de intentione naturae quod est semper et perpetuum; quod autem est solum secundum aliquod tempus, non videtur esse principaliter de intentione naturae, sed quasi ad aliud ordi-

natum, alioquin, eo corrupto, naturae intentio cessaretur" (Ia, q. 98, a. 1, c.). "... nulum agens intendit pluralitatem materialem ut finem: quia materialis multitudo non habet certum terminum, sed de se tendit in infinitum; infinitum autem repugnat rationi finis" (Ia, q. 47, a. 3, ad 2).

35. *Q.D. de potentia*, q. 3, a. 18, ad 5.

36. *IaIIae*, q. 2, a. 3, c.

37. "Quum vero... perfectum... sit unumquodque in quantum fit actu, oportet quod intentio cujuslibet potentiae sit ut per motum tendat in actum. Quando igitur aliquis actus est posterior et magis perfectus, tanto principalius in idipsum appetitus materiae fertur. Unde oportet quod in ultiolem et perfectissimum actum quem materia consequi potest tendat appetitus materiae quo appetit formam, sicut in ultimum finem generationis.

"In actibus autem formarum, gradus quidam invenitur. Nam materia prima est in potentia primum 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 in potentia ad sensitivam, sensitiva vero ad intellectivam; quod processus generationis ostendit; primo enim in generatione est foetus 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 generationis totius gradus 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 propter hominem; homo enim est finis totius generationis....

"... Si igitur motio ipsius coeli ordinatur ad generationem, generatio autem tota ordinatur ad hominem sicut in ultimum finem hujus generationis, manifestum est quod finis motionis coeli ordinatur ad hominem sicut in ultimum finem in genere generabilium et mobilium" (III *Summa contra gentes*, 22).

38. Ia, q. 98, a. 1.

39. "Posset etiam dici, quod vis generationis ab imperfectioribus ad perfectiora pervenitur, et hoc ordine quod quae imperfectiora sunt, prius ordine naturae producantur. In via enim generationis quanto aliquid perfectius est, et magis assimilatur agenti, tanto tempore posterius est; quamvis sit prius natura et dignitate. Et ideo, quia homo perfectissimum animalium est, ultimo inter animalia fieri debuit" (*Q.D. de potentia*, q. 4, a. 11).

40. *In I de anima*, lectio 1.

41. It is in that very exploration that we discover the ontological cuts that divide the world into distinct substantial beings. Already having the metaphysical notion of substance, it is easy to identify a substantial being. Substance is that which is *of itself*, *subject of accidents*. But I perform these acts that are mine, I act freely, I enjoy independence with respect to my surroundings, and can oppose them. Concomitant signs enable me to recognize other independent lives. But I have no *direct* knowledge of my substance, still less of that of others. I am obliged to reconstitute them by means of signs.

42. This way of looking at it astonishes at first blush. We here dissect a process which comes about spontaneously, but which nonetheless follows the path we have just described. The most solid arguments put forth by modern Thomists are along these lines. See, for example, Joseph Gredt, *Elementa Philosophiae*, vol. 1, n. 437: "Si animal est substantia una vivens vita vegetativa et sensitiva seu informata anima, quae simul est vegetativa et sensitiva, etiam planta est substantia una vivens vita vegetativa seu informata anima vegetativa; nam phaenomena vegetativa in animali: nutritio, augmentatio, generatio, eodem modo essentialiter contingunt sicut in planta neque differunt nisi valde accidentaliter. Quare si haec phaenomena in animali vitalia sunt, etiam in planta ita explicari debent. Atqui animal est substantia una vivens vita vegetativa et sensitiva. Ergo.

"*Probatur minor.* Animal est substantia una sentiens (id quod est in homine, in animali rationali, ex testimonio sensus communis et tactus constat et in ceteris animalibus ex modo, quo se gerunt, ostenditur), quae simul ostendit phaenomena vegetativitatis, seu cuius diverse partes ad invicem agunt ad totam nutriendum et evolendum; atqui substantia una sentiens, cuius diversae partes ad invicem agunt ad totum nutriendum et evolendum, est substantia una vivens vita vegetativa et sensitiva. Ergo."

43. Vital activities cannot be called movements in the strict sense of the term, for every movement in the cosmological sense essentially involves matter, whereas life already supposes a certain degree of emergence from matter. See on this subject Yves Simon, *Introduction à l'Ontologie du Connaitre* (Paris: Desclée De Brouwer, 1934). I do not know a better exposition of this question.

44. "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 alicujus existentis in actu. Otiosa esset igitur potentia nisi esset virtus activa agentis quae eam in actu reducere possit, quum 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 principium activum in natura. Sicut autem corpus caeleste est primum agens respectu corporum inferiorum, ita Deus est primum agens respectu totius entis creati" (II *Summa contra gentes*, 22).

45. "Non differt autem, quantum ad praesentem intentionem, utrum corpus caeleste moveatur a substantia intellectuali conjuncta quae sit anima ejus vel a substantia separata, et utrum unumquodque corporum caelestium moveatur a Deo, vel nullum immediate, 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" (III *Summa contra gentes*, 23).

46. "Non igitur motus caelestis principium est sola natura. Oportet igitur quod principium motus ejus sit per apprehensionem moventis.

"Non tamen est negandum motum caelestem esse naturalem. Dicitur enim esse aliquis motus 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

cujus principium activus 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" (ibid.).

47. It is precisely against this kind of evolutionism, according to which "species inferior et onorganica extiterit quasi causa *principalis*, et non *instrumentalis tantum*, sui progressus suaeque in speciem superiorem transformationis," to which theologians object. See Mgr. A. Paquet, *Disputationes Theologicae, de Creatione*, Disp. V, q. 4, a. 1 (third edition).

48. Not that my substance itself acts, but it is the root of the faculties which are the immediate subject of operations, which arise from essence as their principle. See Ia, q. 77, a. 6: "Utrum potentiae animae fluant ab ejus essentia."

49. The formal subject of experimental science is thus an inferred subject. And yet this inference is not of the epistemological order. The mediate character of the magnitude fabricated in scientific experience—the number-measure one reads on the graduated scale of a given instrument and which only translate objectively this experiment—is *objectively mediate*. A number-measure which was not defined by the description of a concrete operation which furnishes it would be deprived of sense. It does not suffice to see the symbol, one must first know what it signifies. It is an objective trace.

50. Nonetheless, if the sensation of heat can be neither the formal subject nor point of departure of experimental science, I am more sure of my sensation of heat than any of the formally scientific properties known mediately by measurements and deductions. A physics established on *proper sensibles* would be perfectly imaginative and subjectivist, like the qualitative physics of the ancients. This does not mean that proper sensibles are illusory, but that they are not fecund in experimental science, even if they condition our contact with the external world. Experimental science is possible only with respect to the metric aspect of the universe, an aspect gained in the realm of *common sensibles* all of which involve quantity—*quae omnia reducuntur ad quantitatem*—and which are perfectly independent of a particular sense. I can see the temperature and know the length by touching it. *Sentiri potest sensibili commune sine proprio*. Quantity is only known through measure, *quantitas est id quod mensura cognoscitur*. Hence experimental knowledge will be scientific only to the degree that it is physico-mathematical. That is as true of experimental psychology as it is of experimental physics. We do not imagine that we have explained the proper sensible heat when we know that heat is the disordered motion of molecules. The kinetic energy of the molecules is not what provokes in us a sense of heat: it is only its metric aspect. Heat, an altering quality, is absolutely indefinable and irreducible. I can call it an altering quality moreover only by leaving in shadow its specific difference. Still the proper sensible is the indispensable extrinsic condition for any experimental science.

"[I]n the end we must trust to our perceptions to tell us the result of the experiment. Even if the apparatus is self-recording we employ our senses to read the records" (Edgington, *New Pathways in Science*, 3).

51. Exception must be made for the philosophy of science, the sapiential function of mathematics, and the philosophy of nature, which operates with formally scientific data.

52. Even the philosophy of science presupposes a philosophy-science already constituted.

53. An ideal body would be a mass in every point of view absolutely homogeneous, an entity which is no more ideal than the material point of mechanics.

54. Is there any need to say that the *soul-form*, no more than *form* tout court, has absolutely nothing to do with figure, configuration, or form in the vulgar sense? A scientist as distinguished as Dastre gave this strangely stupid interpretation of Aristotelian form. "Natural history," he wrote, "contented itself with the morphological consideration; it studied the Form, the word being understood in its extensive sense and comprising the external configuration and the internal configuration or structure. Zoology and botany have been until now anatomical or morphological sciences, that is, exclusively attached to the description of forms. For the ancients, for Aristotle, the living thing is entirely its form" (A. Dastre, *La Vie et la Mort* [Paris: Flammarion 1920], xiii).

55. "... licet in litera dicitur quod forma fit in materia, non tamen proprie dicitur. Forma enim proprie non fit, sed compositum. Sicut enim dicitur forma esse in materia, licet forma non sit, sed compositum per formam: ita etiam proprius modus loquendi est, ut dicamus compositum generari ex materia in talem formam. Formae enim proprie non fiunt, sed educuntur de potentia materiae, inquantum materia quae est in potentia ad formam fit actu sub forma, quod est facere compositum" (*In VII Metaphysic*, lectio 7, n. 1423). "Sicut forma est quodammodo causa materiae inquantum dat ei esse actu, quodam vero modo materia est causa formae, inquantum sustentat ipsam; ita etiam quodammodo ea quae sunt ex parte formae, sunt priora his quae sunt ex parte materiae, quaedam vero e converso; et quia privatio se tenet ex parte materiae, ideo remotio privationis est prior introductione formarum naturaliter, secundum ordinem quo materia est prior forma, qui dicitur ordo generationis; sed introductio formae est prior illo ordine quo forma est prior materia, qui est ordo perfectionis" (*Q.D. de veritate*, q. 9, a. 3, ad 6; *Q.D. de potentia*, q. 3, a. 8, c.).

56. "... cum anima sit actus corporis organici, ante qualemcumque organizationem corpus susceptivum animae esse non potest" (*Q.D. de potentia*, q. 3, a. 12 c.).

57. "... sicut dispositio in via generationis praecedat perfectionem, ad quam disponit, in his quae successive perficiuntur; ita naturaliter perfectionem sequitur quam aliquis jam consecutus est; sicut calor, qui fuit dispositio ad formam ignis, est effectus profluens a forma ignis jam praexistens" (ibid., a. 13, ad 2).

58. "Perfectibile autem non unitur formae nisi postquam est in ipso dispositio, quae facit perfectibile receptivum talis formae, quia proprius actus fit in propria potentia: sicut corpus non unitur animae ut formae, nisi postquam fuerit organizatum et dispositum" (*Q.D. de veritate*, q. 8, a. 3, c.).

59. "... hoc stare non potest, primo quidem quia nulla forma substantialis recipit magis et minus; sed superadditio majoris perfectionis facit aliam speciem sicut additio unitatis faciat aliam speciem in numeris. Non est autem possibile ut una et eadem forma numero sit diversarum specierum. Secundo quia sequeretur quod generatio animalis esset motus continuus paulatim procedens de imperfecto ad perfectum, sicut accidit in alteratione. Tertio quia sequeretur quod generatio hominis aut animalis non sit generatio simpliciter, quia subjectum ejus esset ens actu. Si enim a principio in materia proles est anima vegetabilis, et postmodum isque perfectum paulatim perducitur, erit semper additio perfectionis sequentis sine corruptione perfectionis praecedentis; quod est contra rationem generationis simpliciter" (Ia, q. 118, a. 2; IaIIae, q. 52, a. 1).

60. "Oportet namque in materia quaelibet esse aptitudinem ad formam. Non enim quodlibet artificiatum potest fieri ex qualibet materia, sed ex determinata. Sicut serra non fit ex lana, sed ex ferro" (*In VII Metaphysic*, lectio 8, n. 1437). "... non enim materia quocumque modo se habens potest subesse formae, quia proprium actum in propria materia oportet esse. Cum ergo est materia in dispositione quae non competit formae alicui, non potest a principio incorporeo, a quo forma dependet per se, eam consequi immediate; unde oportet quod sit aliquid transmutans materiam; et hoc est aliquid agens corporeum, cujus est agere mutando. Et hoc quidem agit in virtute principii incorporei, et ejus actio determinatur ad hanc formam, secundum quod talis forma est in eo, actu (sicut in agentibus univocis), vel virtute (sicut in agentibus aequivocis)" (*Q.D. de potentia*, q. 5, a. 1).

61. However, when this unique cell constituting the new being is broken into two parts, into two new cells, thus beginning the development of the embryo, this bipartition does not touch the substances as in the case of bacteria. One does not have to do with two new beings, but to a growth by partition of the same being. Whereas bacteria born in strangling of the mother-cell will lead a independent life from then on, the cells of the embryo are only parts. I do not say that the interdependent coordination of parts is *always* the sign of ontological individuality. These *signs* can be more or less manifest, and often insufficient.

62. "Via enim quae est in simpliciter non ens, quam dicit (Aristoteles) esse corruptionem simpliciter, non potest intelligi in id quod est omnino nihil: quia omnis naturalis corruptio fit per resolutionem in aliquam materiam. Similiter etiam non potest intelligi non ens simpliciter, quod sit privatio pura sine forma: quia materia nunquam denudatur ab omni forma, ita quod sit sub sola privatione. Ergo oportet per non ens in quod tendit corruptio simplex, intelligi privationem quae est adjuncta alicui formae" (*In I de generatione et corruptione*, lectio 8, n. 3). See John of St. Thomas, *Cursus philosophicus*, Philosophia Naturalis, III p., q. 2, a. 1: "Quomodo differat corruptio in ratione mutationis a generatione et ab annihilatione. Corruption is opposed to generation, whereas annihilation is opposed to creation."

63. "Et ita non sequitur quod id quod corrumpitur secedat a tota rerum natura: quia quamvis fiat non ens hoc quod est corruptum, remanet tamen aliquod aliud, quod est generatum. Unde non potest materia remanere quin sit subjecta alicui formae: et

inde est quod uno corrupto aliud generatur, et uno generato aliud corrumpitur: et sic consideratur quidam circulus in generatione et corruptione, ratione cuius habet aptitudinem ad perpetuitatem" (*In I de generatione et corruptione*, lectio 7, n. 6). But whereas Aristotle thought that corruptible beings pursued the perpetuation of their species as an end, St. Thomas opposes this view. The philosophical foundation of this divergence is exposed, not in the place cited (*quod tamen fides catholica non supponit*), but in *Q.D. de potentia*, q. 5, a. 5 and in *In I de coelo*, lectio 20, n. 12: "Ea vero quae [a Deo] sic producta sunt ut in sempiternum sint, habent potentiam et virtutem ad semper essendum, et nullo modo ad hoc quod aliquando non sit. Quando enim non erant, talem potentiam non habebant: quando autem jam sunt, non habet potentiam respectu non esse quod prius fuit, sed respectu esse quod nunc est vel erit; quia potentia non respiciat praeitum, sed praesens vel futurum." This idea flows logically from the Aristotelian adage: *in perpetuis non differt esse et posse*.

64. See John of St. Thomas, *Cursus philosophicus*, Philosophia Naturalis, III p., q. II, a. 3: "Ad ultimum respondetur generationem et corruptionem dari in eodem instanti temporis, sed in diversa prioritate naturae."

65. "In actionibus naturalibus formae substantiales non sunt immediatum actionis principium, sed agunt mediatis qualitatibus activis et passivis sicut propriis instrumentis, ut dicitur in II de Anima, quod calor naturalis est, quo anima agit; et idea qualitates non solum agunt in virtute propria, sed etiam in virtute formae substantialis. Unde actio earum non solum terminat ad formam accidentalem, sed etiam ad formam substantialem, et propter hoc generatio est terminus alterationis. Huiusmodi autem virtutem instrumentalem recipiunt eo ipso, quod a principiis essentialibus causantur" (*In IV Sent.*, d. 12, q. 1, a. 2, sol. 2). "Corpus agit et ad formam accidentalem, et ad formam substantialem. Qualitas enim activa, ut calor; etsi sit accidens, agit tamen in virtute formae substantialis sicut ejus instrumentum; et ideo potest agere ad formam substantialem, sicut et calor naturalis, in quantum est instrumentum animae, agit ad generationem carnis; ad accidens vero agit propria virtute. Nec est contra rationem accidentis quod excedat suum subjectum in agendo, sed quod excedat in essendo; nisi forsitan [sic] quis imaginetur, idem accidens numero defluere ab agente in patiens, sicut Democritus ponebat fieri actionem per defluxum atomorum" (Ia, q. 115, a. 1, ad 5).

66. "... alteratio primo et per se est in qualitatibus tertiae speciei, mediantibus quibus ex consequenti fit alteratio etiam in aliis; sicut per aliquam alterationem calidi et frigidi mutatur homo de sanitate in aegritudinem aut e converso, et per alterationem mollis et duri perducitur ad aliquam figuram" (*In I de generatione et corruptione*, lectio 10, n. 2). "In eodem instanti quod primo est dispositio necessitans in materia, forma substantialis inducitur. Cum enim generatio sit terminus alterationis, oportet in eodem instanti alterationem terminari ad dispositionem quae est necessitans, et generationem ad formam substantialem. Sed quia alteratio est motus continuus, ideo principium alterationis et medium quod materia disponitur ad formam substantialem, tempore praecedunt introductionem formae substantialis" (*In II Sent.*, d. 5, q. 2, a. 1, c.). See, too, IaIIae, q. 52, a. 1, ad 3.

67. "In qualibet enim generatione vel mutatione est duos terminos invenire; scilicet terminum a quo et terminum ad quem . . . quandoque vero sunt duo termini ad quem, quorum unus ad alium ordinatur, sicut patet in alteratione elementorum, cuius terminus unus est dispositio quae est necessitans, alius autem ipsa forma substantialis" (*Q.D. de veritate*, q. 9, a. 3, c.). "... dispositio proprie dicitur illud quod se habet ut incompletum in motu ad perfectum, quod est terminus motus; sicut qui addiscit, habet dispositionem scientiae, qua perficitur in termino motus disciplinae. Contingit autem terminum motus esse duplicem: quia vel ejusdem generis; vel alterius. Verbi gratia, alterationis terminus est qualitas sicut ejusdem generis; sed forma substantialis sicut alterius generis. Si ergo dispositio comparatur ad id quod est terminus motus ejusdem generis, sic constat quod dispositio potest fieri illud quod disponit, sicut calor imperfectus fit calor perfectus; si autem accipiatur terminus alterius generis, hoc nunquam fit forma substantialis ignis" (*In II Sent.*, d. 24, q. 3, a. 6, ad 6); see, too, *Q.D. de virtutibus*, a. 1, ad 3; *Quaestio quodlibetalis*, VII, a., c.

68. "Nec est mirum si tota generationis transmutatio, non est continue, sed sunt multae generationes intermediae, quia hoc etiam accidit in alteratione et augmento; non enim est tota alteratio continua neque totum augmentum; sed solum motus localis est vere continuus, ut patet in octavo Physicorum" (*II Summa contra gentes*, cap. 89). See Sylvester of Ferrara on this passage, and John of St. Thomas, *Cursus philosophicus*, Philosophia Naturalis, III p., q. 3, a. 3.

69. "... quidquid movetur, jam quantum ad aliquid motum est. Et eadem ratione quicquid fit, jam quantum ad aliquid factum est, licet enim factio in substantia quantum ad introductionem formae substantialis sit indivisibilis, tamen si accipiatur alteratio praecedens cuius terminus est generatio, divisibilis est, et totum potest dici factio. Quia igitur quod fit quantum ad aliquid factum est potest aliqualem operationem habere quod fit ejus ad quod terminatur factio; sicut quod calefit potest aliquomodo calefacere, licet non perfecte, sicut id quod jam factum est calidum" (*In IX Metaphysic.*, lectio 7, nn. 1853–1854).

70. "Dispositio se habet ad perfectionem dupliciter, uno modo sicut via ducens ad perfectionem; alio modo sicut effectus a perfectione procedens: per calorem enim disponitur materia ad suscipiendam formam ignis; quae adveniente calor non cessat, sed remanet, quasi quidam effectus talis formae" (IIa, q. 9, a. 3, ad 2). "... dispositio in via generationis praecedit perfectionem, ad quam disponit in his quae successive perficiuntur; ita naturaliter perfectionem sequitur quam aliquis jam consecutus est; sicut calor, qui fuit dispositio ad formam ignis, est effectus profluens a forma ignis jam praexistens" (ibid., q. 7, a. 13, ad 2). "Et est simile in rebus naturalibus de dispositione quae est ad formam, quae quodammodo praecedit formam substantialem, scilicet secundum rationem causae materialis. Dispositio enim materialis ex parte materiae se tenet: sed alio modo, scilicet ex parte causae formalis, forma substantialis est prior, in quantum perficit et materiam, et accidentia materialia" (*Q.D. de veritate*, q. 28, a. 8, c.). "... dispositio subjecti praecedit susceptionem formae ordine naturae; sequitur tamen actionem agentis, per quam etiam ipsum subjectum disponitur" (IaIIae, q. 113, a. 8, ad 2). "Ridiculum autem est dicere quod ideo corpus non agat quia accidens non transit de

subjecto ad subjectum. Non enim hoc modo dicitur corpus calidum calefacere quod idem numero calor qui est in calefaciente corpore transeat ad corpus calefactum; sed quia virtute caloris qui est in calefaciente corpore, alius calor numero fit actu in corpore calefactor, qui prius erat in eo in potentia; agens enim naturale non est traducens propriam formam in alterum subjectum, sed reducens subjectum quod patitur de potentia in actum. Non igitur auferimus proprias actiones creatis, quamvis omnes effectus rerum creaturarum Deo attribuamus quasi in omnibus operanti" (*III Summa contra gentes*, cap. 69).

71. The importance of the role of the transmitted disposition is manifest in the Thomist doctrine of original sin. "... peccatum originale dicitur peccatum totius naturae, sicut peccatum actuale dicitur peccatum personale; unde quae est comparatio actualis ad unam personam singularem, eadem est comparatio peccati originalis ad totam naturam humanam traditam a primo parente, in quo fuit peccati initium et per cuius voluntatem in omnibus originale peccatum quasi voluntarium reputatur. Sic ergo originale peccatum est in anima traducitur a parente in filium per translationem carnis, cui postmodum anima infunditur; et ex hoc infectionem incurrit quod fit cum carne traducta una natura. Si enim non uniretur ei ad constituendam naturam sicut Angelus unitur corpori assumptio, infectionem non reciperet" (*Q.D. de potentia*, q. 3, a. 9, ad 3).

72. "... cum necessitas corruptionis sit necessitas absoluta, utpote proveniens ex ipsa materia non ex fine, sequitur quod unumquodque communicet perpetuitate secundum quod potest" (*In II de anima*, lectio 7, n. 317).

73. "... qui ponit infinitum in causa finali destruit finem et naturam boni. Pertingere enim quod infinitum est, impossibile est. Nihil autem movetur ad in quod impossibile est ipsum consequi" (*Q.D. de potentia*, q. 5, a. 5, c.).

74. "Oportet ergo finem motus coeli ponere aliquid quod coelum per motum consequi possit, quod sit aliud a motu, et eo nobilior. Hoc autem dupliciter potest poni. ... Alio modo potest poni finis motus coeli aliquid extra coelum, ad quod pervenitur per motum coeli; quo cessante illud potest remanere; et haec est nostra positio. Ponimus enim quod motus coeli est propter implendum numerum electorum. Anima namque rationalis quolibet corpore nobilior est, et ipso coelo. Unde nullum est inconveniens, si ponatur finis motus coeli multiplicatio rationalium animarum: non autem in infinitum, quia hoc per motum coeli provenire non posset; et sic moveretur ad aliquid quod consequi non potest; unde relinquitur quod determinata multitudo animarum rationalium sit finis motus coeli" (*ibid.*).

75. "... corruptio seminum et omnis defectus sunt contra naturam particularem huius rei determinatae per formam, quamvis sit secundum naturam universalem, cuius virtute reducitur materia in actum cuiuslibet formae ad quam est in potentia, et uno generato necesse est aliud corrumpi" (*Q.D. de malo*, q. 5, a. 5, c.). See above all John of St. Thomas, *Cursus philosophicus*, Philosophia Naturalis, III p., q. 2, a. 3: "Ut corruptio sit naturalis et per se intenta a natura."

76. When we speak of the divine nature, or of angelic nature, we do not take the term 'nature' in its proper sense. See John of St. Thomas, *Cursus philosophicus*, Philosophia Naturalis, III p., q. 9, a. 2: "In quibus ratio naturae invenitur."

77. "Quod autem dicitur quod in sempiternis non differt esse et posse, intelligendum est secundum potentiam passivam, non autem secundum activam. Potentia enim passive actui non conjuncta, corruptionis principium est, et ideo sempiternitati repugnat: effectus vero activae potentiae actu non existens, perfectioni causa agentis praejudicium non affert, maxime in causis voluntariis. Effectus enim non est perfectio potentiae activae sicut forma potentiae passivae" (*Q.D. de potentia*, q. 3, a. 14, ad 5). And Sylvester of Ferrara, *Com. In Summum Contra Gentes*, II, c. 91, n. IV, 3, and n. VIII; St. Thomas, *In IV Physic.*, lectio 22, nn. 2 and 5.

78. Time, taken formally, is deprived of efficacy, it is rather loss, cause of corruption rather than of generation. "... tam generatio quam corruptio fit in tempore. Et ideo quidam attribuebant generationes rerum tempori, ut disciplinam et huiusmodi, dicentes tempus esse sapientissimum, propter hoc quod generatio scientiae fit in tempore. Sed quidam philosophus, Paro nomine, de secta Pythagoricorum, posuit e converso, quod tempus est penitus indisciplinabile, quia scilicet per longitudinem temporis accidit oblivio. Et in hoc rectius dixit: quia ut prius dictum est, [lectio 20, n. 5] tempus per se magis est causa corruptionis quam generationis" (*In IV Physic.*, lectio 21, nn. 2 and 5).

79. To avoid what is called *latitatio formarum*.

80. "... anima sensibilis cum non sit res subsistens, non est quidditas, sicut nec aliae formae materiales, sed est pars quidditatis, et esse suum est in concrectione ad materiam; unde nihil aliud est animam sensibilem produci, quam materiam de potentia in actum transmutari" (*Q.D. de potentia*, q. 3, a. 11, ad 11). "... proprie loquendo, materia non habet ideam, sed compositum, cum idea sit forma factiva. Potest tamen dici esse aliquam ideam materiae secundum quod materia aliquo modo divinam essentiam imitatur" (*ibid.*, a. 1, ad 13).

81. "... anima mensuratur tempore secundum esse quo unitur corpori; quamvis prout consideratur ut substantia quaedam spiritualis, mensuretur aeo" (*ibid.*, a. 10, ad 8).

82. "... formae substantiales differunt secundum perfectius et imperfectius. Quod autem est perfectius, potest quidquid potest imperfectius, et adhuc amplius" (*In I de generatione et corruptione*, lectio 10, n. 8). "*Similitudo effectus in causa quidem univoca invenitur uniformiter; in causa autem aequivoca invenitur excellentius*" (Ia, q. 6, a. 2, c.); also q. 4, a. 2, ad 3; q. 104, a. 1; q. 115, a. 3; q. 110, a. 2.

83. "Nihil enim secundum propriam speciem agens, intendit formam altiore suam formam; intendit enim omne agens sibi simile. Corpus autem coeleste, secundum quod agit per motum suum, intendit ultimam formam, quae est intellectus humanus; qui quidem est altior omni formam ut ex praemissis [c. 22] patet. Corpus igitur coeli non agit ad generationem secundum propriam speciem, sicut agens principale, sed secundum speciem alicuius superioris agentis intellectualis, ad quod se habet corpus coeleste sicut instrumentum ad agens principale. Agit autem coelum ad generationem secundum quod movetur. Movetur igitur corpus coeleste ab aliqua intellectuali substantia" (*III Summa contra gentes*, 23).

84. "... cum generatio unius est corruptio alterius, quod ex corruptione ignobiliorum generentur nobiliora, non repugnat primae rerum institutioni" (Ia, q. 72, art. un., ad 5).

85. St. Thomas along with the ancients thought he recognized in the celestial bodies the instrument used by the spiritual substance directing the cosmos. "... corpora caelestia etiamsi non sint animata, moventur a substantia vivente separata, cujus virtute agunt, sicut instrumentum virtute principali agentis; et ex hoc causant in inferioribus vitam" (*Q.D. de potentia*, q. 6, a. 6, ad 10). "... corpus caeleste, in quantum movetur a substantia spirituali, est instrumentum ejus; et ita movetur in virtute substantiae spiritualis ad causandam vitam in istis inferioribus, sicut serra agit in virtute artis ad causandam arcam" (*Q.D. de spiritualibus creaturis*, a. 6, ad 12). "... supposito secundum fidem nostram quod caelum est corpus inanimatum, nihilominus tamen ponimus quod motus ejus sit ab aliqua substantia spirituali sicut motore: et cum motus sit actus motoris et mobilis, oportet quod in motu non tantum relinquatur virtus corporalis ex parte mobilis, sed etiam virtus quaedam spiritualis ex parte motoris: et quia motor est vivens nobilissima vita, ideo non est inconveniens, si motus caelestis, in quantum est in eo intentio et virtus motoris, per modum quo virtus agentis principalis est in instrumento, est causa vitae materialis, qualis est per animam sensibilibus et vegetabilibus" (*In II Sent.*, d. 18, q. 2, a. 3, ad 3); and also Ia, q. 70, a. 3, etc. And if St. Thomas makes exception for the higher animals of which the first ought to be directly formed by a special intervention of God, although natural (as in the case of the creation of the human substantial form), it is still for pure experimental reasons that he departed from the tradition of the Fathers. "... videmus enim sensibilibus, quod aliquis debilis effectus producitur ab agente remoto; sed fortis effectus requirit agens propinquum" (*Q.D. Malo*, q. 16, a. 9, c.). (See the important work of Ernest Messenger, *Evolution and Theology* [New York: Macmillan, 1932].) "... quanto aliquid est imperfectius tanta ad ejus constitutionem pauciora requiruntur. Unde cum animalia ex putrefactione generata, sint imperfectiora animalibus quae ex semine generantur, in animalibus ex putrefactione generatis sufficit sola virtus caelestis quae etiam in semine operatur, licet non sufficiat sine virtute animae ad producendum animalia ex semine generata: virtus enim caelestis corporis in inferioribus corporibus relinquitur in quantum ab eis transmutatur, sicut a primo alterante. Et propter hoc dicit Philosophus in libro De animalibus quod omnia corpora inferiora sunt plena virtutibus animae. Caelum autem licet non sit simile in specie cum hujusmodi animalibus ex putrefactione generatis, est tamen similitudo quantum ad hoc quod effectus in causa activa virtualiter praexistit. ... Corpus caeleste etsi non sit vivum, agit tamen in virtute substantiae viventis a qua movetur, sive sit Angelus, sive sit Deus ... virtus substantiae spiritualis moventis relinquitur in corpore caeleste et motu ejus, non sicut forma habens esse completum in natura, sed per modum intentionis, sicut virtus artis est instrumento artificis" (*Q.D. de potentia*, q. 3, a. 12, ad 12-14). If we are today incapable of identifying that instrument, we are no less obliged to affirm its existence.

86. *Casus* and *fortuna* are often confused in debates on indeterminism. "Ostendit (Philosophus) in quibus maxime casus differt a fortuna. Et dicit quod maxime differt in illis quae fiunt a natura; quia ibi habet locum casus, sed non fortuna. Cum enim aliquid fit extra naturam in operationibus naturae, puta cum nascitur sextus digitus, tunc non dicimus quod fiat a fortuna, sed magis ab eo quod est per se frustra,

id est a casu. Et sic possumus accipere aliam differentiam inter casum et fortunam, quod eorum quae sunt a casu, causa est intrinseca, sicut eorum quae sunt a natura; eorum vero quae sunt a fortuna, causa est extrinseca, sicut eorum quae sunt a proposito" (*In II Physicorum*, lectio 10, n. 10). "Omne quod est a fortuna est a casu, sed non convertitur" (*ibid.*, n. 2). "Casus non solum est in hominibus, qui voluntarie agunt, sed etiam in aliis animalibus, et etiam in rebus inanimatis" (n. 7). "... id quod est in pluribus est causa entis per accidens" (*In VI Metaphysic.*, lectio 2, n. 1187). And these deviations must necessarily happen. "Si enim non fieret aliquando id quod est in paucioribus, tunc id quod est in pluribus numquam deficeret, sed est semper et ex necessitate, et ita omnia essent sempiterna et necessaria, quod est falsum" (*ibid.*, n. 1186).

87. Unforeseeability is essential to chance, as it is to every contingent as such. It is clear that one can predict a chance phenomenon if one starts from knowledge of the direction that causal lines have already taken before their intersection, which constitutes the phenomenon of chance. But that is not knowledge of the *cause* of chance, which is as such perfectly undetermined. Hence the impossibility even for a pure created spirit to know future contingents.

88. "... unio animae et corporis non est propter corpus, sed propter animam; non enim forma est propter materiam, sed e converso. Natura autem et virtus animae deprehenditur ex ejus operatione, quae etiam quodam modo est finis ejus. Invenitur autem corpus nostrum necessarium ad aliquam operationem animae, quae mediante corpore exercetur, sicut patet in operibus animae sensitivae et nutritivae. Unde necesse est tales animas unitas esse corporibus propter suas operationes. Est autem aliqua operatio animae quae non exercetur corpore mediante, sed tamen ex corpore aliquod adminiculum tali operationi exhibetur; sicut per corpus exhibentur animae humanae phantasmata; quibus indiget ad intelligendum. Unde etiam talem animam necesse est corpori uniri propter suam operationem, licet contingat ipsam separari" (Ia, q. 70, a. 3, c). See, too, q. 89, a. 1, c.; q. 55, a. 2, c.

89. "... corpus non unit eam et continet, immo magis anima continet corpus. Videmus enim quod egrediente anima a corpore, corpus deficit et marcescit. Si autem aliquid aliud continet eam, tunc illud erit maxime anima, quia animae est continere et regere" (*In I de anima*, lectio 14, n. 206). "... magis anima continet corpus, et facit ipsum esse unum, quam e converso" (Ia, q. 75, a. 3, c.).

90. "Ostendit (Philosophus) quod anima est causa, ut finis. Et quod sit causa, ut finis, viventium corporum, sic ostendit. Sicut enim intellectus operatur propter finem, ita et natura, ut probatur in secundo Physicorum (lectiones 13 et 14). Sed intellectus in his quae fiunt per artem, materiam ordinat et disponit propter formam; ergo et natura. Cum igitur anima sit forma viventis corporis, sequitur quod sit finis ejus. Et ulterius non solum anima est finis viventium corporum, sed etiam omnium naturalium corporum in istis inferioribus: quod sic probat. Videmus enim quod omnia naturalia corpora sunt quasi instrumenta animae, non solum in animalibus, sed etiam in plantis. Videmus enim quod homines utantur ad sui utilitatem animalibus; plantae autem rebus inanimatis, in quantum scilicet alimentum et juvamentum ab eis accipiunt. Secundum autem, quod agitur unumquodque in rerum natura, ita natum est agi.

Unde videtur quod omnia corpora inanimata, sint instrumenta animatorum, et sint propter ipsa. Et etiam animata minus perfecta, sint propter anima magis perfecta" (*In II de anima*, lectio 7, nn. 321–23).

91. "... ex quo materia intelligitur constituta in esse quodam substantiali, intelligi potest ut susceptiva accidentium quibus disponitur ad ulteriorem perfectionem, secundum quam materia fit propria ad ulteriorem perfectionem suscipiendam. Huiusmodi autem dispositiones praeintelliguntur formae ut inductae ab agente in materiam, licet sint quaedam accidentia impropria formae, quae non nisi ex ipsa forma causentur in materia, unde non praeintelliguntur in materia formae quasi dispositiones, sed magis forma praeintelligitur eis, sicut causa effectibus. Sic igitur cum anima sit forma substantialis, quia constituit hominem in determinata specie substantiae, non est aliqua forma substantialis media inter animam et materiam primam; sed homo ab ipsa anima rationali perficitur secundum diversos gradus perfectionum, ut sit scilicet corpus et animatum corpus, et animal rationale. Sed oportet quod materia secundum quod intelligitur ut recipiens ab ipsa anima rationali perfectiones inferioris gradus, puta quod sit corpus, et animatum corpus, et animal, intelligatur simul cum dispositionibus convenientibus, quod sit materia propria ad animam rationalem, secundum quod est forma dans esse, non habet aliquid aliud medium inter se et materiam primam" (*Q.D. de anima*, a. 9, c.).

92. "... quod aliqua forma non subito imprimatur subjecto, contingit ex hoc quod subjectum non esset dispositum, et agens indiget tempore ad hoc quod subjectum 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 proportio ejus quod in materia resistit, ad virtutem agentis" (IaIIae, q. 103, a. 7, c.). See as well John of St. Thomas, *Cursus philosophicus*, Philosophia Naturalis, III P, q. 1, a. 7: *Quomodo ultima dispositio causetur, vel causet generationem substantialem*. Evidently, there is no question here of conditional necessity (*ex suppositione*). See *I Summa contra gentes*, c. 83 et seq. One might object that in adultery man necessitates the creation of a soul, and that God thus responds to a perverse will. To this, St. Thomas replies that the evil is not in nature, but in the will of those who commit it. "Deum vero adulteris cooperari in actione naturae, nihil est inconueniens; actio autem quae est ex virtute seminis ipsorum est naturalis, non voluntaria; unde non est inconueniens si Deus illi cooperatur, ultimam perfectionem inducendo" (*II Summa contra gentes*, c. 89).

93. *II Summa contra gentes*: "Nec est inconueniens si aliquid intermediarium generatur, et statim postmodum interrumpitur, quia intermedia non habent speciem completam, sed sunt ut via ad speciem; et ideo non generantur ut permaneant, sed ut per ea ad ultimum generatum perveniatur. Nec est mirum si tota generationis transmutatio non est continua, sed sunt multae generationes intermediae, quia hoc etiam accidit in alteratione et augmento; non enim est tota alteratio continua neque totum augmentum, sed solum motus localis est vere continuus, ut patet in octavo Physicorum (cc. 7, 8 et 9). Quanto igitur aliqua forma est nobilior et magis distans a forma elementi, tanto oportet esse plures formas intermedias quibus gradatim ad forma ulti-

mam veniatur, et per consequens plures generationes medias; et ideo in generatione animalis et hominis, in quibus est forma perfectissima, sunt plurimae formae et generationes intermediae, et per consequens corruptiones, quia generatio unius est corruptio alterius. Anima igitur vegetabilis, quae primo inest quum embryo vivit vita plantae, corrumpitur, et succedit anima perfectio quae est nutritiva et sensitiva simul, et tunc embryo vivit vita animalis; hac autem corrupta, succedit animal rationalis ab extrinseco immissa, licet praecedentes fuerit virtute seminis."

94. See *III Summa contra gentes*, c. 69.

95. "Anima autem rationalis cum sit pars humanae naturae, non habet naturalem perfectionem nisi secundum quod est corpori unita. Unde naturaliter habet esse in corpore, et esse extra corpus est ei praeter naturam; ideo non fuisset conveniens anima sine corpore creari. Sustinendo ergo opinionem Augustini de operibus sex dierum, dici potest, quod *sicut in illis sex diebus corpus primi hominis non fuit formatum et productum in actu, sed in potentia tantum secundum rationes causales*; ita et anima ejus non fuit producta tunc in actu et in se ipsa, sed in suo simile secundum genus; et sic praecessit in illis sex diebus non in actu et in se ipsis, sed secundum quamdam similitudinem generis, prout convenit cum Angelis in intellectuali natura. Potest autem opere quo Deus creaturam primo conditam administrat, fuit simul anima in actu cum corpore formato producta" (*Q.D. de potentia*, q. 4, a. 2, ad 20). "Ante ergo quam actu orientur (opera sex dierum) super terram facta sunt causaliter in terra. Confirmatur etiam hac ratione; quia in illis primis diebus condidit Deus creaturam causaliter vel originaliter vel actualiter opere a quo postmodum requievit, qui tamen postmodum secundum administrationem rerum conditarum per opus propagationis usque modo operatur. Producere autem plantas in actu ex terra, ad opus propagationis pertinet: quia ad earum productionem sufficit virtus caelestis tamquam pater, et virtus terrae loco matris; ideo non fuerunt plantae tertia die producta in actu, sed causaliter tantum; post sex vero dies fuerunt in actu secundum proprias species et in propria natura per opus administrationis productae; et ita antequam causaliter plantae essent productae, nihil fuit productum sed simul cum caelo et terra productae sunt; similiter pisces, aves et animalis in illis sex diebus causaliter, et non actualiter producta sunt" (*ibid.*, ad 28).

96. It is understood that there could not be in matter considered as in itself pure potency seminal reasons in the Augustinian sense. The three determining causes (final, exemplary and efficient) must be attached before we can speak of "reasons." To speak absolutely, these reasons are rather in the intelligence of the spiritual agent who conceives more or less determinate prefigurations of the intermediary forms which, in this intelligence, rise up from a synthesis of the initial composite given at the origin with the ultimate end of the cosmos which they are going to link. These prefigurations are cosmic ideas: "etiam formae corporales a substantiis spiritualibus deriventur, non tamquam influentibus formas, sed tamquam moventibus ad formas. Ulterius autem reducuntur in Deum, sicut in primam causam etiam species angelici intellectus, quae sunt quaedam seminales rationes corporalium formarum" (Ia, q. 65, a. 4). It can be seen that the Thomist does not reverse from top to bottom the central idea of Platonism. "Ad secundum dicendum quod formae participatae in materia reducuntur non ad

formas per se subsistentes rationis ejusdem, ut Platonici posuerunt, sed ad formas intelligibiles vel intellectus angelici, a quibus per motum procedunt; vel ulterius ad rationes intellectus divini, a quibus etiam formarum semina sunt rebus creatis indita, ut per motum in actum reduci possint." See, too, *III Summa contra gentes*, c. 24.

97. "Etsi enim detur quod corpus hominis formetur priusquam anima creetur [sic], aut e converso, non sequitur quod idem homo sit prior seipso; non enim homo est suum corpus neque sua anima. Sequitur autem quod aliqua pars ejus sit altera prior, quod non est inconveniens; nam materia tempore est prior forma; materiam dico, secundum quod est in potentia ad formam, non secundum quod actu est per forma perfecta; sic enim est simul cum forma. Corpus igitur humanum, secundum quod est in potentia ad animam, utpote quod nondum habet animam, est prius tempore quam anima, tunc autem non est humanum actu, sed potentia tantum; quum vero est humanum actu, quasi per animam humanam perfectum, non est prius neque posterius anima, sed simul cum ea.

"Neque etiam sequitur, si anima ex virtute seminis non producit sed solum corpus, quod sit imperfecta operatio tam Dei quam naturae, ut septima ratio procedebat. Virtute enim Dei utrumque fit, et corpus et anima, licet formatio corporis sit ab eo mediante virtute seminis naturalis, animam autem immediate producat. Neque enim sequitur quod actio virtutis seminis sit imperfecta, quum perficiat hoc ad quod est.

"Neque etiam, si formatio corporis animam humanam praecedit, sequitur quod anima sit propter corpus, ut duodecima ratio inferebat. Est enim aliquid propter alterum dupliciter: Uno modo propter ejus operationem sive conservationem vel quidquid hujusmodi est quod sequitur ad esse, et hujusmodi sunt posteriora eo propter quod sint, sicut vestimenta sunt propter hominem, et instrumenta propter artificem; alio modo est aliquid propter alterum, id est propter esse ejus, et sic quod est propter alterum est prius tempore et natura posterius. Hoc autem modo corpus est propter animam, sicut etiam omnis materia propter formam. Secus autem esset, si ex anima et corpore non fieret unum secundum esse, sicut dicunt qui ponunt animam non esse corporis formam" (*II Summa contra gentes*, c. 89).

98. "... si similitudo ad Deum in causando est finis motus caeli, praecipue attenditur haec similitudo secundum causalitatem ejus quod a Deo immediate causatur, scilicet animae rationis, ad cujus causalitatem concurrat caelum per motum suum materiam disponendo. Et ideo probabilius est quod finis motus caeli sit numerus electorum quam assimilatio ad Deum in causalitate generationis et corruptionis, secundum quod philosophi ponunt. Et ideo concedimus quod motus caeli complete numero electorum finietur" (*Q.D. de potentia*, q. 5, a. 5, c. "... licet generabilia et corruptibilia sint viliora caelo, tamen animae rationales sunt corpore coeli nobiliores, quae tamen a Deo producantur ad esse in materia disposita per motum caeli" (ibid., ad 5).

99. "... totus homo egreditur de femore generantis, propter hoc quod virtute seminis de femore egredientis operatur ad unionem corporis et animae, disponendo materiam ultima dispositione, quae est necessitans ad formam, ex qua unione homo habet quod sit homo; non autem ita quod qualibet pars hominis per virtutem seminis causetur" (*Q.D. de potentia*, q. 3, a. 9, ad 2). "... pro tanto in homine non est duplex

esse, quia non est sic intelligendum corpus esse a generante et animam a creante; sed quia creans dat esse animae in corpore et generans disponit corpus ad hoc quod hujus esse sit particeps per animam sibi unitam (ad 20). "... duo agentia omnino disparata non possunt hoc modo se habere quod actio unius terminetur ad materiam, et alterius ad formam; hoc tamen contingit in duobus agentibus ordinatis, quorum unum est instrumentum alterius. Actio enim principalis agentis se extendit quandoque ad aliquid ad quod non potest se extendere actio instrumenti. Natura autem est sicut instrumentum quoddam divinae virtutis. ... Unde non est inconveniens, si virtus divina sola faciat animam rationalem, actione naturae se extendente solam ad disponendum corpus" (ad 21). See, too, Ia, q. 118, a. 2, ad 3; *III Summa contra gentes*, c. 89.

100. "... licet anima rationalis non sit a generante, unio tamen corporis ad eam, est quodammodo a generante, ut dictum est. Et ideo homo dicitur generari" (*Q.D. de potentia*, q. 3, a. 9).

101. Doubtless there are authors who do not want to admit the absolute impossibility of a cosmos that is not essentially ordered to man, nor that subhuman beings, are absolutely unintelligible, that is, contradictory, outside of their relation to humanity, although such a creation appears to be repugnant to Divine Wisdom. But this understood, the distinction between divine Omnipotence and Wisdom is vain. "Quidam theologi," writes Billuart, "praescindentes omnipotentiam divinam a caeteris attributis, dicunt statum naturae purae, attenta divina omnipotentia sic praecisa, esse possibilem; attenta autem divina omnipotentia ut conjuncta divinae sapientiae, bonitati et iustitiae, non esse possibilem. Verum haec metaphysica praecisio videtur futilis et absurda; quod enim est contra Dei sapientiam, bonitatem, justitiam aut quod vis aliud ejus attributum, debet censi simpliciter et absolute impossibile; Deus enim, ut ait Apostolus 2 Tim. 2: *Seipsum negare non potest*, neque facere quod repugnat divinis suis perfectionibus: 'Nihil potest esse in divina potentia,' inquit Auctor, 'quod non possit esse in voluntate justa ipsius et in intellectu sapientiae ejus'" (F.C. Billuart, *Summa Sancti Thomae* [Paris: Letouzey], t. 3, dissert. 2, a. 2.).

102. *Q.D. de veritate*, q. 2, a. 2, c.

103. *III Summa contra gentes*, c. 112.

104. I take the word 'terrible' in its Aristotelian and Thomistic sense. Thus, the object of the virtue of courage is the *terribile*, and of the *terribilia* death is the most frightening. "The most terrible of bodily evils is death, which takes away all goods. This caused Saint Augustine to say that the claim of the body not to be beaten or tormented inspires the fear of pain and grief; and in order that it be neither shaken nor broken, it makes the soul tremble with the terror of death. The virtue of courage thus has for object the fear of mortal dangers" (IIaIIae, q. 123, a. 4, c).

105. Lest these be thought the mere reveries of a philosopher, I allow myself this long citation drawn from a book by the wife of the Aviator, Mrs. Anne Morrow Lindbergh, *North to the Orient* (New York: Harcourt Brace, 1935): "One could sit still and look at life from the air; that was it. And I was conscious again of the fundamental magic of flying, a miracle that has nothing to do with any of its practical purposes and will not change as they change. It is a magic that has more kinship with what one

experiences standing in front of serene Madonnas or listening to cool chorales, or even reading one of those clear passages in a book—so clear and so illuminating that one feels the writer has given the reader a glass-bottomed bucket with which to look through the ruffled surface of life far down to that still permanent world below.

"For not only is life put in new patterns from the air, but it is somehow arrested, frozen into form. There is no flaw, no crack in the surface. Looking down from the air that morning, I felt that stillness rested like a light over the earth. The waterfalls seemed frozen solid; the tops of the trees were still; the river hardly stirred, a serpent gently moving under its shimmering skin. Everything was quiet: fields and trees and houses. What motion there was, took on a slow grace: the crawling cars, the rippling skin of the river, and birds drifting like petals down the air; like slow-motion pictures which catch the moment of outstretched beauty—a horse at the top of a jump—that one cannot see in life itself, so swiftly does it move.

"And if flying, like a glass-bottomed bucket, can give that vision, that seeing eye, which peers down to the still world below the choppy waves—it will always remain magic."

106. *IV Summa contra gentes*, c. 11.

107. *Ibid.*

108. *Ibid.*

109. *IaIIae*, q. 25, a. 2; q. 26, a. 2.

110. *IaIIae*, q. 26, a. 1; *Ia*, q. 59, a. 1; *Q.D. de veritate*, q. 22, a. 1, etc.

111. *Ia*, q. 59, a. 2; q. 27, a. 4.

112. The intelligence as such is a certain concrete nature, it is a natural appetite of its proper object, the intelligible. Being, considered as the term of this appetite, has beauty as a transcendental property. That is to say that every being, as an object of intelligence, is beautiful. Consequently, although mathematical being, being only a being of reason, does not at all participate in goodness, and cannot be an object of will, nevertheless it participates in beauty. And thus, like every object of intelligence, mathematical being can be indirectly an object of will insofar as will desires the concrete good of intelligence. In effect, one can distinguish a twofold good of intelligence: the good of the object considered as term of the desire to know for the sake of knowing, which is beauty—*pulchrum proprie pertinet ad rationem causae formalis*—but it is also the good of the concrete act which entails knowledge in intelligence taken as nature, and this act is an object of will and causes in it this characteristic joy which is as a complement to contemplation. Without being essential to the beauty which is formally in contemplation, delight is a *quasi per se accedens*. The enjoyment proper to beatitude which consists in contemplation is consequently an enjoyment of the object of intelligence as object of intelligence; this enjoyment, which one can call aesthetic, is the most noble of all pleasures.

113. *Q.D. de veritate*, q. 22, a. 2, and also *In II Sent.*, d. 1, q. 2, a. 3.

114. "Bonum dicitur diffusivum sui, eo modo quo finis dicitur movere" (*Ia*, q. 5, a. 4, ad 2). See as well *III Summa contra gentes*, c. 24 and, above all, *Q.D. de veritate*, q. 21, a. 1, ad 4.

115. *III Summa contra gentes*, c. 23.

116. "... materia dicitur appetere formam, in quantum est in ea forma in potentia. Et ideo, quanto ista potentia magis est perfecta et propinquior est actui, tanto causat vehementiorem inclinationem" (*Q.D. de veritate*, q. 22, a. 1, ad 3).

117. *Ia*, q. 59, a. 1, c.

118. *Ia*, q. 76, a. 5, ad 4. See, too, q. 91, a. 3, ad 2. "The soul, Aristotle says, is analogous to the hand; just as the hand is indeed the instrument of instruments, so intellect is the form of forms" (*In III de anima*, lectio 13).

119. *Q.D. de spiritualibus creaturis*, a. 8, c.

120. Our cosmos and the angels (each angel being unto itself a universe more perfect than the cosmos) constitute together the total creation, the created universe in the full sense. When we speak of the superiority of the angels we put ourselves on a uniquely natural plane. In the supernatural order it is otherwise.

121. *Ia*, q. 50, a. 3. See as well q. 11, articles 1 and 2. This position, while very certain is also very paradoxical, but we cannot dream of justifying it here. Let us note only that in the measure that one ascends to the higher regions of creation, the demands of unity are greater: the pure spirits are not only more and more different, this increasing perfection requires at the same time a greater multitude. Let us add in passing that if it were otherwise, there would be the possibility of a creature so one and unique that God could not have created a more perfect, which is manifestly absurd.

122. *Ia*, q. 47, a. 1.

123. *Ia*, q. 47, a. 3, ad 2. *Q.D. de potentia*, q. 5, a. 5: "Qui ponit infinitum in causa finali destruit finem et naturam boni. Pertingere enim quod infinitum est, impossibile est."

124. *II Summa contra gentes*, c. 84.

125. *Ia*, q. 47, a. 2, c.

126. *Ia*, q. 11, a. 2, ad 2.

127. *Q.D. de spiritualibus creaturis*, a. 8, c.

128. *In II Sent.*, d. 17, q. 2, a. 2, ad 6.

129. See *Q.D. de potentia*, q. 5, a. 9; *IV Summa contra gentes*, c. 97.

130. *Q.D. de potentia*, q. 5, a. 9.

131. *IV Summa contra gentes*, c. 97.

132. *Q.D. de potentia*, q. 5, a. 9, ad 11: "in ipso homine continuatio quaedam naturarum apparebit; in quantum in eo congregatur et natura corporis mixti et natura vegetabilium et animalium."

133. *Q.D. de spiritualibus creaturis*, a. 2, c: "Perfectissima autem formarum, id est anima humana, qui est finis omnium formarum naturalium, habet operationem omnino excedentem materiam, quae non fit per organum corporale, scilicet intelligere."

134. *Ia*, q. 3, a. 8: "qui stultissime posuit Deum esse materiam primam."

135. *Ia*, q. 1, a. 1, c.

136. *Ia*, q. 45, a. 6; *In II Sent.*, Prolog.

137. To understand the word 'word' (verbum), we must note that the vocal sound is the external sign of that which we speak inwardly in the soul. That is why we

call what we speak with the soul and express outwardly by speech a word. The mental word is the very cause of the word uttered vocally.

- 138. Ia, q. 45, a. 6, ad 2 et ad 4.
- 139. Ibid., a. 7, c.
- 140. *Q.D. de potentia*, q. 9, a. 9, c.
- 141. Ia, q. 60, a. 3 et a. 5; *Q.D. de veritate*, q. 22, a. 2, ad 1.
- 142. *Q.D. de veritate*, q. 10, a. 7, c.
- 143. Ia, q. 45, a. 7, c.
- 144. Ia, q. 93, a. 6, c.
- 145. Ia, q. 93, a. 4, c.; *Q.D. de potentia*, q. 9, a. 9, c.
- 146. Ia, q. 93, a. 3.
- 147. Cited by St. Thomas, Ia, q. 93, a. 2.
- 148. Ia, q. 27. See, too, John of St. Thomas, *Cursus theologicus*, ed. Vivès, t. 4, q. 27, disp. 12, a. 6.

THE PROBLEM OF INDETERMINISM



1935