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Causality, chance, Providence and design : Aquinas and Barbour on the independence between science and religion

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CAUSALITY, CHANCE, PROVIDENCE AND DESIGN: AQUINAS AND BARBOUR ON THE INDEPENDENCE BETWEEN SCIENCE AND RELIGION

1. INTRODUCTION

Ian Barbour places the distinction between primary and secondary causality among the ideas of some defenders of the independence thesis¹. According to Barbour primary and secondary causality are two completely separate and independent orders of causality, being then established the absolute autonomy of one with respect to the other. Presumably, the defenders of such a distinction would be the Thomists, for instance Étienne Gilson and Austin Farrer, and also other thinkers, like Karl Barth (obviously not as a Thomist). It is not the purpose of this paper to analyse whether these thinkers truly establish an *absolute* distinction between these orders of causality, nevertheless I defend that the distinction, at least conceived as an absolute one, is not an idea one could ascribe to Thomas Aquinas. Secondary causality is not an order *completely* or *absolutely* independent of primary causality; on the contrary, the latter is

¹ Cf. Ian G. Barbour, *Religion in an Age of Science*, Gifford Lectures, vol. I, Harper, San Francisco, San Francisco 1990, cap. I. That first chapter, entitled “Ways of Relating Science and Religion”, can be seen on the Internet: <http://www.giffordlectures.org/Browse.asp?PubID=TPRIAS&Volume=0&Issue=0&ArticleID=4> (20/06/2014).

what guarantees the existence of the former. God, the first cause, is the cause that creates the existence and the operations of the second causes as they are and operate. How is it possible? Because God is the transcendent cause of the immanent causality. Only misinterpreting these Thomist ideas one could speak about two different orders *completely* independent, and only with a misunderstanding one could conclude they are *incompatible* orders of causality. There is no conflict or incompatibility between primary and secondary causality to such an extent that if the divine causality does not exist, the natural causality could not exist. The existence and operation of the primary causality is then absolutely necessary for the existence and operation of the secondary causes.

We will see how Aquinas understands primary and secondary causality to show, first, that Barbour is wrong in his interpretation of the Thomistic thought, and second that far from ascribe the distinction to the defenders of the absolute independence between science and religion, we have to place it among the defenders of the idea that there is a common field and that can be an *integration* between science and religion. The primary/secondary causality distinction allows us to understand the Thomist notion of providence. If we can understand how God acts in the world and what his providence means without denying natural causality, we will be pointing to the way that leads to the overcoming of one of the biggest obstacles in the discussions about science and religion. More precisely, through a right understanding of the primary/secondary causality distinction, we can offer a model, surely imperfect, to explain how it is possible that the evolution of creatures follows a completely natural set of laws and, at the same time, how evolution can be guided or oriented by a God who wants the emergence of certain kind of creatures, a God that in some sense leads the universe to an specific end.

2. PRIMARY AND SECONDARY CAUSES

The problem of the seeming incompatibility of divine omnipotence and his providence with the existence of a world conceived as auton-

omous is not new. In the Middle Ages the theologians called *kalam* defended divine omnipotence in order to deny the authentic existence of natural causes. They affirmed, for instance, that when the fire burns a piece of paper, fire does not really burn the piece of paper but God is the one who does it. Namely the unique and truly existing cause of things happening in the world is God, not the seeming natural causes. We can find similar ideas in the Persian theologian Al-Ghazali (1058-1111). Moses Maimonides, in his critique of *kalam* theologians, explains that way of thought with other example: when a man moves a pencil it is neither the man who moves the pencil, nor his hand, but the movement of the pencil is created by God in the pencil, just as the movement is created in the hand. There is no real causality from the hand to the pencil: God creates accidentally the movement in the hand and the movement in the pencil, and made both concomitant².

Another critique, but opposite to this one, is found in Averroes. According to the *andalusí* doctor and philosopher we have to accept the real existence of natural causality but at the same time we have to deny the omnipotence of God. If the natural causes have to be respected in order to explain regularity and predictability in our observations, we must deny omnipotence as it is required in the concept of *reation ex nihilo*. Then Averroes denies the omnipotence of God in order to defend the intelligibility of nature.

That debate between *kalam* theologians and Averroes, as William E. Carroll has pointed out, can be seen as an antecedent of the present evolutionary biologists' discussion about the action of God in the world³. In view of that question Thomas Aquinas assume a middle position. He knew we could not deny neither natural causality nor the divine one. How to combine both without an elimination of one in favour of the other?

Contrary to Averroes Thomas Aquinas understands that the creation out of nothing, which means the radical dependence of all creatures on

² Cf. Moses Maimonides, *The Guide of the Perplexed*, 2 vols., translated and with an introduction and notes by Shlomo Pines, The University of Chicago Press, Chicago 1963, I, 73.

³ Cf. William E. Carroll, "Creation, evolution and Thomas Aquinas", *Revue des Questions Scientifiques*, 171, 4 (2000) 319-347.

God, is perfectly compatible with the natural causes. The omnipotence of God does not entail any challenge for the creatural causality. It does not mean that God allows the actions of creatures at expense of his own omnipotence (as it seems, together with Averroes, in process theology: God is no longer omnipotent for the sake of the creatural action). It does not mean, either, to convert the natural causes in a kind of fiction in order to preserve God's omnipotence (as in the thought of *kalam* theologians).

In order to understand Aquinas' solution we have to distinguish between the being or existence of creatures and their operations⁴. God created the creatures in such a way that they are the causes of their own operations. God is working behind each of the natural operations, but neither to the detriment of the natural autonomy nor at the expense of his own omnipotence. God made all things to act in the way they act, and he intended natural causes to be real causes of things that happens. This does not reduce his power but, contrarily, shows his goodness in a more convenient way⁵.

Divine and natural causality work at different levels, truly, but these levels are not completely separated, they are not absolute independent from one another, because divine causality is the cause of creatural causality. God, existence and cause, wanted to communicate his likeness to things, not only to exist, but to be also causes of other things. Due to their existence, creatures are similar to God, but by being causes of other things they are also similar to God too. The fact that the same effect can be attributed to both natural and divine causes, does not mean, nevertheless, that a part of the effect must be attributed to God and the rest to the natural cause. God is the cause of the complete effect, as the natural cause is cause of the complete effect too, both immediately but in different ways. In every created being, there is an internal nexus between the real autonomy and the transcendent dependency. This is the conception of causation lying behind the sentence of Psalm 127 (126): *unless the Lord builds the house, the builders labour in vain. Unless the Lord watches over the city, the guards stand watch in vain.*

⁴ Cf. SCG III, 70. SCG means *Summa Contra Gentiles*; and ST is *Summa Theologiae*. Unless other remark, we use the English translations compiled by Joseph Kenny: <http://dhspriority.org/thomas/> (20/06/2014).

⁵ Cf. ST I, 22, 3.

There is no conflict between divine and natural causality because the divine cause is transcendent to the natural world. However, transcendent does not mean an *absolutely* independent or autonomous level. God's transcendence means also his presence in all created things. God transcends the world but he is cause of all things and cause of all the ways in which these things operate⁶. It is necessary to remark that we are using the concept of *cause* in an analogical sense. God and creatures are both complete and immediate causes of things, but in different senses. Creatures are causes of things in a different way, an analogous one, with respect the way God is cause of things. In analogy, naturally, there is dissimilarity, because it is not the same to cause something (as in the causality of creatures) than to create something (as in God's causality): God as cause transfers being to creatures and transmits power to their operations. The univocal interpretation of *cause* leads to a misunderstanding, and can conclude in the opinion according to which divine and natural causality are incompatible with each other (as one can see in Averroes or in the occasionalism defended by *kalam* theologians).

3. CHANCE

Some authors, among others Jaques Monod, Steven Weinberg and Richard Dawkins, believe that the existence of contingent causes or chance exclude completely the idea of the divine govern of the world. Niels Henrich Gregersen thinks that chance does not exclude divine govern, but he thinks this is severe limited: God could govern just things out of contingent causes. Paul Davies believes that God provides natural laws but the details of what happens are something uncontrollable, something dependent on chance. Kenneth Miller says there is no way to understand how chance could fall under the providence; therefore he concludes that God must wait, so to speak, to see what comes out from chance and then

⁶ Cf. SCG III, 67.

to act (something similar is what Thomas Tracy thinks)⁷. It seems as if chance was one of the greatest weapons against the idea of a creator and provident God. If chance is a key piece of the evolutionary process, as is defended by Monod, Dawkins o Gould, then mankind is not the result of a plan but the product of a huge constellation of random events. It is impossible to say, in that case, that God wanted to create the human being. If chance is, along with necessity, one of the basic ingredients of reality, so to speak, how we are going to understand a provident God governing the world? I will try to show how in Aquinas' thought, chance is not an obstacle for a right understanding of either creation or divine providence.

God, as we saw before, is the transcendent cause of the natural causes. We can distinguish, following Aquinas, different kinds of natural causes: necessary and contingent causes. Among natural causes, we can speak of chance and free will. Creaturely actions are either necessary or contingent; among contingent acts, some are free, and some are by chance. God is the cause of all these kinds of causalities. That is to say, a cause operates necessarily because its mode of action was established by God. Causes acting randomly or by chance operate in that way because it was thus established by God. Free agents are free because God caused them to be so. All things and their operations are subject to divine providence. God is the cause of the free agent's freedom and the cause of the random agent's randomness: there is no contradiction between God's will, power and govern and the existence of these kinds of causes. Thomas Aquinas wrote:

The effect of divine providence is not only that things should happen somehow; but that they should happen either by necessity or by contingency. Therefore whatsoever divine providence ordains to happen infallibly and of necessity happens infallibly and of necessity; and that happens from

⁷ An excellent study about the question of divine and natural causality comparing Aquinas' thought with contemporary discussions can be found in Michael J. DODDS, *Unlocking Divine Action. Contemporary Science and Thomas Aquinas*, The Catholic University of America Press, Washington 2012.

contingency, which the plan of divine providence conceives to happen from contingency⁸.

The International Theological Commission quoted Thomas Aquinas when stated in *Communion and Stewardship: Human Persons Created in the Image of God* (2004):

The current scientific debate about the mechanisms at work in evolution requires theological comment insofar as it sometimes implies a misunderstanding of the nature of divine causality. Many neo-Darwinian scientists, as well as some of their critics, have concluded that, if evolution is a radically contingent materialistic process driven by natural selection and random genetic variation, then there can be no place in it for divine providential causality. A growing body of scientific critics of neo-Darwinism point to evidence of design (e.g., biological structures that exhibit specified complexity) that, in their view, cannot be explained in terms of a purely contingent process and that neo-Darwinians have ignored or misinterpreted. The nub of this currently lively disagreement involves scientific observation and generalization concerning whether the available data support inferences of design or chance, and cannot be settled by theology. But it is important to note that, according to the Catholic understanding of divine causality, true contingency in the created order is not incompatible with a purposeful divine providence. Divine causality and created causality radically differ in kind and not only in degree. Thus, even the outcome of a truly contingent natural process can nonetheless fall within God's providential plan for creation. [...] In the Catholic perspective, neo-Darwinians who adduce random genetic variation and natural selection as evidence that the process of evolution is absolutely unguided are straying beyond what can be demonstrated by science. Divine causality can be active in a process that is both contingent and guided. Any evolutionary mechanism that is contingent can only be contingent because God made it so. An unguided evolutionary process—one that falls outside the bounds of divine providence— simply cannot exist because “the causality of God, Who is the first agent, extends to all being, not only as to constituent principles of species, but also as to the

⁸ ST I, 22, 4, ad 1. See also SCG III, 72, 73, 74 y 75.

individualizing principles.... It necessarily follows that all things, inasmuch as they participate in existence, must likewise be subject to divine providence" (*Summa theologiae* I, 22, 2)⁹.

The neo-Darwinians mentioned in the text of the International Theological Commission tend to think that the idea of chance or randomness is incompatible with the idea of design, and therefore incompatible with the Christian concept of creation and providence. One way to show how chance and design are compatible is to cite a simple example. A computer programmer can and sometimes develops programs in which certain dose of randomness is introduced. There are, indeed, evolution simulators, which include a random element in order to imitate the randomness attributed to genetic mutations. If a programmer can do that, why an omnipotent God could not do it?¹⁰

4. PROVIDENCE, GOVERN OF THE WORLD AND DESIGN

Chance is not incompatible with providence. However, what exactly is providence? We have to deepen in the Thomist notion of providence, because on the one hand we are speaking about the place, so to speak, where divine causality and creatural causality meet, and on the other hand, it is a notion closely related to what Thomas Aquinas understands by design.

The doctrine of creation teaches that God is the cause of all things' being: all things are absolute and completely originated in and by God, all things depend for its existence and its operations on the Creator. At Aquinas' time the so called heterodox Aristotelians, defended world's

⁹ International Theological Commission, *Communion and Stewardship: Human Persons Created in the Image of God*, 2004, on line: http://www.vatican.va/roman_curia/congregations/cfaith/cti_documents/rc_con_cfaith_doc_20040723_communion-stewardship_en.html (14/06/2014).

¹⁰ A simple example of this kind of simulator can be seen in the following web page: <http://www.biologyinmotion.com/evol/index.html>. (14/06/2014).

eternity from arguments based on the world's movement. Thomas Aquinas had the ability to differentiate the notions of movement and creation. Creation is not a movement, namely, is not the actualization of some possibilities¹¹. There is not a before of creation and there was not something in a potential state, because there was no time and there was nothing: the *creatio ex nihilo* implies indeed the appearance of time itself. All that exists has its origin necessarily in God¹². The Greeks defended the validity of the principle according to which nothing comes from nothing (or in Latin: *ex nihilo nihil fit*). That principle apparently, even just from its literal enunciation, is opposed to the idea of creation *ex nihilo*. Aquinas recognizes that «nothing comes from nothing», and preserves the principle's validity, but reads «comes from» as a movement. It is true that in the order of created things nothing comes from nothing: it is impossible to have a movement if there are no things before. Nevertheless, creation is not the affirmation of a movement but an existential affirmation: God created all things because He called them to being. Creation is a theological and a metaphysical issue, not a physical one; it has to do with the existence of things, not with changes or movements in things.

Thomas Aquinas thinks that all things were created by God, and also that all things created are governed by God, that is to say, fall under his provident power. God guides the world to a specific end. This is the Thomist concept of govern:

For things are said to be ruled or governed by virtue of their being ordered to their end. Now, things are ordered to the ultimate end which God intends, that is, divine goodness, not only by the fact that they perform their operations, but also by the fact that they exist, since, to the extent that they exist, they bear the likeness of divine goodness which is the end for things, as we showed above¹³.

We can ask: are world's autonomy and divine providence incompatible? Aquinas recognises world's autonomy, insofar as we admit that things can neither exist nor operate out of or independently from God. It is true, nevertheless, that God created things in such a way that they

¹¹ Cf. *SCG* II, 17.

¹² Cf. *Compend. theol.*, 68 y 69; *SCG* II, 15 y 16. *ST* I, 44, 1.

¹³ *SCG* III, 65.

could have their own operations. Why? Due to the same reason why he has created things: divine goodness produced or created all things and leads them to their end, which is their good. God, whose essence is being, grants being to the creatures, which have it not essentially but by participation. In the same way, God, who is the cause, grants causal power to creatures, and although creatures are not properly creators (in the sense they cannot make something from nothing), they have certain participation in God's creator power, which is their operational capacity.

There is then a causality working at different levels: every created thing attains its ultimate perfection through its proper operation, for the ultimate end and the perfection of a thing must be either its operation or the term or product of its operation. Of course, the form, by virtue of which the thing exists, is its first perfection, as is evident from Book II of *On the Soul* [1: 412a 28]. But the order of caused things, according to the distinction of their natures and levels, proceeds from divine Wisdom [...]. So also does the order of their operations, whereby caused things draw nearer to their ultimate end. Now, to order the actions of certain things toward their end is to govern them. Therefore, God provides governance and regulation for things by the providence of His wisdom¹⁴.

Divine causality is transcendent and not only calls things into existence but also is the cause of their operations, guides them to their appropriate end. How? God impresses in all things a natural necessity, a proneness in their nature. That is the reason why the govern of God over all creatures is not strange to them. All creatures have their own end in God, who transcends them, but that transcendence means also intimacy, because the existence of creatures and their operational capacity are completely dependent on God. Transcendence and intimacy coincide or work together in Aquinas' thought: they are like the two sides of the same coin. Truly, creation and Creator are different, because there is an ontological discontinuity between them. But nevertheless it does not mean that creation and God are independent, because creation exists, is maintained in being and works in the way it does thanks to God,

¹⁴ SCG III, 64.

its cause. The risk of extrinsecism in considering the divine causality is overcome in Aquinas because he considers that God is the cause of being: for that reason, the creator and transcendent God is also internal to all creatures.

Thomas Aquinas uses an example in order to show us this connatural character or intimacy of the divine govern, or providence. Human beings act on things in a violent way, as it happens when the archer shoots an arrow towards the target. The movement is generated in the arrow from outside. However, God does not work in that way on things: his govern is not violent in that sense, because he operates in things from within. His govern is external to the world, because God is not the world, but at the same time is internal to the world, because it is not strange or alien to created reality:

The natural necessity inherent in those beings which are determined to a particular thing, is a kind of impression from God, directing them to their end; as the necessity whereby an arrow is moved so as to fly towards a certain point is an impression from the archer, and not from the arrow. But there is a difference, inasmuch as that which creatures receive from God is their nature (*id quod creaturae a Deo ecipient, est earum natura*), while that which natural things receive from man in addition to their nature is somewhat violent. Wherefore, as the violent necessity in the movement of the arrow shows the action of the archer, so the natural necessity of things shows the government of Divine Providence¹⁵.

The core of reality, the existence inside each created thing, refers inescapably to the Creator, to his goodness. God created the world in order to the participation of all things in his own being, which means that the world is an image of God. Goodness is expansive, tends to communicate itself, and a goodness as God's cannot be represented just for one creature. For that reason, God wanted the existence of a great plurality of things. The goodness, which is in God absolute and uniform, is present in a multiple and divided way in creatures. Then, where a creature is not representation of God, there is another that it is. The whole universe

¹⁵ ST I, 103, 1, ad 3.

is a better image of God's goodness and wisdom than just one of the creatures. God is, consequently, the cause of the differences between creatures. A universe where there are different degrees of goodness it is more perfect, and this is the reason why there are different things in the world. God, therefore, printed in the world the variety and the difference¹⁶.

It could seem that the famous Intelligent Design (ID) is something like a teammate of Thomist thought. After all, both are defending the theist worldview. However, from a Thomist point of view the defenders of Intelligent Design are wrong. The reason is not that Thomas Aquinas rejected the existence of a design in nature, rather that Aquinas' notion of design is different. Aquinas' designer is not someone making each thing in a concrete manner, specifying each part or component of each thing, because for Aquinas' God endowed nature with certain autonomy in its being and proper operations. For that reason, God cannot be deduced from the concrete structure of created things, in the same manner we can deduce the existence of a clockmaker from the watch. The idea of a designer in Aquinas, then, does not come from the consideration of the nature as a fixed or static reality, as it seems to be the case of William Paley¹⁷. Aquinas does not see the world as a static mechanism from which one could deduce an engineer from its components (this is the typical image of the modern deism, not of the medieval thought), but as a dynamic world gifted with certain regularities and intrinsic tendencies. Natural reality shows an intelligibility and an intrinsic tendency that requires a source: God. Purpose and finality belong to the nature of things. Who made the things as they are, to operate as they do, and to possess the end they have? For Aquinas the answer is God.

Hence, there is an essential difference between God's provident causality and the ID, which is that while the concept of design in the ID movement is something external or coming from outside (and that is the reason why God became a God-of-the-gaps in that way of explaining the

¹⁶ Cf. *ST I*, 47, 1 y 2.

¹⁷ A detailed analysis of the work of Paley and of the context in what was produced, and a critique to his approaches, can be seen in Alister McGrath, *Darwinism and the Divine. Evolutionary Thought and Natural Theology*, Wiley-Blackwell, Oxford 2011.

topic), divine providence is internal or arising from inside, is connatural to each thing¹⁸. The defenders of ID do not make a fundamental distinction we can find in Thomas Aquinas: the difference between the causes producing physically a concrete object, and the causes responsible of the plan according to which the object is made. Planning and constructing are activities we can assign to different agents, as in fact Aquinas does. The architect can put his hand on none of the bricks composing the home, but we cannot say, for that reason, that he is not responsible of the house. The mason could have no idea about the entire plan of the house, nor about how the project will end up once it is concluded, but by following the instructions he has received he is responsible of the house too. In *Summa Theologiae* Thomas Aquinas asks whether divine providence is immediately concerned with all things, and he answers:

Two things belong to providence—namely, the type of the order of things foreordained towards an end; and the execution of this order, which is called government. As regards the first of these, God has immediate providence over everything, because He has in His intellect the types of everything, even the smallest; and whatsoever causes He assigns to certain effects, He gives them the power to produce those effects. Whence it must be that He has beforehand the type of those effects in His mind. As to the second, there are certain intermediaries of God's providence; for He governs things inferior by superior, not on account of any defect in His power, but by reason of the abundance of His goodness; so that the dignity of causality is imparted even to creatures¹⁹.

¹⁸ Augustine of Hippo established the difference between extrinsic operations, which are the proper operations of nature, and intrinsic operations, which come from inside creatures and of which only God is responsible: «For it is one thing to make and administer the creature from the innermost and highest turning-point of causation, which He alone does who is God the Creator; but quite another thing to apply some operation from without in proportion to the strength and faculties assigned to each by Him, so that what is created may come forth into being at this time or at that, and in this or that way. For all these things in the way of original and beginning have already been created in a kind of texture of the elements, but they come forth when they get the opportunity», *De Trinitate* III, 9.

¹⁹ *ST* I, 22, 3. See also *SCG* III, 77.

Design then is not placed at the level of the material production of the object, so to speak, and this is the reason why we cannot attribute it directly to God but to secondary causes. This subtle but fundamental distinction is useful to Aquinas in order to explain that sometimes the plan is not executed faithfully. The appearance of monsters was used by some philosophers, as Empedocles, to show there cannot be a design in nature. Aquinas flips the argument and concludes that precisely monsters help us to show there is something as a design. How can he deduce this? Again, by establishing a difference between the concrete production of the monster and the plan the monster does not conform with. The monster, in fact, is judged as such thanks to the idea of what it should be and it is not, based on the particular features or goals at which it should have arrived and it has not:

The very fact, then, that there happens to be error in art is a sign that art acts for the sake of something. The same thing also happens in natural things in which monsters are, as it were, the errors of nature acting for the sake of something insofar as the correct operation of nature is deficient. And this very fact that error occurs in natural things is a sign that nature acts for the sake of some thing²⁰.

Some thinkers do not attribute intelligence to natural causes, and therefore they deduce there is no intelligence in nature. Again, they make the same mistake: they do not know the difference between the designer and the executants of the plan. The copyist may know nothing about what he is writing, because he only has the instruments to reproduce the letters (and he reproduces them if nothing prevents it). In the same way, nature operates according to a plan, which is sometimes ignored by nature itself. The huge difference between art and nature is that the art executant, for instance the copyist, operates according to an extrinsic principle, while nature has in itself its own principle, that is, an intrinsic principle. Thomas Aquinas wrote in an illuminating text:

For nature seems to differ from art only because nature is an intrinsic principle and art is an extrinsic principle. For if

²⁰ *In Physic.* lib. II, lec. 14.

the art of ship building were intrinsic to wood, a ship would have been made by nature in the same way as it is made by art. And this is most obvious in the art which is in that which is moved, although per accidens, such as in the doctor who cures himself. For nature is very similar to this art. Hence, it is clear that nature is nothing but the ratio of certain kind of art, i.e., the divine art, impressed upon things, by which these things are moved to a determinate end (*natura nihil est aliud quam ratio cuiusdam artis, scilicet divinae, indita rebus, qua ipsae res moventur ad finem determinatum*). It is as if the shipbuilder were able to give to timbers that by which they would move themselves to take the form of a ship. Finally, he concludes by saying that it is clear that nature is a cause and that it acts for the sake of some thing²¹.

That notion of design, located at the level of the plan or the *ratio* impressed upon things, and not at the level of execution, allows Thomas Aquinas, also, not to attribute the mistakes that sometimes happen in the execution of the plan directly to God. The errors that sometimes we see in nature, the monsters, as I said before, are due to secondary causes, not to the primary one, they are attributed to the executors of the design, not to the designer. Why did God create a world with a plan without flaws and commissioned its execution to a certain number of fallible causes? That is the problem of evil, which we cannot tackle now²².

²¹ *In Physic.* lib. II, lec. 14. I translate in a slightly different way respect to the aforementioned edition (i.e. the edition mentioned in footnote 4). *Natura nihil est aliud quam ratio cuiusdam artis, scilicet divinae, indita rebus, qua ipsae res moventur ad finem determinatum*. Notice that in this beautiful characterization (we might say definition) of nature, the word “ratio” could be translated by «way», «mode», «manner» or «plan». Nature is nothing but the plan or certain art’s way, the divine, impressed upon things.

²² A convincing explanation, at least from the rational point of view, of that problem can be found in Sixto J. Castro, *Lógica de la creencia*, San Esteban, Salamanca 2012, pp. 299-346.

6. CONCLUSIONS

After our brief journey, I think we can draw the following conclusions. First, the absolute and radical distinction between primary and secondary causality is strange to the Thomistic way of thinking. Second, the distinction, far from being useful to the defenders of the thesis of the independence between science and religion, is a good tool for those who try to construct an integration between them. Third, the possibility of the integration, has been shown by a concrete example: the way in what we can explain the compatibility of God's transcendent action in the world with the immanent action of secondary causality. Fourth, this general compatibility can be extrapolated for the case of chance and providence: against the idea of some thinkers who believe that chance is incompatible with design, Aquinas explains in an enlightening way how it is possible that chance is under God's providence. A providence that provides chance is, of course, a notion that implies a concept of design very different from the notion defended by the thinkers of the Intelligent Design movement. Fifth then, we can conclude that Aquinas' notion of design is compatible with chance in the world, unlike other concepts of design (for instance William Paley's notion). Sixth, and last, we can say Thomas Aquinas is nowadays a good provider of useful conceptual tools for our contemporary debates, specifically in the issue dealing with the relations between science and religion.

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ABSTRACT

Causality, Chance, Providence and Design: Aquinas and Barbour on the Independence between Science and Religion

The absolute and total distinction between primary and secondary causality is not, despite Ian Barbour's opinion, a Thomist distinction. This is the reason why the distinction cannot be used as a tool by the defenders of the thesis that science and religion are completely independent fields of knowledge. On the contrary, the distinction, in its original

understanding, allows us to explain how chance is compatible with providence or design. It is, therefore, a useful tool for those trying to build what Barbour calls an integration between science and religion.

Keywords: primary/secondary causality, chance, providence, design, Thomas Aquinas, Ian Barbour.

STRESZCZENIE

Przyczynowość, przypadek, Opatrzność i projekt: Akwinata i Barbour o niezależności nauki i religii

Absolutne i całkowite rozróżnienie pomiędzy przyczynowością pierwotną i wtórą nie jest, wbrew opinii I. Barboura, rozróżnieniem pochodzącym z tradycji tomistycznej. Dlatego też rozróżnienie to nie może być stosowane jako narzędzie przez zwolenników tezy, że nauka i wiara są całkowicie niezależnymi obszarami wiedzy. Wręcz przeciwnie, powyższe rozróżnienie, w jego pierwotnym rozumieniu, pozwala nam wyjaśnić jak przypadek jest związany z opatrznością bądź projektem. Z tego powodu jest to użyteczne dla tych, którzy próbują budować to, co Barbour nazywa integracją religii i nauki.

Słowa klucze: przyczynowość pierwotna/wtórna, przypadek, opatrzność, projekt, Ian Barbour, Tomasz z Akwinu.