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The Dialogue between Science and Religion: A Taxonomic Contribution

Dragos Constatin Sanda *, Luana Alexandra Smarandoiu * and Costea Munteanu *

Economics and International Affairs Doctoral School, Bucharest University of Economic Studies University,
Bucharest 010355, Romania

* Correspondence: sandadragosconstantin81@gmail.com (D.C.S.);

luanaalexandra.smarandoiu@gmail.com (L.A.S.); costea_munteanu@yahoo.com (C.M.)

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Abstract: Many present day scientists think that religion can never come to terms with science. In sharp contrast with this widespread opinion, this paper argues that, historically, scientific reasoning and religious belief joined hands in their effort to investigate and understand reality. In fact, the present-day divorce between science and religion is nothing else than the final outcome of a gradual, long-term, and deliberately assumed process of the secularization of science. However, especially during the last two decades, we have all been equally confronted with the advance of a new concern that some contemporary scientists have, namely reviewing the sphere of problems specific to the domains of investigation in which they are involved while now facing themes that are usually addressed by theological thought. The paper describes this recent development as being captured by an emerging new field of investigation within the modern scientific epistemology, Science and Religion. Against this background, the purpose of this paper is two-fold: firstly, to briefly look over the large number of typologies that have been suggested to classify various ways of relating science and religion; and secondly, to highlight the dual taxonomical nature of the contemporary science and religion dialogue.

Keywords: science secularization; scholastic theology; personalist theology; spiritualized reason; epistemological transfiguration

1. Introduction

Born in the bosom of natural philosophy, at the same time as metaphysics (the sixth century B.C.E.), science grew and developed for a long period of time (until the beginning of the fifth century C.E.) in a close relationship with the religious belief. From this moment, the first signs of its emancipation and separation from theological thought gradually developed and eventually turned scientific inquiry into an autonomous and independent enterprise, which became more and more conspicuous during the Renaissance and the Reformation. During the Enlightenment in the seventeenth to the eighteenth centuries, this development asserted itself as a genuine process of science secularization, that reached its climax of negation of and conflict with religious belief during the 19th century and the largest part of the 20th century, under the 'shape' of the modern scientific skepticism (embodied by scientism, materialism, and reductionism). The last almost three decades have become, however, the witnesses of 'The Return of the Prodigal Daughter' to the primary source. This latest period was one in which 'the new sciences' got again near theological thought, realigning a number of their common issues.

This is valid especially for quantum physics, which, through the revolutionary concepts it proposes such as undeterminism, unlocation, antinomy, etc., seems to commence a way of giving legitimacy to a number of concerns common to theological thought. Roughly the same thing can be said, however, regarding present-day cosmology (which has defined and developed the anthropic

principle), or about the new direction of mathematical epistemology (through Gödel's theorem on incompleteness), and also about research work in the field of IT (the problem of artificial intelligence and the limits of computers' faculty of reasoning) and of the cognitive sciences (the limits of neurobiology to explain the human mind and conscience).

How can we explain that the association between (scientific) reasoning and (religious) belief followed such a very devious route? In our opinion, the explanation lies in the fact that, on the one hand, there is a natural power of rational knowledge (positive and negative) of God by means of deduction, being the reason for the world and having features similar to the world. Positive and negative rational knowledge is always linked to the world; both intellectual statements and negations originate in the work of God in the world. Therefore, 'by looking at the natural proofs, it is obvious to us the One who created all things moves and preserves them, even if we cannot grasp Him with our natural rational understanding' ([1], pp. 138, 115, 117).

On the other hand, the problem is that this natural power of rational knowledge of God remains very grievous outside supernatural Revelation and grace. A certain ambiguity of natural rational knowledge arises from here, so even if what natural thinking says about God is not entirely appropriate, since it does not make use of the contents of Revelation, it does not say something contrary to God. The fact that it does not say something contrary to God shows that natural rational thinking is called to fulfillment by raising itself to the sharing of supernatural Revelation. The fact that, on the other hand, what it says about God is not entirely appropriate, shows that natural rational thinking is tempted to fall into the excess of rationality.

Under these circumstances, it is worth pointing out that both the science originating in Hellenistic times and the subsequent Arab science testify to a native pattern of unstable association between reason and faith, centered on natural rational knowledge. It is an unstable association because the two contradictory tendencies mentioned above are found in this pattern: the call to ascension to supernatural Revelation but also the temptation to fall into the excess of rationality. The possibility of raising oneself to receive Revelation lies in the fact that natural rational knowledge not only recognizes the existence of God but also holds that the human soul can ascend to the knowledge of God. On the other hand, the simultaneous possibility of falling into the excess of rationality lies in that it conceives man as being like God, believing that God can be discovered and understood by human reason only through the sheer force of the rational thinking mind and that man can accede to the divine world through his own efforts, rationally and orderly.

Testimony to this is, as mentioned above, the very evolution of science during the Hellenistic period of its development (from the sixth century B.C.E. to the fifth century C.E.). It is the period when knowledge based on scientific rationale was accompanied with knowledge based on religious beliefs, wherein a 'pattern of association' focused on natural reason prevailed. As such, the belief that God can be discovered by human reason only by the force of the rationally thinking mind and that man can access the divine world through his own efforts, rationally and orderly, accompanied the great post-Socratic Greek thinkers (Plato and Aristotle), the neo-Platonists of the first two centuries, the Platonic Gnostics of the second century, the pagan thinkers of the third century who converted to Christianity (Clement of Alexandria), and also the Muslim thinkers of those times such as Al-Karabisi ([2], pp. 29–31, 56–58, 81–86, 119–24, 132–33; [3]).

These thinkers adopted various systems of thought, which almost all opted for different degrees of exacerbation of rationality (inspired mostly by a Platonic type of questioning) at the expense of metaphysical and transcendental revelations of thrill. There are systems in which the companionship between reason and faith in the absence of Revelation has fully proved its instability and fragility; they are, in a sense, the first genuine signs of the future emancipation and separation of science from religion.

Approximately the same configuration characterized the relationship between reason and faith during the development of Arabic science throughout and even after the period of late antiquity and the early Middle Ages (the fifth to the seventh centuries). In this respect, it has to be mentioned

that the vast majority of Muslim philosophers (faylasufs), from Ibn Sina (known in the Western world as Avicenna) who represented the climax of the Falsafah thought, to the later among faylasufs, Ibn Rushd (known as Averroes), as well as Hebrew philosophers such as Saadia and Bahya, assumed an understanding of the relationship between reason and faith based on the ability of the human natural reason to reach, by itself, the knowledge of God.

On the other hand, history shows that when rational natural thought was accompanied by supernatural Revelation, the native pattern of unstable association resisted the temptation to fall into the excess of rationality, turning itself into a stabilized pattern of association, centered on spiritualized reason. This is what can be seen in the works of the great Orthodox Cappadocian theologians of the 4th century, including St. Basil the Great, his brother Gregory of Nyssa, and his friend Saint Gregory of Nazianzus, and their successor of the sixth century, Saint Pseudo-Dionysius Areopagite.

Within this stabilized pattern, the natural power of rational knowledge of God by means of deduction humbles itself; according to these theologians, all human words and concepts about God's essence are inappropriate and should not be taken as an accurate description of a reality that goes beyond people's understanding. People can know God only through His actions (energeiai), which does not mean that they can approach God's essence (ousia), as He cannot be contained in a system of human thought. If the understanding of God is desired, then man must give up his natural reason in favor of faith, thereby gaining its natural reason too; reason can thus be used at maximum strength. In this way, reason is able to know its own limits, thus being prevented from hardening in itself. As a result, reason can now open itself to humble reflection, can open itself to faith, and is getting spiritualized. Therefore, the knowledge acquired through the stabilized pattern of association between reason and belief (centered on supernatural Revelation) is a knowledge through faith, which exceeds natural rational knowledge (positive and negative) of God, but which further uses mostly rational terms (positive and negative) to express itself.

History also testifies that, when the natural rational thought was not accompanied by the experience of supernatural Revelation, one could see that the native pattern of unstable association did not resist the temptation to fall in the excess of rationality. This has tended to lead the companionship between reason and faith to another pattern of association, namely a degenerative one, centered on a hypertrophied reason. Under the new pattern, the natural power of rational knowledge of God by means of deduction *prides itself*: for the promoters of this type of association, faith becomes an argumentative discourse about God, while the supernatural Revelation a mere cognitive approach that cannot be non-rational. Moreover, even if it is still accepted that faith is what gives truth, instead it is also considered that reason deepens the truth, in the sense that reason is what makes man understand those he believes, strengthening in this way his faith. Therefore, man, before believing, needs to establish with the help of discursive reason his motives *for believing or the grounds of his faith*; which is tantamount to *the need to reconcile his faith with his reason*, to the need for rationalization of faith.

Such developments were recorded in particular in the aftermath of the Arabian—Greek science transmission to the Western European Middle Ages (12th–13th centuries): paying tribute to the fact that it made no use of all content of supernatural Revelation, the *rational knowledge* of the European thinkers and scholars (from the Middle Ages and reaching those who dominated the late 20th century and the beginning of the 21st century) tended to seek stability by letting itself be guided by a *reason diverted from its natural use* and thus corrupted by the temptation to fall in the excess of rationality. It is a thinking which has tended to conceive the occurrence of rationality in the world without taking into account the existence of *a Person who thought and created the world as rational*. Thus the native pattern of unstable association—which prevailed in the era of Arabian-Greek science—tended to migrate during the era of European science, by “falling” towards a degenerative pattern of association based on an exacerbated rationality only to end nowadays in the denial of faith by reason.

This degenerative process is the very essence of the secularization of the Western science. It is a slow, progressive process, conducted in several stages, as a reflection not so much of an “implacable drive of times”, but rather a result of the personal intellectual options and professions of faith that

the vast majority of thinkers and scholars freely assumed. We insist on this idea: the separation and isolation of science from religion was not a historical fatality, but the fruit of intellectual and professional choices that scientists made freely and deliberately over time, mainly in the last five or six centuries of scientific research.

2. Ways of Relating Science and Religion—A Literature Review

The availability of the new sciences to look again towards and to approach the theological reflection, as well as their interest to re-justify thus a series of common issues inspired the conception of a new domain of epistemological investigation: Science and Religion. We can say, we believe, that its main direction of investigation consists in the study of the nature, legitimacy and the opportuneness of reconstitution of the association between scientific reason and religious belief. In other words, we share the conviction that the study of the relationship between science and religion has to focus on the concern for the identification of the various “dialogue models” proposed at present in the literature.

Since the beginning of the 1980s there has been a significant increase in the interest of scientists towards the relationship between science and religion. This is the period when a large number of typologies have been suggested to classify the various ways of relating science and religion. Robert J. Russel offers a brief and highly suggestive appraisal in this respect: “In some cases, these ways are meant as mutually exclusive, such as ‘conflict’ versus ‘two worlds’; in other cases, one way might lead to and become incorporated within another, such as ‘dialogue’ and ‘integration’. In some cases, each way is meant as a characterization of the relation between science per se and religion per se; in other cases, they only apply to specific topics in science and in religion” [4].

The pioneering work belongs to Ian Barbour ([5], pp. 21–48), and it is worth mentioning that his typology remains until today the most widely used in the field. Barbour is considering four types of relations: “conflict” (favored by the existence of the scientific or materialistic ideology in the scientific field); “independence” (the emphasis is on contrasting methods and differing languages); “dialogue” (problems are addressed in an interdisciplinary perspective, while preserving the specific skills); and “integration” (it is considered possible to systematically integrate scientific and religious knowledge). Barbour’s subsequent studies consolidate and develop his paradigm for construing the relationship between science and religion.

In addition to Barbour’s initial contributions, the 1980s offered some other typologies. For instance, Arthur Peacocke published in 1981 an eightfold typology (apud Russel [4]; [6], pp. XIII–XV), where he advocated “for the integration of science and religion and also for science to generate a metaphysics in which theology can be formulated”. Later on, Russel reformulated Peacocke’s typology as a four-dimensional model which allows for a *continuum* between opposite positions ([7], pp. 48–51). In 1985, Nancey Murphy “imported” H. Richard Niebuhr’s classic fivefold typology of relations between Christianity and culture and applied it to science and religion. According to Murphy “theology could be a transformer not only of culture in general but even of science in particular” (apud Russel [4]; [8], pp. 16–23).

In the 1990s, new typologies were proposed, some of them making direct reference to Barbour’s contributions. Prominent among them is John Haught’s book of 1995. In our opinion, his fourfold typology—which includes conflict, contrast, contact, and confirmation—is one of the most consistent and articulate in the literature. Haught’s first three types of relating science and religion (that is conflict, contrast, and contact) parallel those of Barbour, while the fourth (confirmation) describes theology as providing some key philosophical assumptions underlying science.

Trying to be more specific in analyzing Haught’s contributions, we emphasize that according to him, the “conflict” has its source in the widespread opinion of scientists that religion is based on “a priori” assumptions or on “faith”, whereas science takes nothing for granted. In addition, religion attaches much value to emotion, affective commitment and subjectivity, while science strives to stay disinterested, realist and unbiased [9]. As to the “contrast”, Haught considers that the scientists who support it as a viable way of relating science and religion focus on the idea that each of the two ways of

knowledge is perfectly valid, but only in their own, well defined, sphere of research. As such, religion must not be judged by the standards of science, or vice versa; their inquiries are completely different and the content of their responses is also different; and, as a result, the comparison between them does not make sense.

With reference to the “contact”-type of relating science and religion, its supporters claim that, while science and religion are indeed distinct ways of knowing, however in the real world they cannot easily be separated. “Contact” allows for interaction, dialogue and mutual impact, it prohibits both combining and separating, insists on keeping differences, but at the same time develops mutual (interdisciplinary) relations between science and religion.

Finally, let us note that in Haught’s (somewhat misleading) formulation, the term “confirmation” is not used to mean that science confirms theology. The idea is that the disinterested desire to know (specific to scientific knowledge) finds confirmation in the religious interpretation of the world. In other words, the basic assertion of religion (the universe is a finite, coherent, rational and orderly entirety) is replicated by the status of science (which cannot develop without the a priori “belief” that the universe is a totality of things sensibly ordered). Haught considers that the promoters of this type of relationship between science and religion have in mind that scientists were always based on the tacit belief that: there is a real world, intelligibly structured; the human mind is able to understand at least some of the intelligibility of the world; no matter how much people explore they will find more and more comprehensibility to decipher; without this kind of faith there could be no incentive for scientific research.

Haught’s analyses were followed by those of Willem Drees [10] and Mikael Stenmark [11]. The first one offered a ninefold typology generated as three new realities (new scientific knowledge, new ideas in the philosophy of science, and new attitudes towards nature) which influence three distinct areas (religious cognitive claims, experiences, and traditions) (cf. [4]). As far as Stenmark’s contribution are concerned, it is interesting to note that his initial ideas (1997) were later developed (2010) into a highly valuable approach to the field in question [12]: he recast Barbour’s notion of “conflict” with “irreconcilability”, and combined two of Barbour’s categories—“dialogue” and “integration”—with a highly nuanced alternative: a reconciliation model. Assuming that the reconciliation between science and religion is possible, Stenmark claims however that the grounds for reconciliation have to be described in subtle and distinctive ways (e.g., reformative or supportive modes of reconciliation; strong or weak versions of reconciliation; religion-priority reconciliation or science-priority reconciliation; conservative, traditional, liberal or constructivist approaches to reconciliation).

By the end of the decade, Ted Peters’ 1998 eightfold typology also included several refinements to Barbour’s scheme: “He first distinguishes between ‘scientific materialists’, who claim that science supports atheism, and ‘scientific imperialists’, who claim that science offers a path to God but, like scientific materialists, argue that science alone produces genuine knowledge. He also distinguishes between Roman Catholic ‘ecclesiastical authoritarianism’, which stretched from the nineteenth century until Vatican II and sought clerical control over secular knowledge, and twentieth century ‘scientific creationism’, a form of Protestant fundamentalism which sees itself as genuine science though it is based on a literal reading of Genesis” (cf. [4]).

No doubt, there are many other books and articles that suggest relevant typologies of the approaches to, the relations between, and the goals and aims for the interaction between science and religion. In any case, as a conclusive comment to the previous discussion, it seems that among the different ways of relating science and religion, the “dialogue”- type one offers the most promising potential.

3. On the Typology of Modern Dialogue between Science and Religion

As we have just mentioned, the analysis of different typologies of relating science and religion has shown us that the dialogue-type model (also found in literature under the name of “contact” or “reconciliation”) offers the most feasible potential in developing ties between the two ways of

knowledge. For this reason, our focus is now shifting towards the study of the particularities the dialogue between science and religion reveals¹.

To clarify things from the outset, the outcome of our investigations indicates that the science and religion dialogue has a dual taxonomical nature. In other words, we identified two distinct models followed by the dialogue, namely:

on the one hand, *the scholastic dialogue model* mediated by the interdisciplinary and transdisciplinary methodologies, as an epistemological interaction operating among various scientific disciplines and Western heterodox theologies (all operating under the rigor of the status of academic disciplines); and

on the other hand, *the personalist dialogue model* mediated by the Orthodox patristic gnoseology, as an interpersonal relation of joint work between the Orthodox theologian (who brings knowledge through faith based on indemonstrable truths received by means of supernatural Revelation) and the scientist (who brings knowledge through scientific reasoning based on demonstrable truths obtained by means of observational, laboratory or mental experiment).

One can see that the divergence lies in that, while the scholastic approach operates the dialogue at the level of academic disciplines (scientific and theological alike), the personalist approach employs the dialogue at the level of human persons (theologian and the scientist). In our opinion, the source of this distinction is represented by the different radical way in which, at present, the Western (Heterodox) theology, on the one hand, and respectively the Eastern (Orthodox) one, on the other, formulate their own gnoseological and existential statutes.

Certainly, theology has always been considered from different perspectives. However, beyond the multitude of proposed alternative views, a distinction emerged—especially in the Western world through the Reformation and Scholasticism—between “theology” as experience, meeting the life in Christ, and “theology” as science, anything that belongs to scientific research performed inside the field of theology ([13], p. 9). As an example, in the framework of the theological academic curriculum, various fields of investigation are considered as “theological scientific disciplines” such as the history of the Church, biblical archeology, applied paleography to the Church texts, biblical exegesis by the historical-critical method, philology and others. All these cases are examples of the interweaving of the scientific research stance with the vision and needs characteristic of the theological thought. Nevertheless, these disciplines are, by their very working method, sciences, and only by extension, given their own object of study, can we call them theology ([13], p. 10).

Following the same line of analysis, the Greek theologian Georgios Mantzaridis distinguishes between “empirical theology” and “academic theology”. He considers that while the first concerns itself with the experience of the uncreated, revealed by the ecclesiastical life (of the Church), the second uses the scientific method and cannot, in most instances—due to the effect of the method used and not to malevolence—report the experience of the uncreated, as the last one is not a valid object of knowledge, recognized by sciences [14].

3.1. The Scholastic Model of the Science and Religion Dialogue

A systematically developed theology focuses on analytical methodology through which the ideas and concepts are presented clearly. This type of knowledge uses investigation, analysis and analytical presentation: “The intellectual theologian operates as an architect who designs a palace or a temple using such building materials as empirical and metaphysical notions and cares less about conformity of his ideal building with the real order of things but is interested in greatness and logical harmony [...] the intellectual loves his creation as himself limiting his existence to it. Human interventions have then

¹ Due to contextual relevance our analysis refers to the Christian religion only.

no effect; if the man himself does not abandon his wealth, he will never reach nor pure praying, or real contemplation" (apud [13], p. 8; [15], pp. 147–48).

Being excessively systematized, theology does not include the existential side of authentic knowledge becoming a pretext for unenlightening speculation: "Unfortunately, such theology rather distracts the mind and the heart of the one learning from life with God, becoming a philosophy, a science, an intellectual exercise turning all that was given to us by God into fire flames, into an unutterable Light leading to bewilderment, a holy trembling of our soul. Do schools provide real and not an intellectual experience and sharing of God that bewilders our spirit, stirring it to pray fervently for? Do they stir the consuming thirst for Christ's love, humbleness and kindness that led him to Golgotha?" (apud [13], p. 8; [16], p. 41).

Along the same line of questioning, we may emphasize that historically theology in the West has in time become an intellectual speculation of philosophical and historical nature, so as it no longer originated from prayers of the Liturgy that brought the presence of the Holy Spirit into the life of an individual and a community. As a consequence, Western theology searched for the "safety" of detached confession away from personal or devotional life so that philosophy, mathematics, physics exported stability and truth into theology having been subjected more to human logic. The theologian himself turned more into a thinker and his theology became "*the outcome of lab-produced thought and literature and research*" and not the expression of his liturgical experience ([17], p. 62). Such a theology is a scholastic one: on the one hand, it is merely an intellectual speculation of philosophical and historical nature; on the other hand, it is the outcome of gradual conformation to the narrow pattern of academic formalism, displaying the highest rigor towards knowledge on the created—that is specific to sciences that acknowledge deliberately their status as academic disciplines. Such a theology is therefore incapable of explaining the relation of man with the uncreated, the relation that is the foundation of the theological experience.

This is the context in which the Western theology has been provided with opportunities to enter into dialogue with modern science, opportunities that were mediated by means of interdisciplinary and transdisciplinary methodologies.

3.1.1. The Interdisciplinary Approach

Generally speaking, modern scientific research has been dominated by the fragmentation of disciplines and their research topics. This division of disciplines has been imposing a high sequencing of research topics and methods and ultimately led to the fragmentation of the experience of understanding. As an answer to these developments, the interdisciplinary research has been called to overcome the shortcomings of excessively fragmented and overspecialized scientific knowledge ([18], pp. 465–66).

Being concerned with gaining an epistemological efficiency of a specific academic discipline, interdisciplinarity aims to provide a new perspective to a specific discipline by integrating and deriving concepts, methods and epistemologies borrowed from other academic disciplines. As such, the interdisciplinary interaction, a dialogue between disciplines, is the main condition for interdisciplinary research. This explains why the advocates of interdisciplinary approaches understood right from the beginning that the mediation of the science and religion dialogue by interdisciplinary methodology is highly dependent on theology as being an academic discipline. Therefore, it is not surprising that the study of the relation between science and theology has been grounded in interdisciplinarity as it is closely linked to the notion of academic discipline applied to both sides. In fact, in terms of its interdisciplinary mediation, the dialogue between science and theology cannot be conceived (otherwise than at the level of scientific disciplines).

Historically, Western theology—as it has been shown—assumed its status of academic discipline, so it could enter into an interdisciplinary dialogue with science without abandoning what defines it essentially as scholastic theology. In our opinion, the establishment of the interdisciplinary field known as Economic Personalism has been one of the most representative outcomes of the dialogue between science and scholastic theology.

Economic Personalism appeared more than twenty years ago when a small number of Catholic social theologians from the United States started a dialogue with a few American free-market economists on the morality of market operations. The initiators of the dialogue believed that such a dialogue through its openness towards Christian Social Ethics could provide economists with a complete image of the human being. In addition, theologians may gain a better understanding of the specificity of the human interactions in business ([19], p. 1). Due to the permanent exchange of ideas by means of joint research, an interdisciplinary research area appeared aiming at, in the view of its promoters, a science of the morality of markets, an academic discipline that summarizes the main issues of theology and economy, an attempt to analyze the moral ramifications of business operations using the theological vision (mainly Catholic) on human nature (see the works of [19–22]). It involves a detailed exploration of economic theory, history and methodology, as well as market practices, all viewed from the Catholic social theology perspective, specifically, by recognizing the dignity of human being and the concern for human justice that arises from such a recognition.

Based on such a vision, the advocates of Economic Personalism claim that in order to create a real unity of economy and theology, it is important to maintain an adequate theological anthropology at the core of this interdisciplinary approach. In fact, according to its supporters, the Economic Personalism aims to create a holistic vision on personal existence and supplement the traditional economic science with the science of morality of market operations. It has been claimed that Economic Personalism is not trying to redefine the economic theory in terms of moral theology but aspires to provide a detailed summary of traditional economic theory and moral theology based on personalist anthropology.

3.1.2. The Transdisciplinary Approach

Along with interdisciplinarity, one of the most current examples of the dialogue of science with scholastic theology is the transdisciplinary methodology. Recognized as based on science (“It is important to understand that interdisciplinary and transdisciplinary knowledge are not opposite but complementary. *Both methods are based on the scientific spirit*”) (emphasis added) (cf. [23], p. 233) and considered as the privileged way (“Our opinion is that the research of links between modern science and tradition is mainly transdisciplinary...”) ([24], p. 82), this suggestion should be understood in the broader context of transdisciplinarity being recognized as a successful mediator of the dialogue between hard and other sciences and even arts, literature, poetry and personal experience ([25], p. 173).

Transdisciplinarity refers to what is found at the same time between and inside disciplines and beyond any discipline ([23], p. 232). Without being a new or a super-discipline, transdisciplinarity originates in disciplinary research ([25], p. 54). There is no transdisciplinarity without disciplinarity ([26], p. 39) and that is why it is complementary to the disciplinary study.

It is obvious that even for proponents of transdisciplinarity (as in the case of proponents of interdisciplinarity), placing the dialogue in the (academic) disciplines is the main condition for its success. Consequently, when the dialogue between science and theology is discussed, the advocates of the transdisciplinary approach view theology as a human science belonging to the academic disciplines and having cataphatic nature even if it studies apophatic issues ([27], p. 26).

What differentiates the transdisciplinary approach to the dialogue between science and religion from the interdisciplinary approach is that while the interdisciplinary methodology aims to summarize the main issues of disciplines in dialogue under a form of a new academic discipline, transdisciplinarity, not being a new discipline or a super-discipline in itself, tries to place the dialogue beyond the disciplinary borders of the interacting disciplines. Therefore, when transdisciplinarity is used as a bridge to create a dialogue between science and theology a confrontation appears between the two fields of knowledge in their status as academic disciplines. The focus is on the appearance of new results and links between the disciplines by their opening towards what they have in common and to what lies beyond their disciplinary borders ([25], pp. 172–73; [28], pp. 152–53).

It is worth noting the way in which transdisciplinarity approaches the status of theology as a dialogue partner of science; according to its advocates, transdisciplinarity is neither religious, nor

irreligious, it is transreligious. Transreligion operates first in the attitude. So, the transreligious attitude is an attitude generated from an experience of transdisciplinarity, allowing us to understand and appreciate specific features of all religious and irreligious traditions as to perceive the common elements of their foundation and to create a transreligious vision of the world ([25], pp. 150–51, 174). Transdisciplinarity therefore discusses the transcendent unity of religions viewed as the co-existence of complex plurality of different religions so that no religion would get a privileged position from which it could judge other religions. This cannot mean that universal religions appeared but all religions should coexist in a permanently open unity ([25], p. 8).

Ontologically, transdisciplinarity views religions as “sections of Reality referring to fragments, the Reality of a transdisciplinary object, the Reality of a transdisciplinary subject, as well as areas common to all aspects of Reality and all levels of Reality between the object and the subject, the area that is represented by a hidden third party” ([29], p. 15). More precisely, it refers to an area common to all religions, namely, all that is between, crosses and is *beyond any religion*.

Thirdly, transreligion operates on the axiological level. Therefore, even if the advocates of transdisciplinary thinking accept that God maybe universal, religion is viewed as the rationalization of mystery ([29], p. 7). Obviously, rationalization is in great pain here as long as transdisciplinary scholars believe that science, even if not fully, remains a barrier against religious madness ([29], p. 11).

The axiological perspective to transdisciplinary transreligion is completed by the vision of the last resort condition of the human being. So, man is believed to disappear without utopia; man needs utopia to survive and give himself a meaning. Moreover, even if “there are also destructive utopias but not all of them. *Christian utopia, for instance, is also a utopia*” (emphasis added) ([29], p. 16).

Therefore, we may deduct that transdisciplinarity defines itself as a vision and as a thinking system aiming to transgress duality opposing binary couples in order to build bridges between these dualities (such as reality-real, nature-divine or science-religion), these dualities endeavoring to be transgressed on the basis of their structural coexistence through a third hidden party that is always unattainable and indescribable (and about which we only may rationally state that it just exists). Through the transgression bridges towards the hidden third party, transdisciplinarity posits the existence of a source-entity, the Creator of all reality, placed *beyond and above* any level of Reality (in transdisciplinary view, Reality refers to what resists experience, representations, descriptions, images and even our mathematical formalizations, namely, what is accessible to human understanding) and also above the Real (what is manifesting the non-resistant, what is left unknown forever). So, transdisciplinarity aims to mediate the dialogue between science and religion, moving it into a fuzzy, unclear and unattainable area placed beyond their disciplinary boundaries and freeing them from their both immanent and transcendent content.

Now, trying to summarize the main features of the dialogue between science and scholastic theology mediated by inter- and transdisciplinary approaches, we may state the following:

the constraint brought by the use of inter- and transdisciplinarity in the dialogue between science and religion leads to theology assuming the status of academic discipline. Even though the original meaning of theology is that of understanding and experiencing God (as theology is “*the discovery of God given to man*”, it is the experience of a supernatural Revelation), the Western scholastic theology accepts its status of academic discipline as a dialogue partner of science;

as an academic discipline and using scientific methods, scholastic theology cannot reach—not out of bad will but as a result of the methods used—the experience of the uncreated, as God does not represent a valid and recognized object of study by science. Studying the “created”, scholastic theology either deprives itself of its natural experiential and ecclesiastical content, therefore becoming void of supernatural Revelation (as it is the case for the interdisciplinary mediation of the dialogue), or wanders itself in the blurred areas of trans-religiosity (as in the case of the transdisciplinary mediation of the dialogue);

a clear result of these developments is that we have been witnessing a scholastic dialogue in which inter- and transdisciplinarity mediate at most an exercise of speech *about* God and not a conversation *with* God.

The conclusion is that the dialogue we refer to is a doubtful attempt to restore the connection between knowledge by means of scientific reason and knowledge through faith. This dialogue involves an unstable pattern of association between rationality and faith focused on natural reason *that does not use the content of the supernatural Revelation*. Moreover, history has shown us that such a pattern cannot avoid an excess of rationality and tends to direct the connection between reason and faith towards a degenerative model having as a result the repudiation of faith using rationality.

3.2. The Personalist Model of the Science and Religion Dialogue

As we have already argued, the scholastic dialogue of the Western heterodox theology with science by means of inter- and transdisciplinary methods is a dialogue between different academic scientific and theological disciplines. The epistemological establishment of this dialogue model is represented by the unstable pattern of association between reason and faith, centered on natural rationality.

Literature mentions, as shown earlier in this paper, an alternative model of a dialogue, a personalist dialogue of Eastern Orthodox theology with science using patristic gnoseology. That is a dialogue between theologians and scholars as individuals. The epistemological establishment of the personalist dialogue is, as will be seen later, a stabilized pattern of association between reason and faith, focused on spiritualized reasoning.

If the operational premise of the scholastic dialogue lies in theology accepting its status of academic discipline, the personalist dialogue begins from the premise that Orthodox theology should maintain its original experiential and ecclesiastical condition.

Therefore, it should be noted that the Holy Fathers of the Eastern Orthodoxy believe that theology is *the discovery of God given to man*. So, far from being an autonomous act of knowledge by means of the natural abilities of man, patristic theology involves the experiencing by a *human being* of a *personal* presence of God through love, an interpersonal experience that makes man be open towards participation beyond his natural powers. It is the unity between the person of the human subject and the “object” of its knowledge, on the infinite territory of the latter, a unity which is not accessible to man without the help of Divine grace. Consequently, the dialogue between the Orthodox theology and science cannot be just a conversation *about God* but a transfiguration into a conversation *with God*.

God, an unapproachable object of knowledge, is alive and Personal and is offered out of love to man regardless of his human abilities to meet Him. The experience of the relation between man and God is and will remain a mystery that cannot be grasped by scientific methods. As such, the mystery cannot be absent from the meeting of the Orthodox theology with science. It is missing from the meeting of Western heterodox theology with science: its option to reduce its status to that of “theological science” limits the dialogue between science and theology to an intra-scientific monologue. It occurs as the scholastic dialogue is appropriate mostly for a meeting between sciences, namely, the theological ones (inside theology) and those outside theology.

It also has been observed that such a dialogue based only on conceptual methodologies and schemes has proven to be intellectually productive but without any effect on the existential level which is the core of theology. It loses the richness of the meeting between theology and science that appears after their recognition as being radically and ontologically different and distinct (cf. Saint Siluan), with specific skills: theology as a mystical life in Christ and science as a rationality looking for knowledge. Showing the distinction between the skills and the vocation of the two, the Holy Fathers of the Eastern Orthodoxy declared the vertical integration of theology by experiencing the grace and the horizontal integration of science by means of an autonomous exercise of rationality. The intersection of the two distinct methods of acquiring knowledge may be viewed as the crucifixion of the mind for its resurrection towards embracing meanings of spiritual life and an integrated and explanatory ferment of any human action to acquire knowledge ([13], pp. 11–12).

Therefore, Orthodox theology, without neglecting the academic standards specific to higher education, is grounded in ecclesial experience and is existentially motivated being generated by the consuming thirst for Truth. The centeredness of Truth is the gnoseological priority of Orthodox theology. Such knowledge is subsequent to a way of being and brings implications on daily life. Therefore, knowledge grounded in Spirit and Truth does not involve the accumulation of information or in mastery of uttered words, no matter how eloquent these are, but in proving the power of the Holy Spirit with deep existential implications. Thus, the approach of Saint Apostle Paul is continued and expressed eloquently in the tradition of patristic knowledge:

“And so it was with me, brothers and sisters. When I came to you, I did not come with eloquence or human wisdom as I proclaimed to you the testimony about God . . . My message and my preaching were not with wise and persuasive words, but with a demonstration of the Spirit’s power . . . What we have received is not the spirit of the world, but the Spirit who is from God, so that we may understand what God has freely given us. This is what we speak, not in words taught us by human wisdom but in words taught by the Spirit, explaining spiritual realities with Spirit-taught words” (I Corinthians 2, 1, 4, 12–13).

What has been mentioned so far shows that, in Orthodoxy, theology cannot be understood only as an academic discipline, even if it is a “theological” discipline—an integral part of modern science curricula. The possible compliance of the Orthodox theology with the inter and transdisciplinary methods—namely, its exclusive acceptance of the status of academic discipline—would reduce its experiential content (life of Christ, ecclesial experience in the communion of faith of all saints) and would diminish therefore its ecclesial foundation, *its main and integral defining aspects*.

We may therefore describe several defining features of the dialogue between Orthodox theology and science mediated by the personalist patristic gnoseology, namely:

the dialogue includes the interpersonal communion between the theologian and the scientist;

the interpersonal communion results in the synergic working-together act between the Orthodox theologian (contributing by means of his religious faith based on the indemonstrable truth received through supernatural Revelation) and the scientist (contributing by means of scientific reason based on demonstrable truth acquired through observational, laboratory or mental experiments);

through the synergic working-together act, the scientific rationality discovers its own limitations, being therefore precluded from its own ossification, instead, it is helped to be able to open up to humble contemplation, faith, to become spiritual;

the spiritualization of reasoning through humble contemplation enables grace to structure it based on the internal existential reasons of things, making them meaningful, while this revealing of the spiritual rationality of things being likely to confess a genuine epistemological transfiguration of the scientific rationality itself.

3.2.1. Interpersonal Communion

According to the Holy Fathers, through the act of creation itself, by its coming into existence, man has the quality of the “Image of God” and is placed into a personal relationship with Him. The Image of God in man is an ineffable mystery of the human being as a person in communion with God—the Holy Trinity. The mystery of man, as well as the mystery of God, is the mystery of the person in the interpersonal communion. The Image of God in man lies in the personal and divine nature of man. Man as a person tends towards his development and fulfilment in communion with God—the Holy Trinity, the structure of supreme love [30].

Interpersonal communion is therefore possible, on the one hand, due to man’s ability to become the subject of divine love and, on the other hand, due to the need for the other, in whose love man

develops his character as subject, person, being “*a full subject (only when) is the bearer of the love of God*” ([31], pp. 61–62, 70–75).

Therefore, through communion “the mystery of our and other people’s divine image reveals and develops. In the communion with others, the mystery of interpersonal divine presence is revealed. Only Love between divine Persons irradiates the power of our interpersonal love. The interpersonal communion is an image of the Trinity communion and participation in it. So, the image of God in man is an image of the Trinity and it shows in the human communion” ([32], p. 275). Therefore, we may say that man experiences himself as the subject of senses and life through the relationship with the world and especially with the others: “If we have the Father at the foundation of the mind, or of the self, or of the subject, and the Son is reflected in self-awareness enriched with as many senses, and the Holy Spirit is in the loving communion with the others, united in full awareness of the self and all the senses, then we understand that the human being is trinitarian in itself and even through this is in full loving relationship with God in Trinity and with other human beings; as it is not infinite to have everything in the self, it needs God for which it has thirst” ([33], p. 17).

Obviously, according to the Orthodox teaching, the fundamental existential condition of man is that of interpersonal communion both with the Creator and the others. Moreover, even more than that: “We should ask God that *all day long* be consummate, holly, peaceful, and with no sins” (emphasis added) is a prayer uttered during Holy Orthodox Liturgy which means that any action of man, anything done by man is under divine providence and falls under relationships with the others. Moreover, the dialogue between the Orthodox (patristic) theology and science, as a field of human knowledge, is an integral part of the order of things. The subjects of such a dialogue are specific human beings, theologians and scientists alike, the dialogue between them gaining life through the texture of their interpersonal relationships based on their common interest in the link between knowledge through scientific rationality and knowledge through religious faith. The “interpersonal communion” dimension of the dialogue is important in the Orthodox theology (and not in the scholastic one) as we have seen that in the patristic experience theology means the experience of meeting God, and through Him the others, as mainly a personal reality. In contrast, in the case of scholastic theology, the dialogue may very well be conceptual, a well-organized methodological relationship, whether in terms of interdisciplinarity or transdisciplinarity. In this case, the birth of the dialogue is not conditioned by the existence of an interpersonal communion, as long as the conceptual relationships may be operated only through the act of study and understanding by a human being who acts independently, in the absence of a personal relationship with God and the others.

3.2.2. A Synergic Working-Together Act

In the dialogue between Orthodox theology and science, the interpersonal communion between theologians and scientists appears at the junction of the two different ways of knowledge acquisition used by the partners in dialogue. On the one side, the scientist acquires knowledge through scientific reason based on demonstrable truths obtained by means of experiments. On the other side, the theologian acquires knowledge through religious faith based on indemonstrable truths obtained by means of supernatural Revelation. Understood and experienced in such a way, the *working together* between the scientists and the Orthodox theologian includes a *process of union* (unblended and undivided) between knowledge through scientific reason and knowledge through religious faith.

It should also be observed that in gnoseological terms, the dialogue is characterized by a hierarchical relation: the revealed truth *is divine*, while the scientific truth *is from God*. Therefore, in the dialogue, the theological knowledge “covers” the scientific knowledge, providing explanations and clarifications and completing it. In this respect, the dialogue implies a *joint synergic work*.

So, the dialogue between the Orthodox theology and science does not limit itself to an interpersonal exchange of professional experience, that is to borrowing concepts and analytical instruments or transferring doctrines between theologians and scientists. In fact, we may say the aim of the dialogue as a state of communion is two-fold:

for the scientist, the world is “a school of souls having rationality and a place where knowledge of God may be learned, being a guide for the things seen and felt, a mental guide for the contemplation of the unseen” ([34], p. 77). By practicing the profession in the spirit of faith, the scientist uses the union between reason and faith to consolidate and complete his knowledge in the specific area of study;

for the Orthodox theologian, not to fall into the temptation called Scholasticism, and to better understand the way in which man may reveal God through scientific knowledge. Therefore, we should remember that Saint Basil the Great himself wrote Homilies on Hexaemeron, in which “knowledge from sciences of the time *were used to understand the Scripture* as it had the only key of the Scripture, the grace of the Holy Spirit” (emphasis added.) ([35], p. 27).

3.2.3. Spiritualization of Reason

As we have seen, according to patristic thought and experience, theology is the discovery of God given to man. However, “The supernatural discovery may be accepted and understood only by a religious man through faith” ([36], p. 11). So, the premise of the dialogue is the faith of partners in dialogue, the theologian and the scientist alike. The Orthodox theologian entering the dialogue does not have to be a saint or experiencing the authentic spirit of the Holy Fathers. To start a dialogue, the theologian should be a man of faith; the science of knowing God through faith is an important value that the Orthodox theologian brings into the dialogue and that may be shared with the scientist. Otherwise, if the theologian has not experienced faith and if the scientist is not open to experienced faith—included here is also the way he uses his scientific skills in his area of study—the Orthodox dialogue (as conversation with God) does not appear. It remains a scholastic-type dialogue, namely a conversation about God.

Therefore, in the case of the Orthodox-type dialogue, the existence of faith for both partners is not just a *premise* of it, but merely the *foundation* for their joint work, which also facilitates the process of unification (unblended and undivided) between knowledge based on scientific truth and knowledge based on supernatural Revelation.

The deep nature of this unblended and undivided unification may be understood, in our view, only if we consider the teachings of the Holy Fathers about the link between reason and science. Essentially, this teaching may be expressed as follows: man should abandon his reason for the faith in God and through this he will gain his reason, using it to the fullest. Loving too much his reason, he loses it; using it within its limitations and helped by grace, it becomes a fruitful teaching ([37], pp. 107, 113, 121). It means that man should use his mind wisely: glorify God, discover God and not transform his own mind in a kind of god. In fact, “*science helps a lot but also brings confusion*” cf. ([38], p. 206), as the reason grows dark and consequently becomes less efficient.

It means that a good and natural balance between reason and faith may be found in antinomic thinking ([39], pp. 54, 71): decreasing of reason (in order to leave space for faith) means using it to the fullest, while its increase (to the detriment of faith) means using it not even at its normal strength.

In our view, there are several arguments supporting this vision of the Holy Fathers—fully embraced by the Orthodox theologians of our times, namely:

the first argument: antinomic thinking is used by the Savior himself: “For whoever wants to save their life will lose it, but whoever loses their life for Me will find it.” (Matthew, 16:25);

the second argument: antinomies operating with the ternary logic of paradox are positive for knowing God as this way even the natural reason itself—which operates with binary logic of the uncontradicted assertion—is prevented from getting ossified, *it humbles* ([39], p. 54). Therefore, “... the asceticism of reason is faith, that is self-denial. The act of self-denial of rationality is the expression of an antinomy” ([40], p. 105). Pavel Florensky also notes: “*We should not, we have no right to defile contradiction with the*

dough of our philosophies! Let contradiction remain profound as it is!" In addition, it is important to understand that at the core of antinomy lies not so much the force of rejection or dissolution of contradictions, as the force of attraction or symbolic composing of opposites, with respect for their identity ([40], p. LIV);

the third argument: the antinomy shakes rationality and, according to the free will of man, the light of the Holy Spirit or an evil spirit may penetrate in the created gap ([39], p. 57). However, while the antinomy actually creates a gap, the very possibility of the appearance of such a gap comes from the fact that "*grace is constitutive of reason*, it is the spirit, the power that puts things into motion, gives life to reason" (emphasis added) ([39], p. 57). Therefore, the state of union is the fundamental condition expressing the real relationship between faith and reason, more exactly between grace and reason. As Father Dumitru Stăniloae observes, faith is the grace touching reason, it is a "spiritual feeling" of God's faith, it is the "... spiritual feeling of God from His acts, His power touching us" ([32], p. 69; apud [39], p. 56);

the fourth argument: with reference to the fact that reason is put into motion by spirit, Saint Basil the Great confesses: "I believe there are two powers in the human mind: one is evil and demonic capable of luring us into falling, and the other one is divine and good, capable of elevating us to the likeness of God" (apud [39], p. 57; [41], p. 481).

From the above arguments we may infer that:

if reason is put into motion by an evil spirit, it darkens itself and gets *conceited*, indifference and contempt towards the divine appears and the "wisdom of the world" is obtained. For our analysis, this context means that the scientist, by means of the contemplation of nature and through the act of the scientific investigation of the reality he studies, arrives to a conclusion that there is no God;

if reason is put in motion by the grace of the Holy Spirit, it can open towards humble contemplation, faith, it gets *spiritualized*. In this moment, the pure soul experiences apathy (stillness of the soul similar to calmness of a divine nature), as through it "the Image of God is restored in the soul" (apud [39], p. 55; [42], p. 117). In our terms, it means that for a scientist open to humble reflection, the contemplation of nature and the investigation of reality are occasions to confess the faith of God. Therefore, looking back into the work of Saint Basil the Great, we may observe that "... this world was not created in vain or in the desert but for a useful purpose and for great use for those who live on earth (...) the world is indeed a school for souls endowed with reason and a place where the knowledge of God may be experienced (...) *through the things seen and felt in it, the world is a guide of the mind to contemplate the unseen*" (emphasis added) ([34], p. 77; apud [39], p. 64).

Discussing further the epistemological distinction between the scientist, who carries out his research in a cognitive realm of a conceited reason, and a scientist open to humble contemplation, we may observe the words of the great Capadocchian theologian: "*The mind that unifies with the divine spirit can see and penetrate into such big and divine things that only the divine grace and its state may allow*" (emphasis added) (apud [39], p. 57; [41], p. 481).

Referring to the last aspects, we believe that the spiritualization of a scientist's rationality brought by the interpersonal dialogue with the Orthodox theologian and developed by his openness towards humble contemplation and faith is not equal to the "state of unity of the mind with divine grace" mentioned by Saint Basil the Great. The spiritualization of rationality by means of interpersonal dialogue is at most an "appetizer" of the state of unity as it is found lower on the spiritual ascent of abandoning sins and addictions. Even so, the acquiring of spiritualization of the scientist's rationality has its importance, as it is the first step towards making the scientific research less sinful through abandoning the arrogance of rationality and opening towards humble contemplation.

3.2.4. Acquiring the “Epistemological Transfiguration”

According to the patristic vision, “God created the world for a reason and for a specific purpose. He made it out of kindness, to share His love with other beings . . . The world as nature is created for human beings, as the rationality of the world with multiple dimensions acquires meaning only in man or comes to fruition only in man” ([43], p. 339). Above all, “. . . the world and its things unveil their meanings as their rationality is seen by man, as having personal God as the creative source, they are seen as God’s means of love, the dialogue of God with men . . . The dialogue of God with man through things contributes to his development as these are seen as images or transparent faces of God’s rationalities, His meanings as he created them, the meanings leading man more towards the self and self-development. Man therefore develops through things as through them man understands the loving intentions of God” ([44], pp. 355–56).

In this sense, Saint Gregory Palama explains that “As God is neither seen, nor physical, He may be known but through sensitive and *intelligible* beings. As knowledge is that of beings and through beings God is shown” ([44], p. 357). Saint Maxim the Confessor states that in the unseen things of God—that have been seen since the creation of the world and can be understood in His creatures—are shown the “reasons of things made before time by God . . . These are unseen, they are understood through beings, as all beings of God contemplated by us through our nature by means of knowledge and these reveal to us in a hidden way the reasons of their creation and through them the purpose of God in every being” ([45], pp. 62–63).

We have seen earlier in our study that only the natural reason of man cannot understand the total rationality of things. But it can know enough as to open man towards humble contemplation and faith, and starting from the things seen, man can understand the hidden and unseen reasons of things. It may happen only if *the mind is given the grace of faith and the light of the Holy Spirit*. It happens when reason is spiritualized. Similarly, one of the hesychast followers, Patriarch Calist, graciously contemplates on the existence in its wholeness, on the Creator and his work: “I see myself full of Holy Light from the heart by the grace of God as a lampad full of soul’s light and if it can be said *I am introduced into the reason of beings and I see all rationality united in a mysterious Reason* and all from Scriptures ends in that Reason” (emphasis added) ([46], pp. 292–93).

By spiritualization, the reason is lighted, expanded and may encompass the paradoxical logic of grace, the logic of faith as much as it is allowed to man. ([39], pp. 54–55, 71, 90). The soul repents, undertakes Metanoia, changes its thoughts; there is a shift of human rationality towards God, towards faith. Moreover, by believing, then reason understands the logic of faith, as Isaiah the Prophet said “If you do not believe, you do not understand” and Saint Basil the Great makes it clear: “Good may be truly understood by reason only through faith” ([39], p. 55).

The main idea that may be drawn from our discussion is that in order to understand the mysterious reason of things, the natural reason of a scientist should also be structured by grace, *it should be spiritualized based on the divine grace* and then it can understand. For a scientist, to acquire the mysterious meanings of things through the eyes of a spiritualized reason means *to experience a genuine epistemological transfiguration*: the scientist who carries out his research through the eyes of spiritualized rationality may discover a reality he has never seen before through the eyes of his natural rationality; namely, he may discover the profound divine meaning of the investigated world.

Basically, the scientist may obtain the state of epistemological transfiguration together with the theologian in his effort to understand the reality he studies. The scientist should rely both on demonstrable truth (acquired through observational, laboratory or mental experiments) and also on indemonstrable truth (acquired from divine Revelation). So, the scientific truth is not altered, weakened or relativized by its unification (unblended and undivided) with the revealed truth, but is consolidated and enriched *acquiring a deepness that otherwise would not be accessible*. Using this kind of knowledge, the scientist does not turn into a hermit or a theologian. He will still be a scientist carrying out research.

Finally, trying to summarize what has been discussed about the specific features of the personalist dialogue between Orthodox theology and science, it is clear that the existence of the interpersonal communion by joint synergic work between a theologian and a scientist humbles the natural reason of the latter. The scientist's rationality opens towards faith and gets spiritualized. It becomes able to acquire the state of epistemological transfiguration needed to discover the divine rationality of the investigated reality. Experienced in such a way, scientific research becomes a confession of faith used for the personal redemption of the scientist.

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